Spring 2024

Public Service Motivation and Volunteer Firefighters in Rural Environments

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PUBLIC SERVICE MOTIVATION AND VOLUNTEER FIREFIGHTERS IN RURAL ENVIRONMENTS

by

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A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

PUBLIC ADMINISTRATION AND URBAN POLICY

OLD DOMINION UNIVERSITY
May 2024

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ABSTRACT

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Volunteer firefighters serve their communities by offering life and property protection without compensation. With over 700 million volunteer firefighters in the United States, this population remains largely underrepresented in the public administration literature along with understanding public service motivation (PSM) in protective service industries. Using a sample of South Dakota volunteer firefighters, the study tested the applicability of PSM across a volunteer-based public service, the volunteer fire service. Through factor analysis, a viable PSM measure was confirmed across the sample consisting of the self-sacrifice and commitment to public interest dimensions. Compassion was notably unable to be confirmed as a dimension lending support to the line of research on the absence or low levels of compassion across similar public service occupational classifications considered to be highly intense such as police officers and emergency responders.

The study identified regulatory, sociological, economic and risk industry factors in the fire service consistently considered to be negative in terms of volunteer firefighters' experiences and participation levels. The influence of these four industry factors on PSM was tested along with potential factors to moderate the relationship. Overall, the regulatory, sociological, and economic industry factors were not found to negatively influence PSM. The risk factor of physical well-being did have a low-moderate negative influence on PSM and an assessment of being adequately trained positively moderated this relationship. Despite training mandates being

framed negatively when discussing volunteer participation levels, this regulatory factor had a positive influence on PSM.

Pragmatic recommendations center on the positive role of training. It is recommended that volunteer fire departments continue concentrated effort in this area including looking for ways to positively frame training requirements and maximize training offerings. Survey responses also reflected the 'dark side' of PSM particularly in terms of the mental well-being risks that exist for volunteer firefighters and their continuation to volunteer. In the absence of a universal PSM measure, continuing research across a variety of industries and occupational classifications within public service will aid in the identification of broader connections across the research and perhaps provide support for PSM measurements that theoretically unite.

ACKNOWLEDGEMENTS

To my professors who guided me throughout my academic journey.

To my husband and children who felt the sacrifices made in order for me to fulfil my dream.

To our family's fairy godmother who brings magic and joy to our family.

To my mother for her unconditional love and support.

To my father who has consistently modeled integrity and a commitment to public service.

It is his 25+ years of volunteer fire service that inspired my research and desire to focus on one of the many challenges found in rural settings.

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CHAPTER 1

INTRODUCTION

Firefighters provide life and property protection for their communities. In addition to fighting fires, firefighters respond to emergencies in which life, property, or the environment is at risk (Bureau of Labor Statistics, 2020b). Of the 1,115,000 firefighters providing fire service and public safety in the United States (US), 370,600 are career (paid) firefighters and 745,000 (67%) are volunteer firefighters (Evarts & Stein, 2020). There are 29,980 fire agencies nationally of which over half (19,915) are all-volunteer fire departments (NFPA, 2016). Volunteer firefighters are predominantly part of fire departments that protect communities with 10,000 people or less (Karter Jr., 2014). Paid firefighters serve the majority of the population in the US, while volunteer firefighters serve the majority of the geographical US.

The work of firefighters is considered to be dangerous (BLS, 2020b) and highly intense (Torpey, 2016) yet essential for remote communities (Casey & Leger, 2000). In addition, volunteer levels do not match community need. The number of volunteer firefighters has dropped by 12% nationwide since 1984 (National Volunteer Fire Council, 2015). Major inquiries have been made to better understand this decline in volunteer firefighters. One was by the Federal Emergency Management Agency (FEMA) in 2007 and ongoing needs assessments have been conducted by the National Fire Protection Association (NFPA) in 2001, 2005, 2010, 2015. There is no consensus on a primary factor to explain volunteer level gaps, but rather they identified a number of external factors (expanding responsibilities, not feeling connected to the surrounding community) and internal factors such as leadership (FEMA, 2007; NFPA, 2011; NFPA, 2016).

Problem Statement

Volunteer fire departments play a nation-wide role in cost savings and life and property protection. Fire departments are consistently faced with challenges such as increased demand for services (particularly EMS) while experiencing inadequate volunteer levels and stagnant or decreased funding.

Despite over 700,000 volunteer firefighters in the United States and the tangible and intangible contribution provided to communities in rural environments, volunteer fire service is an understudied sector within the public administration research. Research is needed to better understand the applicability of public service motivation (PSM) across volunteer fire service as it has been positively linked with job satisfaction (Palma & Sepe, 2017; Naff & Crum, 1999; Steijn, 2006; Homberg, McCarthy, & Tabvuma, 2015) and organizational commitment (Crewson, 1997; Castaing, 2006; Alonso & Lewis, 2001; Ritz, Brewer, & Neumann, 2016).

Research Purpose

Stefurak, Morgan, and Johnson (2020) define PSM as a "concern beyond the self, a motivation to serve, and a belief that such service impacts a larger good to which the individual is attached and committed" (p. 592). PSM has been studied across a number of industries, sectors, populations (predominantly among government employees and students studying the field) but it is limited for volunteer firefighters. The primary purpose of the study is theoretical in nature, to explore the feasibility and applicability of the PSM construct in volunteer fire departments. The research questions posited are:

1) Is PSM applicable within a volunteer-based public service, such as the volunteer fire service?

2) Do industry factors, specific to a public service such as the volunteer fire service, influence motivational levels, specifically PSM?

The industry factors being explored fall into the category of regulatory, sociological, economic, and risk. The factors represent challenges for the fire protection industry reflected consistently over decades of research and reports and are framed negatively when discussing volunteer firefighters' experiences and their overall participation.

To answer these two research questions, first confirmatory factor analysis (CFA) will be completed using the validated Perry (1996) PSM model. Providing theory congruence with the sample, the research moves on to explore relationships between industry factors and PSM using regression analysis. By fulfilling the primary purpose of the study, this research expands the PSM literature by testing an underrepresented population (firefighters) along with the exploration of industry factors and their potential influence. The secondary purpose is to provide pragmatic solutions for the field.

The contribution of volunteer firefighters across the nation is valuable. This can be seen in terms of monetary savings in wages, benefits, and general operating costs. It is reflected in property protection. The contribution can also be seen through the emergency services provided and saved lives. This study aims to bring awareness to the challenges facing volunteer fire departments in the US while providing some level of practical, in addition to theoretical, contribution to the field.

Volunteer Fire Service History

Volunteer fire service has been around for centuries in which individuals would volunteer their time to protect property and life (Buff, 1992). Bucket brigades were prominent in early US history. Benjamin Franklin is credited with starting the first fire department in the US

(Antonellis Jr., 2012) and commonly wrote about the dangers of fire and the need for organized fire departments. After a large fire in Pennsylvania, he created a fire brigade, the Union Fire Company compromised solely of volunteers. Initially, fire service consisted of using water to extinguish fires outside of burning structures but in the early 1900s, fire service evolved to entering the burning structures to assist with extinguishing the fire and to assist any trapped individuals (Peterson, 2009). Another major shift occurred in the late 1900s when firefighters began to assist with emergency medical services (EMS) such as heart attacks (Eisenberg, 2009). The four major response types made by fire departments are fire incident calls, EMS calls, hazardous materials calls, and other (such as false alarms) (Flynn, 2009).

The first time the federal government formally recognized the need to understand and address fire prevention and service was in the seminal report titled *America Burning* issued by the National Commission on Fire Prevention and Control (1973). The report was drafted due to the ongoing recognition that the public needed to be involved in fire prevention and the need for trained fighters. The following year, the United States Fire Administration (USFA) and National Fire Academy was created through P.L. 93-498, the Federal Fire Prevention and Control Act. In 2002, the US Department of Homeland Security (2016) was founded to "secure the nation from the many threats we face" and the USFA became one of the many agencies under its umbrella (para. 1).

The mission of the USFA is to "provide national leadership to foster a solid foundation for our fire and emergency service stakeholders in prevention, preparedness, and response" (USFA, 2017, para. 1). One of the ways the USFA achieves this mission is through the National Fire Academy (NFA) which provides a variety of educational resources from free online courses to structured officer training programs. Research resulting from the latter will be discussed later

in the paper. Most recently, the USFA gained coordination of EMS programs as part of the 2008 USFA Reauthorization Act (Public Law 110-376). Relevant fire service terms and definitions can be found in Appendix A.

Since the creation of the USFA, fire loss in the US has decreased significantly despite population growth. Furthermore, civilian death rates have decreased: 1974 reported 12,000 civilian deaths and 2010 reported 3,120 civilian deaths (NFPA, 2011). However, fire-related problems are still among the worst in the industrial world (FEMA, 2011b).

Firefighter Classifications. Firefighters are part of the North American Industry Classification System (NAICS) industry group of 9221 Justice, Public Order, and Safety Activities which contains the industry 922160 Fire Protection. Firefighters are also part of the Standard Occupational Classification (SOC). The Standard Occupational Classification (SOC) system is a "federal statistical standard" to "classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data" (BLS, 2020a, para. 1). The 33-2011 Firefighters classification is part of the job family of SOC 33-0000 Protective Services occupations (BLS, 2020b). Per BLS (2020b), similar occupations to firefighters include police, EMT/paramedics, and hazardous materials removal workers. Table 1.1 reflects the breakdown of fire service within the NAICS and firefighters within the SOC classification system.

Table 1.1. NAICS and SOC Firefighting Classifications

NAICS Industry Classification System				SOC Occupation Classification System	
Sector	92	Public Administration		33-0000	Protective Services Occupations
Subsector	922	Justice, Public Order, and Safety Activities		33-2000	Firefighting and Prevention Workers
Industry Group	9221	Justice, Public Order, and Safety Activities		33-2010	Firefighters
Industry	92216	Fire Protection		33-2011	Firefighters

Source: Office of Management and Budget (2017) and BLS (2020b)

Firefighting is considered a high-intensity occupation (Torpey, 2016) which are typically those that protect the public, save lives, and encounter danger or adventure. Examples of occupations that protect the public include firefighters and police officers (Torpey, 2016) which mirrors conclusions made by Clarke and Zak (1999) who noted that law enforcement officers and firefighters are "inherently dangerous occupations" and that "while these two occupations include very different duties, they both must respond to their respective emergency situation as quickly as possible" (p. 6). EMS providers and surgeons are examples of high-intensity occupations that help save lives, and finally military personnel and hazardous material removal workers are examples of those in high-intensity occupations who might encounter danger or adventure (Torpey, 2016). Firefighters also belong with the occupational group of emergency response providers (also called first responders) which also includes police and EMS personnel. As illustrated in Table 1.2, there is an overlap of definitions and certain occupations.

Table 1.2 Firefighter Occupational Classification Definitions

Occupation Classification	Definition	Source
SOC 33-2011 Firefighters	control and extinguish fires or respond to emergency situation where life, property, the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, search and rescue, and disaster assistance	BLS (2020b)
High-Intensity Occupations	protect the public, save lives, and encounter danger or adventure	Torpey (2016)
First Responders /Emergency Responders	Federal, state, and local governmental and nongovernmental emergency public safety, fire, law enforcement, emergency response, emergency medical (including hospital emergency facilities), and related personnel, agencies, and authorities	6 US Code § 101(6).

Evolution of Firefighter Role. As community needs have evolved, so have the role of fire departments, and in turn, the responsibility of firefighters. Many fire departments experienced mission creep in which departments took on additional responsibilities. Mission

creep, or drift, occurs when an organization deviates from its mission due to changing needs and/or increased outside pressure (Scott, 2003). The role of mission creep within public institutions has become a focus in recent research (Kassiola, 2007; Henderson, 2009). Volunteer fire departments now respond to medical calls and natural disasters in addition to fire calls as a result of changing community needs. This mission creep occurred in areas that fire departments had not been involved in previously leaving gaps in the desired experience and training needed. This is particularly noticeable for EMS training and certifications (NFPA, 2011).

Responding to natural disasters is also now a part of volunteer fire departments' responsibility. In the aftermath of a natural disaster, rural local fire departments provide food, water, housing, sanitary needs, and work on opening roadways to increase access to structures (FEMA, 2008). In their 2013 Annual Report, the Rapid City (South Dakota) Fire Department reported that between October 4-7, in a period of 72 hours, they experienced an extreme winter storm; 8,600 calls came through their dispatch, and firefighters responded to 600 service calls and 13 structure fires (2014). This example demonstrates the seriousness of the community need and the additional pressure on volunteer fire departments.

This evolution also places a focus on intergovernmental relations. For example, FEMA also responds to natural disasters, often taking the lead. FEMA (2012a) has acknowledged that federal government personnel do not always understand the specifics of how rural fire departments work and in turn, they must work to address the disconnect between the volunteer community members serving as firefighters and those who have a "statutory responsibility" to respond to catastrophic incidents (p. 11). Recognizing that homeland security initiatives must be balanced along with traditional police, fire, and EMS issues, D'Angelo III (2016) touched on

multi-jurisdictional training, multi-jurisdictional Chief Officer meetings, and multi-jurisdictional committees when researching fire service consolidation.

The most notable and time-consuming shift in responsibility has been to include EMS response. Pozner, Zane, Nelson and Levine (2004) found, in rural areas, a significant percentage of medical emergency services are provided through community volunteers. In many communities, medical calls have become the dominant emergency response classification. Flynn (2009) reported that in populations of 1,000,000 or more, fire departments response calls reflected 71.8% for rescue/EMS incidents and 3.5% for fire incidents. There are similar reports for rural areas as well. Per the National Fire Incident Reporting System (NFIRS), the largest type of incidents South Dakota fire departments responded to were EMS with 61% of all emergency calls while fire calls were only 6.7% of all incidents types (FEMA, 2016). NFPA reports also confirm this trend, reporting that "only 5% of [all] fire department calls in 2012 were due to actual fires" with two-thirds of responses being medical aid calls (Karter Jr., 2013, para. 2). The training and knowledge necessary to provide medical services drastically changes from just "fighting fires" and increases the pressure on fire departments to adjust in order to meet this prominent community need.

Paid and Volunteer Firefighters. There is another type of classifications of firefighters: paid or career firefighters and unpaid or volunteer firefighters. Paid firefighters are individuals that perform fire suppression, rescue, and EMS functions for monetary pay whereas volunteer firefighters are individuals who perform fire suppression, rescue, and EMS functions without a salary (USFA, 2007). Paid fire departments are staffed by paid firefighters and volunteer fire departments are staffed by unpaid firefighters while combination fire departments are staffed

with both paid and unpaid personnel (USFA, 2007). These key terms and definitions can be found in Appendix A.

There are three key distinctions between the paid and unpaid classifications. The first surrounds perceptions by those in the fire service industry regarding the classification of paid versus volunteer. Paid fire departments exist predominantly in urban and large metro areas. Some of these fire departments have gained national awareness, earning commercial and mainstream recognition such as New York Fire Department (NYFD). Volunteer fire departments are commonly perceived as, and relegated to, second-rate departments. Paid versus volunteer is a controversial fire service topic and talk between departments via social media outlets is common with verbiage about the superiority of one classification over another (Zigmont, 2013). FEMA (2007) reported combination fire departments as a major recruiting and retention challenge due to the conflict between volunteer and career staff. Another key distinction is illustrated in the hiring process. The hiring process is more stringent and competitive for paid fire departments. In addition to the hiring process, the third key distinction between the two classifications is the presence of unions in paid fire departments.

Hiring/Joining. Interested individuals face a competitive selection process to become hired as a paid firefighter whereas interested individuals in volunteer fire service are seen as "joining" the fire department. Firefighting in urban and metro areas is considered a hard career to break into and it can take years before interested individuals are hired, if ever. Many career firefighters go through a lengthy hiring process and must meet a number of written and physical standards. For example, to be appointed as a firefighter with the Boston (Massachusetts) Fire Department, one must pass 1) a state written firefighter exam, 2) physical abilities test, 3) drug test, 4) medical fitness requirements, 5) psychological exam, 6) have a valid driver's license and

7) be a non-smoker (City of Boston, 2014). Most physical abilities tests consist of multiple parts though they vary. For example, the physical ability test (PAT) at Lincoln (Nebraska) Fire Rescue consists of a charged line advance, forcible entry simulation, equipment carry simulation, ceiling breach and pull, ladder heel, ladder raise, stair climb with equipment, and victim rescue (City of Lincoln, 2009). It can still be competitive even if all requirements are met. Individuals interested in the profession are encouraged to consider volunteering to get experience and to demonstrate a commitment to community service.

The process is arguably simpler to "join" a volunteer fire department. Up until 2003, to become a firefighter for the Blunt (South Dakota) Volunteer Fire Department, the interested individual just needed to be approved by the other [fire department] members (G. Chapin, personal communication, April 1, 2015). Requirements vary state to state but typically involve an application to verify age, a valid driver's license, and a background check.

Unionization. Another distinction between the classifications of firefighters is unionization. Paid fire departments are usually unionized. Public sector unions are known for their active involvement in negotiating wages, hours, and working conditions as well as lobbying with the intent to influence politics (Davis, 2011). The International Association of Firefighters (IAFF) is the dominant union representative for fire and emergency services. Per their website, the IAFF (n.d.) represents over 300,000 full-time professional firefighters and paramedics and indicate that they are one of the most active lobbying organizations in Washington, DC with their political committee among the top 25 federal PACs. Public sector unions, including those in the fire service industry, are commonly associated with substantial salaries and pension plans independent of individual performance (Carrigan, 2011).

Contribution of Volunteer Firefighters. As mentioned earlier, volunteer fire departments play a nation-wide role in cost savings and life and property protection. The previous section touched on the evolution of fire departments which now includes medical response and natural disaster response. Medical response is the dominant reason for emergency calls but there are other types of emergency calls such as technical rescues (FEMA, 2008), hazardous material incidents (FEMA, 2005), and more recently, responding to the mass shootings (FEMA, 2013a) occurring across the US.

Volunteer fire departments also play a significant role in educating the public about fire safety such as spearheading fire prevention programs at schools and other general fire education programs. Fire departments also conduct fire inspections and assist with the installation of child safety seats and smoke detectors.

Cost Savings. There is an incredible monetary savings associated with volunteer firefighters. The National Volunteer Fire Council or NVFC (2017) noted it would not even be feasible to cover the national average cost savings that volunteer firefighters provide to the community. Just the time donated alone was estimated at a $139.8 billion cost savings for localities across the country (Hall Jr., 2014). The Fireman's Association of the State of New York (FASNY) conducted an economic study *Tax Savings and Economic Value of Volunteer Firefighters in New York* in 2015 in which it was determined the cost savings of the 100,000+ volunteer firefighters across New York save taxpayers more than $3 billion annually. An excerpt from this report can be found in Appendix B and reflects both the annual and one-time cost if a switch to all-paid departments were to occur. Volunteer fire departments in rural settings have limited funds and must designate them for costs associated with the fire facilities and equipment, trucks, and safety gear as opposed to personnel wages.

There is also cost savings at the federal level as local volunteer fire departments are typically the first line of defense for wildland-urban fires, even though they may take place on government property. There are over 1.5 billion acres owned by government (state and federal); the US Forest Service (2010) stated that volunteer fire agencies "provide nearly 80% of initial attack on wildland fires in the US" (para. 2) with an estimated annual savings of $36 billion for wildfire and emergency protection services.

In rural communities, there is a high reliance on volunteers for this public safety service. Ninety-five (95%) of the volunteer firefighters are in departments serving communities fewer than 25,000 citizens and more than half are located in small, rural departments that protect communities fewer than 2,500 (Karter Jr. & Stein, 2013). For example, in South Dakota, there are about a dozen fire departments that include paid firefighters while there are over 300 volunteer fire departments with over 8,000 volunteer firefighters (SD Fire Marshal, 2017).

The contribution of a volunteer firefighter to the American public is clear. A community benefits from a volunteer fire department but the ability to deliver these services has its challenges.

Firefighter Volunteer Levels. The overarching issue for fire departments is firefighter volunteer levels. Emergency calls have increased over time largely due to medical response alone and population growth. When responding to a fire call, it is recommended that each engine company have a minimum of six firefighters: officer, engineer, nozzle firefighter, back-up firefighter, door firefighter and control firefighter (Graves, 2004). However, this is not always realistic. Former volunteer firefighter Chapin recalls multiple times in his 30 years volunteering in which there would be only himself and one other firefighter able to respond to the fire call, noting "…[he] would drive the truck and I would spray the hose…" (personal communication,

November 12, 2013). Sometimes there is simply not enough responders for emergency calls. Table 1.3 is derived from the *Third Fire Service Needs Assessment* by NFPA (2011) and reflects that the vast majority of volunteer fire departments do not have adequate staff. In fact, many small communities must rely on nearby towns to assist them with fire service and emergency calls (Schroeder, 2015).

Table 1.3. Third Fire Service Needs Assessment: Adequacy of Staffing

Population Size	Percent Without Adequate Staff
Under 5,000	75%
5,000 to 10,000	63%
10,000 to 25,000	76%

Source: NFPA (2011)

Major inquires by FEMA (2007) and the NFPA (2006; 2011; 2016) were unable to pinpoint a sole reason, rather they reported the low volunteer levels as a combination of multiple explanations such as regulations and lack of employer support. The result of the FEMA (2007) inquiry can be found in Appendix C. Bussel and Forbes (2002) state that the number of people volunteering (supply) is just not growing at a comparable rate with the demand or need. Many communities have had to become volunteer based because of the lack of funds.

Communities that rely on both volunteer and paid firefighters face another challenge. Walters (1996) reported that under the Clinton Administration, the US Labor Department made a distinction that paid firefighters were not eligible to provide volunteer firefighting services. The 1993 ruling was a result of paid firefighters claiming that they lost overtime wages when fire departments used (normally paid) firefighters volunteering in their off time to help their communities; as a result, “in Montgomery County alone, nearly 200 men and women were no longer able to offer their services without pay” (Walters, 1996, p. 6).

The insufficient levels of those volunteering for fire service are well documented but there are many volunteers who want to contribute but cannot because of the intensive demands of being a volunteer firefighter. Lieutenant Enright shared that only one of five prospective firefighters who walk into the Rapid Valley (South Dakota) Volunteer Fire Department stays more than a year due to the difficulty of balancing time investment for training, family demands, and economic demands (second job) (Cook, 2008). Ultimately, current volunteer firefighters are less likely to remain active for a long period of time (USFA, 2007).

Based on the literature and government reports, four industry factors that influence volunteer levels are regulatory, sociological, economic, and risk. The number of federal requirements regulating the fire service industry has increased dramatically, most notably with the training and certification requirements for all (paid/unpaid) firefighters. The economy has played a role: rural town residents commute longer distances to obtain employment (therefore not in the local vicinity in the event of a fire). As a result, the level of support from the volunteer's employer can impact the ability to respond. Furthermore, fire departments are experiencing stagnant, or decreased, funding. This has implications such as the inability to provide all personnel with safety apparatuses. With the change of emergency calls such as mass shootings (FEMA, 2013a), there are also increased health and safety risks (USFA, 2008) that can deter individuals. These four industry factors create challenges for volunteer firefighter levels.

Role of PSM

To further examine the decline in volunteer firefighter levels, this study focuses on motivation, specifically PSM. PSM has been identified as a specific type of motivation involving the disposition to work in public service and is supported by a validated measurement

instrument (Perry, 1996). This study furthers the body of research on PSM by applying it to the volunteer fire service.

The following literature review starts by looking at the evolution of motivational research, then focuses specifically on PSM, the foundational theory for the study. PSM has behavioral implications (Perry & Wise, 1990) and linked to positive outcomes above the job satisfaction and organizational commitment mentioned already. The second part of the literature covers fire service research across peer-reviewed journals, government- published reports, doctoral dissertations, and other published research projects. This provides the context for the study. Finally, four industry factors for the fire service will be covered in the areas of regulatory, sociological, economic, and risk. Theoretical considerations are covered next in which the PSM measures used in conjunction with firefighters and others within the same classifications are covered in detail. The chapter ends with a discussion of PSM that is applicable to the industry factors identified in the literature review.

The methodology is next and outlines the research design for the study. This study concentrates on volunteer firefighters which makes up approximately 70% of all firefighters in the US (NFPA, 2013). There are almost 20,000 volunteer fire departments and 95% of them serve communities with 25,000 citizens or less with over half serving communities with 2,500 or less (Karter Jr. & Stein, 2013). Due to this, the study focuses on volunteer firefighters in rural environments. Specifically, this study takes place in South Dakota due to its high concentration of small communities (over 90% of the 311 localities have a population of 10,000 or less; see Appendix E) and 95% of the state's local fire departments being volunteer based. The research design is covered along with variable explanations. The next chapter provides the findings resulting from the completion of the research parameters and corresponding tests. The last

chapter discusses implications of the research covering feasibility and applicability of the PSM construct in volunteer fire departments, a detailed discussion on fire service industry factors, and proposed pragmatic solutions.

CHAPTER 2

LITERATURE REVIEW

Motivational Theory

Motivation encompasses internal and external factors that stimulate desires, energy, and action. The documented study of motivation has been around for over a century. In the late 1800s, Sigmund Freud sought to explain human behavior. Freud's theories were disregarded by behavioral scientists because of their lack of predictive power (Latham, 2007). Other behavioral scientists of the time included Williams James, Hugo Munsterberg, and John Watson who all contributed to the study of motivation. Little attention was given to these individuals' findings at the time as applying a behavioral approach to motivation was not mainstream and would not be utilized until decades later (Latham, 2007).

Instead, engineers approached the issue of workplace motivation. Frederick Taylor introduced the Scientific Method which was widely accepted at the time and involved completing time and motion studies of employees. Taylor also recommended bonuses and/or pay in relation to work being done efficiently. This was one of the "earliest explications of the notion that performance, which leads to rewards, leads to satisfaction" (Latham, 2007, p. 14). Elton Mayo conducted the Hawthorne Studies in the 1920s and reported a positive relationship between employee performance and satisfaction; this study and similar studies would later become the foundation of the human relations movement (Latham, 2007).

The concept of attitude was also introduced in the 1920s and was defined by Thurstone as the "affect of overall degree of favorability regarding an object" (Latham, 2007, p. 17). Attitude surveys were used as a data collection method and the Likert scale was introduced. Workplace field experiments were conducted as well as ones relating to the Scientific Method. Concepts

such as job fatigue and goal setting were touched on and would be the foundation for future theories.

Behavior modification became prominent in the 1930s and 1940s largely due to B.F. Skinner. Behavior modification is used to achieve desired outcomes through rewards or to avoid undesired outcomes through punishment. Research has become refined on this subject, focusing on the level of influence a reward has based on the reward type (Guzzo, 1979) and when it is received (Dikolli, 2001). Other influencing factors include occupational characteristics such as sales-based (Lopez, Hopkins & Raymond, 2006) or individual/team status (Sarin & Mahajan, 2001).

Maslow's Hierarchy of Needs Theory was introduced in 1943 as a psychological theory (Latham, 2007). The hierarchy of needs consists of five levels starting with physiological, safety, belongingness and love, esteem, and self-actualization. The hierarchy usually is illustrated as a pyramid with each of the five levels indicating a different need and in turn, each level is linked to personal motivation. An important aspect of the theory is that it is necessary for the lower-level needs such as safety to be met before moving up the hierarchy to higher-level needs. Applied to the workplace, the Society of Human Resources Management (SHRM) (n.d.) defined the theory as "people will constantly seek to have their basic needs (sleep, food, water, shelter, etc.) fulfilled and [those] such needs ultimately determine behavior" (para. 1).

In the 1950s and 1960s, McGregor proposed Theory X and Theory Y to explain motivations in the workplace while David McClelland proposed a three-needs theory consisting of achievement, power, and affiliation. An underlying assumption of many theories up to this point was that "needs are universal, stable dimensions of people… [and] …motivation is presumed to be the result of correspondence between a person's needs and realities in the

environment…" (Latham, 2012, p. 59). Expectancy theory outlines the relationships between an employee's view of the effort put forth, the result, and how desired the outcome is. This theory looks at four components including effort, intrinsic valence, instrumentality, and the valence to the employee of the reward.

Around the late 1950s, Herzberg proposed his 2-factor motivational theory. Herzberg's motivation-hygiene theory surrounds "people at work" and their "attitudes toward their job" (Herzberg, Mausner, & Snyderman, 1993, p. 3). Herzberg argued that there were two continuums of job satisfaction factors which was contrary to popular thought of job satisfaction as a singular continuum with satisfaction on one end and dissatisfaction on the other. In Herzberg's 2-factor motivational theory, there are motivation factors which create satisfaction; however, in their absence, there is no dissatisfaction. The second continuum involves hygiene factors which contribute to dissatisfaction but not to satisfaction. Referring to Herzberg's work, Latham (2012) notes: "Herzberg's theories were well publicized and well accepted by practitioners and the public yet pummeled by scientists for methodological weakness" (p. 103). Latham (2012) points out that after Herzberg's work, the "research on motivation was indeed concerned with considerations of Herzberg's two-factor theory" (p. 42). This has continued into the 21st century but more of a focus on intrinsic/extrinsic factors as opposed to continuums or satisfaction/dissatisfaction dichotomies.

The work by Herzberg illustrates the importance of the ongoing contribution to the body of work on motivation. A contribution can be recognized while acknowledging shortcomings of the theory such as the research mechanisms (Expectancy Theory) or predictability (Equity Theory). Some theories were initially accepted despite the lack of a solid research background (Theory X and Theory Y). Regardless, many of the motivational theories are interrelated and

have become the foundation for future theories (Goal Setting Theory), furthering the body of knowledge on motivation overall (Latham, 2007).

In the latter half of the 20th Century, two main trends of motivational research were social cognitive theory and goal-setting theory. Social cognitive theory looks at the continuous interaction among cognitive, behavioral, and environmental variables, particularly outcome expectancies and self-efficacy. These motivational systems explore how to enhance self-efficacy, goal commitment, and persistence despite environmental difficulties (Latham, 2007). Theories rooted in behavior modification became prominent again. Goal-setting theory was similar in nature to social cognitive theories with the emphasis on conscious goals for predicting, explaining, and regulating performance with a focus on feedback. Goal setting theory has repeatedly been shown to be valid and practical (Latham, 2007). Miner (2005) also expressed support for goal setting noting that overall, goal setting has high research support and ranks high in terms of usefulness.

In the 1980s, a line of motivational research began to focus on intrinsic (internal) and/or extrinsic (external) motivations across the disciplines. Tyagi (1982) looked at the role organizational climate had on both the intrinsic and extrinsic motivation to perform in the private sector. Citing multiple studies conducted in the 1970s demonstrating how extrinsic rewards can have a negative impact on intrinsic motivation, Sherman and Smith (1984) then looked at the role that the organizational structure can have on both intrinsic and extrinsic motivation. Building on his previous research, Tyagi (1985) selected key job dimensions and leadership behavior as factors to study intrinsic and extrinsic motivation. Kohli (1985) drilled into supervisory behavior (arbitrary and punitive behavior, contingent approving behavior, upward-influencing behavior, and achievement-oriented behavior), and the relationship with intrinsic and

extrinsic motivation. Based on the Cognitive Evaluation Theory, it was indicated that extrinsic rewards could undermine intrinsic motivation (Deci & Ryan, 1985). Bridging the literature from research conducted in the private sector, Falcone (1991) explored the differences of intrinsic and extrinsic motivation between individuals in private and public sectors. Romzek (1985) recognized that "public employers need to rely more heavily on intrinsic rewards as a basis for employee performance" focusing on organizational involvement (p. 1). It is during this time that PSM research began to develop.

PSM

Motivation in public service is supported by the body of research indicating that those serving the public or community are more likely to be motivated by intrinsic rewards versus extrinsic rewards (Crewson, 1997). A number of studies found that public sector employees valued more meaningful work, or intrinsic rewards, as opposed to higher pay, an extrinsic reward (Rainey, 1982; Wittmer, 1991; Houston, 2000). This was contrary to theories which posited that people were motivated by self-interest. This also lent credence to the view of public sector work as a calling, servant leadership, and/or a sense of duty (Perry, 1996; Houston, 2000).

Herrick (1973) explored motivation across executives in public-service water utilities, but Rainey (1982) is often credited with first discussing the notion of PSM when exploring differences between private and public managers. It was 1990 when Perry and Wise provided a conceptual definition for PSM as "…an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions organizations" (p. 368) that spurred a line of research leading up to present day.

Perry and Wise (1990) proposed a construct of PSM derived from three motives: rational, normative, and affective. Perry and Wise (1990) argued that those in public service had rational

motives such as: participation in policy formulation, personal identification, and commitment to a specific public program, and/or affiliation for special interest or niches within government. A norm-based motive for public employment is the "desire to serve the public interest" (Perry & Wise, 1990, p. 368). This includes patriotism, duty, and loyalty to government. Affective motives reflect altruism, empathy, and conviction about a program and its benefits. Affective motive builds on the rational-based motive of personal identification in that the commitment arising from this identification comes from belief and conviction about the role that the program plays in society (Perry & Wise, 1990). Recapping their assessment, Perry and Wise (1990) posited that "a variety of rational, norm-based, and affective motives appear to be primarily or exclusively associated with public service" particularly normative orientations: "a desire to serve the public interest, loyalty to duty and to the government as a whole, and social equity" (p. 369).

While supportive of PSM, Brewer, Selden, and Facer II (2000) felt that the three motives identified as the basis of the theory were helpful but there was overlap across the categories. Kim and Vandenabeele (2010) argued that rational motives were not applicable and too felt that there was significant overlap of the norm-based and affective motives and instead proposed three different motives: instrumental, value-based, and identification.

Moving forward in his research, Perry (1996) took the concept of PSM and tested six supporting constructs - attraction to public policy making, commitment to the public interest, social justices, civic duty, compassion, and self-sacrifice – using 40 measured variables. Using a sample comprised of public service workers, educators and students, Perry (1996) identified four supporting dimensions through confirmatory factor analysis. Camilleri and Van Der Heijden (2007) summarize these four dimensions:

1. "Attraction to policy making: The employee's strong desire to participate in the formulation of public policy, thus reinforcing one's image of self-importance;

2. Commitment to public interest: The employee's strong need to serve in the public interest, involving a unique sense of civic duty;
3. Compassion: The employee's strong desire for patriotism and benevolence;
4. Self-sacrifice: An employee's strong desire to act for causes that protect, advocate, and work for the good of the public regardless of personal consequences" (p. 246).

Self-sacrifice was added because of its consistent reference in the literature and overall relevance to the PSM body of work (Perry, 1996). As knowledge expanded, PSM expanded from "motives grounded primarily or uniquely in public institutions organizations" (Perry & Wise, 1990, p. 368) to "motives associated with serving the public good" (Perry & Hondeghem, 2008, p. 3).

PSM Research. Perry and Wise (1990) first proposed that PSM affected employee performance, preference toward reward incentives, and desire to seek employment in public service. The latter derives from the very notion that some individuals are more likely to be drawn to, or appreciate, public service contribution. Considering the notion of PSM, Brewer et al. (2000) proposed a different model with four categories: samaritans, communitarians, patriots, and humanitarians based on individuals rather than sector comparisons. Economic rewards were not significant in any of the four above noted categories; the main motives were serving the public, making a difference in society, and ensuring individual and social equity (Brewer et al., 2000).

Continuing his focus on PSM, Perry (1997) explored antecedents of PSM including religious socialization, family socialization, personal identification, and political ideology. Experiences within family and schools were found to be important for PSM whereas professional, church involvement, and higher incomes were less important (Perry, 1997). Moving from antecedents, Perry (1997) called for the research to focus on the relationship that organizational factors and institutions have with PSM.

Since its proposal, many empirical-based research studies have been rooted in PSM. The studies have evolved from providing empirical support for the theory of PSM (Brewer & Selden,

1998) to understanding mediators (person-job, not person-organization fit) between PSM and performance (van Loon, Vandenabeele, & Leisink , 2017). Research has been conducted to explore reward preferences and PSM (Wright, 2004) while others looked at the PSM and job satisfaction relationship, finding a statistically significant relationship (Naff & Crum, 1999; Steijn, 2006). Designated as an outcome variable, job satisfaction was positively influenced by PSM (Palma & Sepe, 2017; Stefurak et al., 2020; Naff & Crum, 1999; Steijn, 2006; Homberg et al., 2015). A positive relationship between PSM and organizational commitment has also been discovered and covered in the PSM body of work (Crewson, 1997; Castaing, 2006; Alonso & Lewis, 2001; Ritz et al., 2016). In turn, Camilleri and Van Der Herjden (2007) reported that PSM and organizational commitment can have a positive impact on performance.

Hsieh, Yang, and Fu (2012) looked at the role PSM can have in emotional labor engagement, finding that each dimension had a different relationship with surface/deep acting. Wright (2007) studied and reported the positive influence organizational missions can have on PSM. Davis (2011) tested PSM with a unionized public-sector sample reporting that union socialization was associated with high levels of self-sacrifice and commitment to the public interest contradicting the argument of public sector union members being solely self-interested. In a very focused study, Wright, Christensen, and Isett (2013) looked at PSM and its relationship to organizational change noting that only those scoring high on the self-sacrifice dimension of PSM were likely to be supportive of change, whereas high PSM overall just lead individuals to be less likely to resist change.

PSM research began and continues in the US, but research has been conducted in other countries with varying approaches (Kjeldsen, 2014). Examples include Liu and Perry (2016) who found support that PSM influences work attitudes and behavior in their study based in

China. In Belgium, Vandenabeele (2014) found that leadership at the supervisory level can influence employee PSM levels. Jensen, Andersen, and Holten (2019) studied both Danish public and private sector employees relating to PSM and absenteeism.

Other studies looked at demographic differences across PSM. For example, Lee and Wilkins (2011) looked at differences between sectors (public versus nonprofit) and found PSM to be supported within the nonprofit sector. In a gender comparison study, DeHart-Davis, Marlow, and Pandey (2006) did find differences in scores across the different PSM dimensions, but no statistical difference overall between gender on commitment to public service.

Despite the number of studies on PSM, there has been a lack of consistency in the measures or dimensions used making it challenging to truly understand the construct. Wright (2008) points out that these variations have prohibited a uniformed approach to topic research as only three of the sixteen studies on PSM up to that point used the actual validated scale. Kim and Vandenabeele (2010) made an argument as to why the PSM needs adjustments to be used internationally, noting that the general construct is supported outside the US, but the measurement model has not been corroborated. Kim and Vandenabeele (2010) explain that "…cultural connotations can distort comparative findings" and suggested involving "local public administration experts in the evaluation in items" (p. 706). This practice is seen in the study by Liu and Perry (2016) in which the PSM measurement tool was revised based on prior studies in the Chinese context. In the end, Wright (2008) called for PSM scholars to either "illustrate the equivalency of different public service motivation measures or develop a more appropriate measure of public service motivation that can be used consistently and confidently" (p. 85).

PSM and Volunteer Fire Service

PSM research within the volunteer fire service context is notably absent despite the number of volunteer firefighters (over 700,000 in the US alone). In a study geared toward exploring the dimensions of PSM, Kim (2011) used a sample of firefighters in Korea. It is not clarified whether the firefighters were paid or volunteer but due to the two facilities identified and that respondents were classified as full-time public servants, it is assumed that the firefighters were not volunteers. The conclusions of the study were focused on a discussion of reflective/formative constructs and support for a revised PSM measure as opposed to focus on the population being studied.

More recently, there has been two more PSM studies involving firefighters. Schmidthuber and Hilgers (2019) conducted a study across volunteer firefighters within Austria and Germany concluding a positive relationship between PSM and extra-role behavior. Stefurak et al. (2020) conducted a study on emergency responders which contained firefighters across both rural and urban environments and reported a significant relationship between the PSM dimensions and job satisfaction.

PSM has been studied within the nonprofit context and along with volunteerism (Rose, 2012; Bright, 2016; Miller-Stevens, Ward, & Neill, 2014; Clerkin & Coggburn, 2012; Lee & Wilkins, 2011; Houston, 2006; Perry, Brudney, Coursey, & Littlepage, 2008; Costello, Homberg, & Secchi, 2020). Many volunteer fire departments are registered as nonprofit and no longer a part of their local government. There is an argument to support the application of this specific type of motivation (PSM) in this study starting with a discussion on volunteerism and intrinsic motivation. Next, a considered alternative to PSM is approached. Finally, the link between the targeted population and PSM will be covered.

Volunteerism and Intrinsic Motivation. A foundational link between public sector employees and those who volunteer hinges around the strength of intrinsic motivation. Kwok, Chui, and Wong (2013) explored volunteer motivation and life satisfaction noting that volunteering itself did not improve subjective well-being but rather "volunteers reported a higher life satisfaction when their participation was more intrinsically motivated, while no such relationship was found for extrinsic motivation" (p. 1326).

When discussing volunteers, the concept of altruism is commonly covered. Pandey, Wright, and Moynihan (2008) also found that "individuals with high PSM are more likely to engage in altruistic behavior" (p. 92). Altruism is considered an intrinsic motivation (Hung, Durcikova, Lai, & Lin, 2011). Altruism is given without the need or expectation of reciprocity (Fehr & Gachter, 2000). Volunteerism is considered altruistic while still meeting individual needs (Shye, 2010). In other words, the act of volunteering can be altruistic while simultaneously benefiting the volunteer. As explained with the consumption model, Wilson (2012) refers to "an inventive test" by Fiorello (2011) in which it was reported that volunteer firefighters "most responsive to emergency calls were found to have purchased a vanity plate displaying their status as firefighters" (p. 7). Altruism is considered part of affective motivation and part of PSM (Rainey & Steinbauer, 1999) but it does not provide the entire picture of PSM and it is a separate construct (Piatak & Holt, 2020) as is prosocial motivation (Schott, Neumann, Baertshi, & Ritz, 2019; Ritz, Schott, Nitzl, & Alfes, 2020).

PSM research and volunteerism has begun to pick up momentum. Leisink, Knies, and van Loon (2018) found commitment to public interest (a PSM dimension) to be positively related to volunteering. Costello et al. (2020) used PSM to explore the relationship with volunteer frequency and intensity.

Volunteer Functions Index. Despite this intrinsic link between volunteers and public sector personnel, alternatives to PSM were contemplated. For example, because of the 'act' of volunteering, the volunteer functions inventory index (VFI) was a consideration for this study. The VFI is a 30-item measure consisting of six separate functions: 1) protective motives, 2) values, 3) career, 4) social, 5) understanding, 6) enhancement. The VFI was developed through studies conducted in the Nordic countries of northern Europe. These 'Nordic studies' are foundational research within the volunteer motivation literature (Yeung, 2004). The VFI would be insightful in terms of understanding the 'act' of volunteering while PSM moves beyond the 'act' and includes the context, public service. In addition, there are many criticisms of the VFI including the lack of a strong theoretical foundational basis (Shye, 2010; Wilson, 2012).

In discussing some of the limitations of volunteer research, Yeung (2004) noted that many of the empirical studies concentrate on certain groups such as the elderly and/or the motives of young volunteers. PSM was selected not only because of 'who' is doing the volunteering but also due to the 'nature' of the volunteer work (firefighting, a public service) and the experience of.

There are also long-term implications for using PSM with volunteer firefighters, particularly for comparing paid (public sector) firefighters with unpaid (volunteer) firefighters. For example, the Sioux Falls (South Dakota) Fire Department has career, or paid, firefighters. In a nearby town less than 10 miles away, the Tea (South Dakota) Fire Department is comprised solely of volunteer, or unpaid, firefighters. Utilizing PSM with volunteer firefighters allows for future comparative studies involving individuals delivering the *same public service* but with one group receiving compensation while the other group is considered volunteers. The VFI would be limited in exploring the differences between these two groups of individuals.

Applicability of PSM. In his analysis, Shye (2010) argues that the "main problem in volunteer motivation research is undoubtedly conceptual, with many methodology implications; neither clear theory, nor an explicit definition for the concept of human motivation is generally accepted or applied" (p. 185). The PSM construct has a strong conceptual foundation and general acceptance within the public administration field.

PSM was initially considered a construct applicable to public sector, or government, employees. However, over twenty years of research, there have been a number of studies which evaluate and subsequently confirm its applicability to public service positions. Founder Perry (1996, 1997) himself has broadened the definition of PSM since its introduction. Miller-Stevens et al. (2014) noted that "public service should include not only the government sector, but also any work, paid or not, that has the function of serving the public in some capacity" (p. 163).

Many comparative studies between private and public sector employees were conducted during the beginning of PSM research. Though not always explicit, the association of nonprofit employees were linked to the public sector more so than the private sector. This association has been explored and confirmed within the research (Taylor, 2010; Houston, 2006; Lyons, Duxbury & Higgins, 2006). As Taylor (2010) noted, "public servants share more similarities to nonprofit workers than private employees, in terms of their PSM and civic participation" (p. 1093).

In the last five years, a separate thread of PSM comparative research has occurred moving from private/public to government/nonprofit employees including Taylor (2010) whose study explored differences between public servants, nonprofit sector employees, and private sector employees. Using qualitative analysis, Miller-Stevens et al. (2014) concluded PSM had applicability for nonprofit boards. Both Rose (2012) and Bright (2016) found PSM to be a better

explanation for preferences in the nonprofit sector over government organizations adding to similar findings by Clerkin and Coggburn (2012).

Overall, studies have effectively made the argument about the utility of public sector motivation in the nonprofit sector (Lee & Wilkins, 2011; Houston, 2006) and the significant relationship to volunteer services (Perry et al., 2008; Costello et al., 2020).

Fire Service Research

While the amount of public administration research focusing on firefighters (paid or volunteer) is overshadowed by the amount of service trade journal literature and targeted website articles, what does exist is focused and helpful. Trade journals can be insightful in understanding current challenges though the data collection usually relies on authors' personal experiences and the recommendations are anecdotal in nature. For example, Heflin (2008) reflects back on his 20+ years of service and provides advice such as 'starting with the basics', the power of 'thank you', and a 'pat on the back' to motivate volunteer firefighters. This section reviews four sources of fire service research: peer-reviewed journal articles, government and nonprofit published reports, recent doctoral dissertations, and applied research projects from the National Fire Academy. Finally, regulatory, sociological, economic, and risk industry factors will be covered.

Peer-Reviewed Journal Publications. One prominent research thread in fire service focuses on leadership implications in paid fire departments (Hoetmer, 1996; Bruegman, 1993; Donahue, 2004; Pillai & Williams, 2004). In 2016, Glick-Smith published a book on "flow-based leadership," describing what can be learned about leadership from firefighters and being in a "flow state." Haski-Leventhal and McLeigh (2009) reported that leadership, attitudinal commitment, a strong sense of affiliation, altruism, and a sense of community influenced

firefighters' motivations. In a well-cited study, D'Intino (2006) looked at the relationships between retention, leadership, and volunteers at rural volunteer fire departments in Pennsylvania. Findings in this study included a positive correlation between organizational support, quality leadership, and perceived appreciation whereas unrealistic expectations were correlated with turnover (D'Intino, 2006). Cowlishaw, McLennan, and Evans (2008) turned their focus to the families of the volunteers to explore the effects of familial relationships on fire departments. A work-family conflict model was discussed to address the stress put on families such as the volunteer firefighter having "difficulty prioritising family needs ahead of bridge responsibilities; leaving household and business responsibilities with family members, a lack of time with family; and interruptions to family routines and activities" (Cowlishaw et al., 2008, p. 21). Organizational culture and group dynamics, in the context of a volunteer fire department, was the focus of the study by Lucas and Kline (2008). Also in 2008, a 14-page case study by Berner and Ozer was published about a community torn apart over beer drinking at the (volunteer) firehouse, highlighting issues faced by city governments when relying on volunteers or nonprofit organizations to deliver a public service vital to citizens.

There have also been a number of studies on fire service outside of the US. Lourel, Abdellaoui, Chevaleyre, Paltrier, and Gana (2008) explored burnout associated with volunteer firefighting in France and found job demands to be strong predictor for emotional exhaustion; respondent age was also positively related to emotional exhaustion but negatively related to depersonalization. In Australia, Bartolo and Furlonger (2000) looked at motivation across aviation firefighters and found job satisfaction correlated to supervisory leadership behavior. Soon after, the Fire and Emergency Services Authority of Western Australia released a report in 2003 focusing on recruiting and retaining volunteer firefighters in which a major aspect of their

research was to "examine strategies used in the United States of America for recruiting and retaining volunteer firefighting" (Aldridge, 2003, p. 1). The result of this inquiry mirrored results of US-based inquiries. The solution for the recruiting and retention challenges in Australia could not be pinpointed to a sole recommendation, rather a number of recommendations were provided including brigade image, training requirements, time demands, recognition, incentives, and the focus of introducing or organizing a fun factor as being part of the fire department (Aldridge, 2003). Also in Australia, McLennan, Birch, Cowlishaw and Hayes (2009) conducted a more focused study and found intangible benefits, positive department culture, and quality leadership as factors to maintain rural firefighters.

There are also peer-reviewed academic journals focusing on the execution of or daily operations of fire service. For example, in the journal *Forest Policy and Economics,* Gaither, Poudyal, Goodrick, Bowker, Malone, and Gan (2011) focused their research in southwestern US confirming that poorer communities within wildland fire prone areas are at a greater disadvantage than more affluent communities in the same area. In the *Fire Safety Journal*, researchers Kolmanic, Guid, and Nerat (2013) recognized that the training of volunteer firefighters "must be of the same quality as that of their career colleagues" and then discussed multimedia-based teaching tools to achieve this (p. 26).

Government-Published and Nonprofit Reports. The National Fire Protection Association (NFPA) is the leading authority for broad-based research and reports on fire service in the US. A nation-wide needs assessment has been conducted four times by NFPA (published in 2002, 2006, 2011, and 2016). The most recent assessment consisted of six sections: 1) personnel and their capabilities, 2) facilities and apparatus, 3) personal protective equipment, 4) community risk reduction: fire prevention and code enforcement, 5) ability to handle unusually

challenging incidents, and 6) communications and advanced technology (NFPA, 2016). The 261-page report included over 150 tables and figures with analyses. In comparing results over time, the summary provided reads: "there has been substantial progress in reducing many fire department needs, although more remains to be done. In nearly every area of need, *the smaller the community, the greater the need* [emphasis added]" (NFPA, 2016, para. 3).

More specialized assessments and reports are conducted by federal agencies such as Homeland Security and FEMA. The US Department of Homeland Security (DHS) issues an annual Fiscal Year Report to Congress and reports on other fiscal-related topics such as matching firefighter grants with US Fire Service needs (DHS, 2006b). Most of the reports are completed in conjunction with other entities such as the USFA, NFPA, and/or the National Fire Data Center as demonstrated in a collaborative topical fire research series. The series covers a variety of topics such as fire response times (DHS, 2006a) and civilian fire fatalities (FEMA, 2011a). FEMA also produces many specialized reports in collaboration with other agencies/nonprofits including *Fire Department Preparedness for Extreme Weather Emergencies and Natural Disasters* (2008), *Emergency Vehicle Safety Initiative* (2013b), and operational guidelines for active shooters and mass casualty incidents (2013a).

FEMA (2010) has completed broad-based research as well, including a profile of fire in the US from 2003 to 2007. One report repeatedly cited by others in field is the *Retention and Recruitment for Volunteer Emergency Services* report published by FEMA in May 2007. The discussion of challenges faced, and a plethora of solutions fill over 250-pages of this report with the overall summary that "volunteer retention and recruitment is a problem nationwide" and there is "no single reason for the decline in volunteers in most departments" (FEMA, 2007, p. 2). This report is still regarded highly relevant and an updated guide has been estimated for March

2021. A comprehensive table illustrating reasons for the decline in firefighter/EMS volunteer levels from this report can be found in Appendix C. Many of these are covered in more detail when discussing industry factors for those providing fire service.

Doctoral Dissertations. There have been a number of dissertations on fire service personnel, particularly in the past 10 years. In 2010, Alyn studied both career and unpaid firefighters in a quantitative study involving almost 2,000 responses (out of 77,000) to explore leadership theories in fire service. Transformation and transactional leadership styles were associated with positive commitment while laissez-faire leadership style was associated with negative commitment, and Alyn (2010) showed that volunteer firefighters reported higher levels of commitment overall. Also using quantitative research, Church (2013) explored motivational differences between paid fire chiefs and paid unionized firefighters in union leadership positions finding that intrinsic motivators were similar for both groups; extrinsic factors were different, particularly desire for recognition (favored more by union leaders). Egsegian (2013) focused on 40 personality traits and social capital theory (volunteerism) and used nine fire departments involving 208 volunteer firefighters to analyze the relationship of social capital theory to retention using logistic regression. Only one of the forty personality traits positively influenced retention which was warm, a subscale of agreeableness within the Big Five personality traits (Egsegian, 2013). Using the Volunteer Function Inventory (VFI) and qualitative methods, Hoschstetler (2014) found support of adding obligation/duty, civic responsibility, and spiritual/purpose to the VFI. Dixon (2014) conducted a phenomenological study on fire service leadership which included a sample of 12 firefighters in leadership positions and concluded that the tested leadership theories were not applicable to leadership within volunteer fire departments. Focusing on retention with volunteer firefighters in rural environments, Smith (2014) identified

reasons to join the volunteer fire department as the desire to serve communities, to help people, and relationships whereas reasons to leave the fire department were interpersonal conflicts, the fire call response times, and training requirements.

National Fire Academy Research Reports. Also noteworthy are the applied research projects that must be completed as part of the National Fire Academy Officer Training Program. An impressive level of academic rigor is reflected in the presented research, and there is a significant amount of papers specifically about recruiting and retention. Table 2.1 reflects a snapshot of the topics being explored across the nation as part of the Executive Fire Office Program through the National Fire Academy. These targeted inquiries are designed for the participant to return to their home fire departments with researched and clear recommendations to address home-front challenges. An ongoing concern for institutions is whether there is a disconnect between academia/research and the 'reality' of the industry. This excerpt of applied research projects shows support for government and published findings as they touch on key factors discussed up to this point such as decline in volunteer levels, resources, and concerns about motivation. As also reflected in the table, the concerns raised in these applied research papers are being experienced across the US and not limited to any particular region.

Table 2.1. NFA Officer Training: Applied Research Samples

Title	Location
Volunteer Participation: Evaluating the Causes of a Progressive Four Year Decline	Wolfforth, TX
Volunteer Retention in the Sauk Village Fire Department	Sauk, IL
Alternative Ways to Maintain Fire Service with a Decrease in Resources	Moraine, OH
Recruitment Challenges at a Small, Rural Fire Department	Pilot Rock OR
Factors Affecting Employee Motivation	Davenport, FL
Developing New Revenue Streams Due to Increased County Ambulance Calls in Watertown, South Dakota	Watertown, SD
Fire Service Motivation: Employee Perceptions. Utilizing Theory X and Y	Monroe, GA

Source: Executive Fire Officer Program Applied Research Projects Database

Two notable applied research projects focusing on motivation include Shrader (2012) and Yengoyan (2010). Shrader (2012) used a quantitative study and focused on one local fire department involving 194 volunteer firefighters. The study was rooted in motivational theory and Shrader (2012) found the leading motivation was helping the community and helping people in need. Yengoyan (2010) also based his research in motivational theory, using mixed methods at a combination department in which high participation factors were related to leadership, the other volunteers, and overall pride of the job.

Industry Factors

This section covers fire service industry factors as part of the fire protection industry. Per NAICS 922160, fire protection is defined as an "industry comprise[d of] government establishments primarily engaged in firefighting and other related fire protection activities" and those "providing combined fire protection and ambulance or rescue services are classified in this industry" (NAICS Association, n.d., para. 1). After a brief overview on industry factors, four major industry factor categories will be covered: regulatory, sociological, economic, and risk.

Industry factors are those that influence organizations and individuals operating there within. Most industry factor analyses are framed within the business context; however, there is a benefit to understanding industry factors beyond a competitive market standpoint. For example, Jordan, Brooms, Yusef, and Mahar (2016) incorporated industry factors as part of their framework to better understand interlocal agreements (ILAs) created to provide basic government services. Industry factors look beyond organizational factors and consider the broader service environment. A service environment refers to the environment in which the public service delivery or product must be executed and can range from stable to volatile (Jordan et al., 2016).

The core purpose of the fire protection industry has remained the same: the need to protect people and community property. This is done through fire and emergency services. The fire protection industry has had to expand to meet this objective and is susceptible to changes in other industries. For example, shifts in the automobile industry has implications for the fire service industry. The mainstream introduction of electric cars – and their lithium-ion batteries – has spurned research as how automobile fires burn, how to put them out, and their environmental impact (Larsson, Andersson, & Mellander; 2016; Steele, Orendorff, Lamb, Spangler, Luketa, & Blanchat, 2014). Globally, increased knowledge about climate change has broadened the role and understanding of fire management (Flannigan, Stocks, Turetsky, & Wotton, 2009; Kirchmeier-Young, Gillett, Zwiers, Cannon, & Anslow, 2018; Fargeon, Pimont, Martin-StPaul, Cacerers, Ruffault, Barbero, & Dupuv, 2020). There are also many factors which have remained consistent within the industry, particularly in relationship to volunteer participation. Decades of research showcase certain fire service industry factors remaining constant such as the role of training (National Commission of Fire Prevention and Control, 1973; FEMA, 2007; NFPA, 2011; 2016) or work-related challenges which create conflict for volunteers (FEMA, 2007; Malinen & Mankkinen, 2018).

This section focuses on four factors which 1) are challenges of the fire service industry, 2) are framed negatively when discussing volunteer firefighters' experience and their overall participation, and 3) have remained consistent over time. The four industry factor categories being explored are regulatory, sociological, economic, and risk. The following discusses these fire service industry factor categories in more detail.

Regulatory Industry Factor. Regulatory industry factors refer to government-enacted policies, regulations, and laws. The regulatory industry factor looks at the government's role in

the fire protection industry and the established requirements that (paid and volunteer) fire departments and firefighters must meet. Federal and/or state codes and regulations are often drafted with consideration of urban and paid fire departments as it is the group that responds to the majority of the nation's emergency calls. It can be more challenging for volunteer firefighters to meet these established regulations.

The lack of resources (personnel, funds) is a significant barrier for volunteer fire departments in meeting regulatory codes and laws as many requirements are extremely detailed and costly. A volunteer fire department may not be financially capable of meeting all requirements. For example, NFPA 1851 includes lab testing for cleaning effectiveness of protective personal requirement (PPE) as part of the "requirements for the selection, care, and maintenance of fire fighting protective ensembles" (NFPA, 2020, p. 1) and doing so is important "to reduce health and safety risks associated with improper maintenance, contamination, or damage" (NFPA, 2020, p. 1) but unlikely for financially-strapped volunteer fire departments. Despite nonprofit organizations providing resources to help with compliance, it can be challenging to meet the standards. Two consistently prominent regulatory fire service industry factors are call response times and training requirements.

Call Response Time. Emergency call response time is the elapsed time between when the emergency call is received to when emergency responders arrive on site (NFPA, 2014). Call response times are tracked and regulated. This type of regulated immediate response is a key industry component for the protection of people and property in emergency situations (Mayer, 1980). When fire service is being provided through government-based (paid) fire departments, how this factor is addressed is different than volunteer-based fire departments. To meet this particular regulation, paid (government) firefighters receive compensation to be at their

designated fire department location for set periods, regardless of fire activity, to eliminate any competing interests for call responses. For example, at the Virginia Beach (Virginia) Fire Department, it is expected that firefighters work a non-traditional shift schedule such as a 56-hour work week for the first six years; during these shifts, firefighters sleep and eat onsite and must be ready for an "immediate response to emergencies" (City of Virginia Beach, n.d., para. 4) On the other hand, volunteer firefighters have to drop everything (included paid work responsibilities) and immediately report to the specified location with little notice (NVFC, 2015).

Response times are covered by NFPA 1710 and NFPA 1720 which set the standard for "effective and efficient" fire suppression operations (NFPA, 2014). The NFPA 1710 guidelines are based on rationale; for example, it takes 6 minutes for a room to reach a "critical stage in fire development (point of flashover)" (Hensler, 2008, para. 1). Alternatively, NFPA 1720 was drafted for volunteer fire departments to address many of the guidelines in NFPA 1710 but reflect a key variable in which respondents are not on-duty at the fire station and instead have to immediately respond from their home or work (Hensler, 2008). For example, Hensler (2008) points out how NFPA 1710 (urban zones) calls for 15 staff to respond in 9 minutes, 90% of the time, whereas NFPA 1720 (rural zones) call for an onsite response within 14 minutes, 80% of the time. Like most fire service regulations, compliance or non-compliance is clear and there are negative implications for the public if not met.

Training. As covered previously, the need for trained firefighters was federally recognized in the 1970s along with the creation of federal fire service agencies. Many training programs were initially offered as resources as opposed to requirements; however, this shifted quickly. In addition, the span of covered subject matter grew with the expansion of the fire industry to include EMS, hazmat, and technical rescues (FEMA, 2007, FEMA 2013a). Training

requirements are time-intensive and are not always met, particularly in smaller communities (which consists of volunteer fire departments). Volunteer firefighters have to have just as much training as career (paid) firefighters and the training hours are unpaid (Ignasiak, 2012). The time involved with completing training causes many individuals unable to volunteer their services (Carter & Fleming, 2009). As a result, governmental training standards for volunteers are commonly framed negatively when discussing the volunteer participation.

Furthermore, many training mandates are not met. In the 2010 needs assessment, the US Fire Service reported that almost half (46%) of fire departments that are responsible for structural firefighting have not trained all their involved personnel in structural firefighting (Hall, 2011). In the fire service needs assessment results on South Dakota, this percentage rises to 72% (NFPA, 2011). It is a similar situation for required and necessary medical certifications within fire departments. Table 2.2 reflects data from a NFPA fire service needs assessment (2016) comparing training gaps for larger communities to small communities which are more commonly volunteer based.

Table 2.2. Community Size Comparison: Training Need for Departments Providing EMS

Population of Community	Percentage of Personnel Not Formally Trained
500,000 or more	20%
250.000 to 499,999	19%
2,500 to 4,999	64%
Under 2,500	66%

Source: National Fire Protection Association (2016)

Regulatory factors are important for the safety of firefighters and the public; however, they create unique challenges for volunteer fire departments. For example, after the attacks against the US in New York on 09/11, an Indiana volunteer fire department reported a large influx of individuals joining but all had quit within 4 months due to the stringent guidelines

(Shawgo, 2014). Nonetheless, while regulations can lead to the decline of volunteer levels, non-adherence can be a contributing factor in firefighter injuries and fatalities (Stocker, 2004-2005).

Sociological Industry Factor. Sociological factors include attitudes and trends within society that influence the industry. FEMA (2007) identified "changes in sociological conditions (in rural areas)" as a challenge for the volunteer firefighters as "employers [are] less willing to let employees off to run calls" (p. 7). A unique aspect to this particular volunteer activity is that it is not always able to be conducted outside of the volunteer's (paid) work hours. Emergency call responses can require the individual to leave their place of employment to fulfill their responsibilities. When an emergency call comes in, volunteers must assess a myriad of issues to determine whether they can respond to the community need. There may be familial conflicts (being responsible for picking child up from school) or commuting issues (distance from originating call). The sociological factor covered here is employer role in supporting volunteer firefighters and the potential employment impact.

Being able to fulfill the responsibilities of a volunteer firefighter requires cooperation at many levels. At the organizational level, some employers cannot afford to let their employees respond to emergency calls as their absence would halt, or hinder, operations. This is particularly relevant for small communities when there are fewer employers relying on smaller staff. For example, in South Dakota, about one-fourth of small businesses employ 20 or less employees (US Office of Advocacy, 2020). In addition, a single employer may employ multiple individuals who serve on the volunteer fire department.

For those who are able to leave, compensation may be negatively impacted. This is particularly relevant for hourly employees who must 'clock out' when they leave to respond to an emergency call. There are some instances in which employers can provide stipends and/or

assistance with volunteer expenses. Compensation incentives may be offered through employer-sponsored employee volunteer programs (EVPs) which are commonly part of a for-profit organization's corporate social responsibility (CSR) program. These types of programs are more likely to be offered by larger companies (Basil, Runte, Basil, & Usher, 2011). Many companies, particularly those in smaller communities, are not in a position to do this. In their analysis, Lough and Turner (2017) reported that only 20% of companies with fewer than 200 employees stressed community service noting the high cost with EVPs. In addition, these type of compensation incentives are regulated though FLSA and can be challenging to interpret. In 2016, the International Association of Fire Chiefs (IAFC) published a report to help navigate compensation issues through a series of DOL rulings due to the complexity involved.

Outside employers are a player in fire protection services in how they offer support to employed community volunteers. Many employers do not support outside volunteer programs during work hours due to worker productivity loss (Kilcrease, 2007). Lack of employer support is a barrier to volunteer firefighter participation (FEMA, 2007). If not viewed as supportive, a volunteer's place of (paid) employment can be a challenge for providing fire service within the fire protection industry.

Economic Industry Factor. The economic factor pertains to monetary matters. The financial status for the volunteer fire department is the focus of this economic industry factor. Many volunteer fire departments do not possess the necessary funds to maintain operations as required or desired (FEMA, 2007; NFPA, 2016; Evarts & Stein, 2020). The demand for public services continues to rise but reduced resources for local governments create fiscal and operational stress (Donahue, 2004). Nationwide, Evarts and Stein (2020) reported that "fire protection costs have risen 135% since 1986" (p. 5). Those in rural environments are not

exempt. The Watertown (South Dakota) Fire Department (2009) reported: "…from 1975, ambulance calls have increased 265%, fire calls have increased 250%, population is up 45%, and the covered square miles has tripled…" and funding hasn't increased accordingly (p. 10).

Foley (2019) completed an extensive report on infrastructure renovation needs for the nation's fire service and it was estimated at $850 million to $1.7 billion to address issues across 17,030 fire stations. As previously noted, the majority of volunteer fire departments exist in smaller non-urban areas. In identifying fire stations that had structural or operational problems that could not be addressed through repair and maintenance alone, Foley (2019) notes that 61% of these fire stations exist in communities serving less than 9,999 people. While funding for fire departments is an issue nationwide, the above demonstrates the prominence of this industry factor for volunteer fire departments.

Direct government funding to volunteer fire departments is insufficient to offset the necessary costs related to carrying out firefighting responsibilities and meeting government codes and regulations. The Stanislaus Local Agency Formation Commission Office (2007) conducted a municipal service review for 14 rural fire protection districts in California noting that the "per capita expenditures are an indication of the community's ability to pay, yet the service demands are often based on other factors such as frequency and consequence of EMS calls" (p. 147). For example, the property tax revenue for the Golden Shores (Arizona) Volunteer Fire District (2020) for 2020-2021 was recorded as $564,288 and would be applied toward the $1.1 million projected expenses. This rural fire department budget, while significant, is markedly different than the property tax revenue stream of $78.4 million for the San Ramon Valley (California) Fire Protection District (2020) which would be applied toward their $84.6 million projected expenses.

In addition to differing property tax rates and property values, fire risks such as terrain characteristics or propensity for natural disasters and extreme weather also influence fire department budgets. Rapid City, South Dakota has a number of risk factors: near the Black Hills National Park (wildfires) and unpredictable weather. The area relies on tourism and the Sturgis Motorcycle Rally alone brings around 500,000 visitors annually to area for the 10-day event (City of Sturgis, 2019). Despite a population of 69,200 (US Census Bureau, 2015a; 2015b), the budget for the Rapid City Fire Department is $16.1 million for Fire and EMS (City of Rapid City, 2020). This could still be considered small compared to large urban budgets such as the $517 million for the Houston (Texas) Fire Department (Whalen, 2020).

Being rural means a much lower revenue stream. The revenue streams for communities under 1,000 people are extremely limited. For example, revenues for the Gilbertson (Pennsylvania) Volunteer Fire Department totaled $129,627 with expenses at $166,020 for 2016 (CauseIQ, n.d.b). The budget for Gilbertson, PA considered amortization though this was not the case for the volunteer fire department in Rew, PA where their 2019 expenses of $55,788 were not met by the revenue stream of $47,566 (CauseIQ, n.d.a; n.d.b.). This is similar to the review by Stanislaus LAFCO (2007) in which they reported that none of the 14 rural fire departments had any type of amortization process in place for the equipment which is recommended but added that most departments were using second-hand apparatus and acknowledged that "fire departments that barely have enough money to put gas and tires on fire trucks are not particularly interested in amortization" (p. 147). Indeed, deficiencies ranging from $10,000 to $40,000 can appear minor until considering populations of 136 (Rew, PA) and 727 (Gilbertson, PA) and limited opportunities to generate additional funds.

The Stanislaus LAFCO (2007) also pointed out that cost-saving strategies for paid fire departments are not usually applicable for volunteer fire departments and that "funding inefficiencies in the case of volunteers usually means the inability to keep apparatus on the street or the inability to keep fire stations properly maintained and serviceable" (p. 145). This assessment of rural California volunteer fire departments is similar to other volunteer fire departments across the country. For example, Fanger (2012) reported on a city council meeting in a (South Dakota) town of 359 people in which it was debated whether to allocate funds to address damage caused by recent flooding or to continue to put the funds towards an updated fire truck as the current truck was 30-years old and did not meet NFPA standards.

In an effort to address and aid with funding deficiencies, FEMA (2012b) published a 167-page report titled *Funding Alternatives for Emergency Medical and Fire Services* which, at the local level, included new taxes, user fees, fines/citations, enterprise funds/utility rates, sales of assets, benefit assessments, and borrowing funds. The majority of the report focuses on the pursuit of grants (FEMA, 2012b). There are grant programs available to volunteer fire departments. For example, volunteer fire departments that respond to fires on federal property may be eligible for reimbursement from FEMA upon submitting a claim (USFA, 2001). The Volunteer Fire Assistance (VFA) was authorized through Title VI of Public Law 92-419 *The Rural Development Act of 1972* to allocate monies to "organize, train, and equip local fire forces to prevent, control, and suppress fires in rural areas" (US Forest Service, 2008, para. 1). These funds now go through the Cooperative Forestry Assistance Act (CFAA) as part of the Forest Stewardship Act of 1990. However, funding gaps still exist.

Similar to the previously covered industry factors, being a volunteer-based fire department creates additional challenges from an economic standpoint. This is illustrated

through the review of guidelines for PPE cleaning. There has been a recent push to educate both volunteer and paid fire departments on how to handle post-emergency PPE cleaning due to chemical contamination. Fahy, Petrillo, and Molis (2019) point the growing body of research that shows exposure to chemical contamination (such as chemically-toxic fumes released by man-made objects burning) is linked to increased cancer risk for firefighters. The contamination exposure was confirmed in a study by Fent et al. (2017) along with effectiveness of various cleaning mechanisms. NFPA 1851 covers the requirements for PPE cleaning and in a 200-page report on PPE care and maintenance, Kashmanian and Grant (2014) cover the cost effectiveness of outsourcing cleaning fire station gear to centralized locations versus each fire department purchasing and maintaining commercial washers and dryers. This issue has spurned concern for many volunteer firefighters as they often washed and cleaned their equipment and protective hoods at home (New Hampshire Municipal Association, 2019).

The financial status of the volunteer fire department has other implications for firefighters at the personal level as well. Besides not being provided adequate safety gear (NFPA, 2016), there are other personal expenses. In Texas, the Insurance Journal (2012) reported 86% of volunteer firefighters use personal funds to put gas in fire trucks or buy equipment. Overall, the financial status of the volunteer fire department can create economic strain for volunteers and increase safety risks.

Risk Industry Factor. Risks refer to threats and/or dangers that exist for organizations and individuals within the industry. BLS (2019) highlights that very few public service industries contain such a unique high risk (personal safety) as those in emergency services. Firefighting is considered a dangerous profession (Fahy et al., 2019) and the industry's risk

factor is perhaps one of the most tracked and documented for volunteer firefighters. The risk industry factor is divided into two safety risks: physical and mental well-being.

Physical Risk. Volunteer firefighters are susceptible to injury or death when responding to emergency calls (Campbell, 2019). Describing the nature of firefighter occupation, Clarke and Zak (1999) note:

> "While battling blazing building fires, [firefighter] duties may include connecting hose lines to hydrants, operating pumps, or positioning ladders; but they must also rescue victims, administer medical aid, and salvage the contents of buildings. All the while, they are subject to many of the same dangers as the victims, which can include being burned, asphyxiated from noxious gasses, or struck by collapsing material" (p. 5).

This description is still applicable decades later as firefighters have one of the highest rates of injuries and illnesses of all occupations as they "encounter dangerous situations, including collapsing floors and walls, traffic accidents, and overexposure to flames and smoke" (BLS, 2020b, para. 3). There is also documentation relating to the thousands who are exposed to infectious diseases such as hepatitis, meningitis, and HIV, along with exposure to hazard conditions such as asbestos, fumes, and radioactive materials (Evarts & Molis, 2018; Butry, Webb, Gilbert, & Taylor, 2019). These hazardous conditions increase physical health risks.

In an analysis, Karter Jr. (2014) found volunteer firefighters (53.5%) were more likely to receive injuries at the fire site than their paid counterparts. Firefighters are also more likely to experience and/or die of a heart attack while on duty than any other American work group (USFA, 2008; USFA, 2009). Furthermore, seventy-three percent of firefighting related deaths in 2006 were volunteer firefighters (USFA, 2009).

The increased physical risks can be attributed in part to the lax or nonexistent physical requirements in volunteer fire departments as opposed to paid fire departments. Pulling from multiple reports, Martin, Schlaff, Hemenway, Coulter, Knous, Lowry, and Ode (2019) summarized that "a substantial proportion of volunteer firefighters are overweight, use tobacco, and have hypertension and hypercholesterolemia" (p. 765). Many programs and resources have been implemented over the past 20 years to address these areas, yet Martin et al. (2019) still arrived at the "need to initiate physical activity and nutrition outreach programs, led by health and fitness professionals, aimed at reducing firefighter morbidity and mortality within the volunteer fire service" (p. 764-765).

National efforts have been made to address physical and wellness issues for volunteer firefighters. In 2003, the National Fire Protection Association (NFPA) redeveloped health and wellness standards and, in partnership with the US Fire Administration and others, made efforts to encourage more health awareness for fire departments through programs such as *Fired Up for Fitness Challenge,* the *NVFC Heart-Healthy Firefighter Program,* and the *Sounding the Alarm for High Cholesterol* (USFA, 2008. USFA, 2009). Despite social marketing and documented health and injury reports, about seven out of ten (73%) of fire departments do not have a program in place to address firefighter fitness and health (NFPA, 2016) or do not get adequate physical fitness (Martin et al., 2019).

Mental Health Risk. There is also an increased chance of mental stress for volunteer fire personnel (Lourel et al., 2008; Wagner & O'Neill, 2012). Based on the nature of the industry, volunteer firefighters belong to a risk population that is exposed to potentially traumatic events and has the increased subsequent potential development of PTSD (Schnell, Suhr, & Weierstall-Pust, 2020). These traumatic events can be called critical incidents and despite programs

introduced to assist with coping, there are reports of them being ineffective (Mitchel, Sakraida, & Kameg, 2003; Pia, Burkle, Stanley, & Markenson 2011). The US Substance Abuse and Mental Health Services Administration (2018) explains how those responding to emergency calls:

> "are usually the first on the scene to face challenging, dangerous, and draining situations. They are also the first to reach out to disaster survivors and provide emotional and physical support to them. These duties, although essential to the entire community, are strenuous to first responders and with time put them at an increased risk of trauma" (p. 3).

It is suggested that "non-professional" first responders may experience higher levels of emotional distress relative to their professional counterparts (Wagner & O'Neill, 2012). For example, adherence to HIPAA means not talking about the emergency call experience after the volunteer firefighter returns home. Wagner and O'Neill (2012) point out that volunteer firefighters have an "*increased likelihood of a personal relationship with the victims attended to* [emphasis added] *...*" while having "… more limited internal social support from the peer group" (p. 311).

The exposure of traumatic events and/or repeated high-stress situations can also lead to firefighter suicide. Stanley, Hom, Hagan, and Joiner (2015) reported that firefighters had a higher suicidal ideation rate and Heyman, Dill, and Douglas (2018) concluded that firefighters were more likely to commit suicide than die in the line of duty. Though not as much as known on this area compared to physical threats, there has been an increase of research and allocation of resources in this area. For example, the Firefighter Behavioral Health Alliance (2020) tracks firefighter suicide rates and was a recipient of a grant to offer workshops to help how to

recognize signs of behavioral health distress for those involved with the 2019 California wildfires.

Overall, the safety risks (physical and mental well-being) have consistently been mentioned as a challenge and a negative aspect for the fire service industry and volunteer firefighters. The physical risks of being a volunteer firefighter has been well-documented over decades and as more understanding is gained about the mental health risks, the concern about it continues to increase. The fire service literature illustrates industry factors which have been consistent over time; many of these factors are inevitable for the industry and are framed as challenges for volunteer firefighters' experience and overall participation.

CHAPTER 3

THEORETICAL CONSIDERATIONS

The context of industry and occupational characteristics remain undertested in terms of PSM. More recently, there has been recognition of the environment in which the public service is provided and the influence it can have in relation to PSM (Prysmakova & Vandenbeele, 2019). This study considers industry factors narrowed down to those consistently identified as challenges and have been framed negatively in terms of experience. The theoretical chapter starts with the exploration of other studies that considered the external context and the various approaches in which it was done.

Next, the chapter discusses the theoretical approach to the PSM measure in studies encompassing either firefighters or those within its broader classifications. Fire service is part of NAICS Industry Group 9221 Justice, Public Order, and Safety Activities and firefighters are part of SOC 33-0000 Protective Service Occupations (see Table 1.1). In addition, firefighting is a high-intensity occupation (Torpey, 2016) and tied together with emergency response (see Table 1.2). Covering studies within the four classifications related to firefighting provide a detailed look into PSM measurements.

The chapter ends by moving away from a micro view of PSM and takes macro view of motivation in relation to regulatory, sociological, economic, and risk industry factors. PSM-specific studies are covered when possible but the specific nature of the factors and the newness of such an approach limits the number of applicable studies.

PSM Measures and Firefighting Classifications

In his study, Bright (2011) looked beyond sector preference and tested whether PSM leads to occupational choices. Bright (2011) established two job classifications: public service

defined as those with "direct contact with citizens and contained core tasks that emphasized public service" and the remaining being non-public service occupations (p. 15). The 117-person sample consisted of government employees across three US states with 62 non-public service occupations (administrative specialist being the highest) and 55 public service occupations (with deputy police officers being the highest) (Bright, 2011). It was determined the PSM did not "determine occupational choices of public employees within public organizations" and in exploring possible alternatives, education and gender had more influence (Bright, 2011, p. 20). In conclusion, Bright (2011) pointed out a weakness of the study as being the focus on occupational choice versus occupational attraction as the two are not always the same.

There have been two studies exploring PSM across occupational classification. One study was by Anderfuhren-Biget, Varone, and Giauque (2014) and involved four categories of public service. By differentiating public service environments, Anderfuhren-Biget et al. (2014) were able to compare the strength of PSM dimensions in a quantitative study in these four categories:

- Welfare: health, social, education, and youth;
- Core State Functions: security, institutions legal services, and justice;
- Public Utilities, Infrastructures and Environment: network industries, environment, agriculture, energy, public transportation, and mobility;
- General Administration: public finances and general administration.

The other study was by van Loon, Leisink, and Vandenabeele (2013). In their qualitative study, van Loon et al. (2013) created two sets of categories to consider: user logic and service logic. These categories then had sub-categories; user logic was divided into people-changing and people processing and service logic has categorized as negative versus positive (van Loon et al., 2013). The different combinations created four quadrants and provided "insight into how and why expressions of PSM may vary among public service providers and how institutional

dynamics matter for PSM" (van Loon et al., 2013, p. 1016). Specific findings for these two studies are discussed more later.

Finally, in relation to the rural environment being the background for this study, Schott et al. (2019) pointed out how context was relevant in their qualitative research involving PSM and police officers by highlighting that many worked in rural areas, making it "clear that working in this rather rural area is different from working in large cities" (p. 1208). The findings specific to the various firefighting classifications are discussed next.

PSM: NAICS Industry Group 9221. There are seven industries identified within NAICS Industry Group 9221 Justice, Public Order, and Safety Activities. Two industries are 92216 Fire Protection and 92219 Other which contains disaster/emergency planning and preparedness. Another is 92212 Police Protection which is covered in the next section. Three studies on firefighters and one study with disaster planning are covered below.

The focus of one of the studies is a debate on the reflective versus formative nature of PSM (Kim, 2011). In the publication by Kim (2011), the discussion and subsequent tests involve a sample of 2,497 firefighters at Gyonggi Provincial Firefighting and Disaster Headquarters in South Korea. Respondents were full-time public servants and were "employed according to performance and qualification and are expected to make a life-long commitment to the service" (Kim, 2011, p. 531). From this sample, Kim (2011) provided "theoretical and empirical evidence in support of a second-order, formative approach" reflected in a 12-item PSM scale (p. 542). The proposed PSM measurement proposed contained four dimensions (attraction to policy making, commitment to public service, compassion, and self-sacrifice) each being operationalized with three items (Kim, 2011).

Schmidthuber and Hilgers (2019) conducted a study on PSM and extra-role behavior with 475 volunteer firefighters in Austria and Germany. The PSM measure was derived from Perry (1996) and consisted of three items. There is no discussion on the dimensions of PSM or how these three items were selected. Matching up the selected three items to the Perry (1996) PSM model, public policy making is left out with one item from each of the other dimensions: self-sacrifice, commitment to public interest and compassion. Schmidthuber and Hilgers (2019) found a "positive effect of PSM on individual willingness to work extra hours" (the extra-role behavior) noting that the "effect is only significant at a 10% level" (p. 186). In the concluding statements, Schmidthuber and Hilgers (2019) point out multiple studies that have linked the pressure or obligation to work extra hours to stress, work overload, and negatively effecting employees' well-being.

In their study, Scheller and Reglen (2016) assert broad conclusions regarding firefighters with consideration to PSM; in their methodology, they report that they did not receive any type of response from fire departments within El Paso, Texas which would have been used to measure PSM. In turn, Scheller and Reglen (2016) used datum from an international survey on motivation noting its questions did "not directly measure PSM, they measure[d] important conceptual components of PSM" (p. 4). These questions were not identified or discussed but used to make a foundational assumption about the background of their study: that "fire personnel have high levels of PSM" (p. 18). Conclusions are made in terms of training, sanctions, and response times with consideration of a "high public service motivation environment" though PSM itself is not part of any of the measures or subsequent tests.

The last study looks at those in disaster planning, specifically in Indonesia. Limited methodology is provided with the work by Nurung, Rakhmat, Assang, and Hamsinah (2019;

2020) which revolves around PSM and a number of factors such as the quality of disaster emergency public services, leadership, and satisfaction. The PSM measure is not provided or discussed; however, Nurung et al. (2019; 2020) reported that commitment to public interest and compassion were the dominant dimensions across the four indicators of PSM. It was concluded the PSM was linked to higher satisfaction and better quality of services (Nurung et al., 2019; 2020)

PSM: 33-000 Protective Services. There are 23 occupation titles within the job family of 33-000 Protective Services. Studies on 33-2011 Firefighters were just discussed and this section focuses on five studies that include 33-3051 Police and Sheriff Patrol Officers.

Battaglio and French (2016) point out that "few evaluations have explored the differences exhibited by individuals working solely in the public sector in terms of PSM and the type of agency they work (e.g., public safety agencies vs. social service agencies)" (p. 127) and work to address this in their study. Their sample, consisting of 927 respondents across 10 municipalities in Mississippi broken up into two categories: public safety (fire and police personnel) and non-public safety (Battaglio & French, 2016). CFA was completed on the 24-item PSM measure proposed by Perry (1996) with the resulting 12-item PSM measure consisting of the four PSM dimensions (self-sacrifice, commitment to public interest, compassion, and public policy making) operationalized by three items each. It was hypothesized that those in public safety agencies would exhibit higher levels of PSM; however, this could not be confirmed with PSM overall but rather self-sacrifice and commitment to public interest were higher for public safety respondents (fire/police) whereas public policy making and compassion were not (Battaglio & French, 2016).

The impetus for the study by Schott et al. (2019) was to provide conceptual clarity of PSM, prosocial motivation, and altruism as "given the enormous scholarly attention on PSM, it is surprising that considerable conceptual ambiguities and overlaps… still remain" (p. 1200). The qualitative study consisted of 29 interviews with police officers (Swiss police corps) in which the coding for PSM was linked to "justice and security" and prosocial motivation coding was linked to "help and support others" (Schott et al., 2019, p. 1204). Altruism was associated with both types of motivation with societal altruism as the behavior linked to PSM motivation and interpersonal altruism linked to prosocial motivation (Schott et al., 2019). Schott et al. (2019) concluded that the "behavioral power of PSM seems to be limited" largely due to employees not being able to "see the relationship between their work and the impact on society" (p. 1207).

Another qualitative study was completed by van Loon et al. (2013) that placed respondents in four categories consisting of a user logic label (people-changing or people-processing) and a service logic label (negative versus positive). Of the 49 interviews, eight were part of the police force which provided insight into the quadrant of being a people-processing (user logic) and negative service (service logic) provider (van Loon et al., 2013, p. 1010). After coding, a major theme for in the police force (people-processing and negative service) were seen as being "allergic to injustice" and misbehavior (van Loon et al. 2013, p. 1013). As posited, coding patterns in the people-processing and negative service quadrant reflected normative motives and a lack of affective motives with empathy (which came up often in other quadrants) being seen as something that "wears off", normalizing problems of criminals (such as having a bad childhood), and becoming cynical (van Loon et al., 2014, p. 1013).

The next study spanned across four broad occupational classifications including one called core state functions which encompassed security and justice. Anderfuhren-Biget et al. (2014) tested PSM with civil servants in Switzerland by evaluating the environment of the vocation and separating them into four sectors of public service work as defined earlier (welfare, core state functions, public utilities, infrastructures and environment, and general administration) though it is not specified what percentage of the 5,894 respondents fell into each category. A 14-item PSM measure was used based on Perry (1996) that reflected all four PSM dimensions and were considered "relevant specifically for the Swiss context" (Anderfuhren-Biget et al., 2014, p. 815). Notable finds by Anderfuhren-Biget et al. (2014) included compassion being the highest for those within the welfare sector and those with the highest levels of commitment to public interest were found in the sector for public utilities, infrastructures, and environment. Anderfuhren-Biget et al. (2014) hypothesized and confirmed compassion would not be a defining value of civil servants involved in policing or justice (core state functions); indeed, "those working in core state functions [we]re more likely to be reticent about such empathetic feelings" (p. 819).

Prysmakova and Vandenbeele (2019) tested PSM across two police samples, Belgium and Poland, and the PSM measure used was different for each sample. A 4-item global PSM measure originating from Vandenabeele and De Vries (2015) was used for the Polish study (Prysmakova & Vandenbeele, 2019). For Belgium, a 10-item PSM measure was produced from CFA on the 15-item PSM measure operationalized by Kim et al. (2013) and consisted of three dimensions: commitment to public values, compassion, self-sacrifice (Prysmakova & Vandenbeele, 2019). No explanation is provided for using two separate PSM measures. PSM was positively linked to job satisfaction in both samples (Prysmakova & Vandenbeele, 2019).

PSM: High-Intensity Occupations. High-intensity occupations are those that encounter danger or adventure while protecting the public (Torpey, 2016). In addition to firefighting and police work, those in high-intensity occupations include military personnel (Torpey, 2016). Four studies are covered below.

Ngaruiya, Velez, Clerkin, and Taylor (2014) conducted a study on ROTC students using a 20-item model derived from the PSM measurement proposed by Kim and Vandenabeele (2010) consisting of four dimensions: attraction to public service, commitment to public values, compassion, and self-sacrifice. The study highlighted the strength of the self-sacrifice dimension within the sample building on a conclusion made by Kim (2011) of the willingness to provide service without tangible rewards (Ngariuya et al., 2014).

Another study was published by these authors a year later, this time focusing on active-duty Special Forces personnel and exploring PSM in conjunction with the Moskos' Institutional-Occupational model (Taylor, Clerkin, Ngaruiya, & Velez, 2015). The same 20-item PSM measurement was used and it was found that as self-sacrifice increased, respondents were less likely to say 'no' to reenlistment whereas with the increase of compassion, they were more likely to indicate they would not reenlist (Taylor et al., 2015).

Focusing on Danish soldiers who experienced a tour of duty in Afghanistan, Braender and Anderson (2013) used a 14-item PSM model consisting of compassion, self-sacrifice, and commitment to public interest. The survey items had minor differences than Perry (1997) such as *PSM7 I would risk personal loss to help someone else* (Perry, 1997) compared to *SS4 I would risk personal loss to help society* (Braender & Anderson, 2013). It was found that commitment to public interest increased after a tour of duty for Danish soldiers who did not have prior deployment history and compassion decreased for those who did (Braender & Anderson, 2013).

PSM: Emergency Responders. The final classification for firefighters is emergency response providers which, per 6 US Code § 101(6), includes emergency medical and along with many of the other above categories (firefighting and law enforcement). There is one study that focused directly on emergency medical responders and technicians (many were also firefighters though not all). For this study, a three-factor PSM model was used by Stefurak et al. (2020): public service (combination factor of self-sacrifice and commitment to public service), compassion, and public policy making. The inclusion of compassion was debated theoretically (largely based on the many studies that reflected reduced or lowered compassion levels) as the statistical results were right at standard threshold levels; ultimately, based on the comparison of goodness-of-fit tests of the different (two-factor and three-factor) models, compassion was kept as part of the PSM measurement. The sample consisted of public safety workers: emergency medical responders, emergency medical technicians and many were firefighters; the population served by respondents included rural areas, medium towns, and large/mid-sized cities (Stefurak et al., 2020). The public service factor (self-sacrifice and commitment to public service) was found to be a powerful predictor for job satisfaction and job performance and those working in urban environments reported higher job performances than rural areas with Stefurak er al. (2020) referring to potential contributors such as pay and education levels.

PSM and Industry Factors

The last part of this chapter takes a broader look at PSM, motivation, and industry factors. The literature review defined and described regulatory, sociological, economic, and risk factors for the fire service industry. Consideration of industry factors and their relationship with PSM has remained largely unexplored. In the case of AmeriCorps volunteers, Ward (2014) found a positive experience positively impacted PSM levels. However, the industry factors

covered could contribute to a less positive experience as they are seen as challenges and as negatively impacting continued participation.

The following provides a discussion as to the influence industry factors may have on PSM. In addition, factors that could potentially strengthen or weaken the impact industry-specific factors have on PSM are also discussed. For example, Corkin, Ekmekci, and Parr (2018) showed support that bureaucratic obstacles (identified as having the potential to diminish motivation for teaching) could be mitigated in the school-work environment. Many of the industry factor categories remain largely untested directly with PSM therefore general motivational and volunteer research provides much of the basis for the theoretical discussion.

Regulatory Factor Influence. The regulatory factor focuses on the role of the government and the regulations set forth. Many governmental regulations exist for the purpose of protecting people and assets (Russell, Broome, & Prince, 2015) but as Russell (2019) raises, the rules can "become more important than the guardians they're supposed to be serving" (p. 22). In the context of seeing government requirements as a type of job demand or job control, Van Yperen and Hagedoorn (2003) found no significant effect on intrinsic motivation. However, Legault (2016) argued that "the extent that the social environment uses controlling behavioral strategies and external constraints, reinforcers, and punishers, then motivation will become less intrinsic" (p. 2). Russell (2019) adds to this by linking the bureaucracy of governing procedures and rules to being a source of emergency services responders' stress and burnout.

Regulations create external controls and demands which can shift the "perceived locus of causality" which "neglects or thwarts autonomy" (Legault, 2016, p. 2). For example, responding to emergency calls quickly may have been done for intrinsic reasons (desire to serve and protect community property and members) but through regulations, the volunteer firefighter is being

made to respond quickly (extrinsic) to an emergency as opposed to wanting to (intrinsic). Similarly, Cooper (2000) compared examples of intrinsic and extrinsic motivators for emergency response services noting extrinsic motivation would be to "seek to comply with regulations as a matter of principle" as opposed to the intrinsic motivation being to "seek to optimize health and safety" (p. 42).

Therefore, the assessment of a regulation's purpose which guides adherence becomes meaningful. One type of assessment can be classified as an identified regulation which "occurs when the individual values or identifies with the outcome of the activity" (Legualt, 2016, p. 3). Using the previous call response time example, identified regulation can occur when a firefighter recognizes that call time mandates (extrinsic) are based on points of flashover (NFPA 921) and necessary to meet in order to protect community property and members which is the desired outcome and the driving force (intrinsic). As a result, the extrinsic control become "internally governed and self-endorsed" (Legault, 2016, p. 3). This view of personnel control (or reclaimed autonomy) helps explain how certain controls such as standard operating procedures had a direct positive association with intrinsic motivation (Donnelly, Kennedy, & Widener, 2018).

Sociological Factor Influence. Sociological industry factors cover a broad spectrum. In this context, an established meaningful sociological factor for the volunteer fire service is employer support and the subsequent employment impact for volunteer firefighters. For those who attempt to balance their work responsibilities with volunteering can find themselves in a situation when an emergency call comes in and there is a need to leave their regular (paid) work to respond. The unpredictability, frequency, and duration of calls can lead to a potential operations disruption and strained employee-employer relations.

Responding to emergency calls could also result in the loss of pay for the volunteer firefighter. Some employers offer compensation for employee volunteer hours (Lough & Turner, 2017) though it is rare. In addition to the potential time away for emergency call response, Campbell (2018) found that "one-fifth of volunteer firefighter injuries resulted in lost work time" (p. 1). This creates a dilemma for a volunteer firefighter: volunteer for free or work a job that pays (Wynn, 2012).

Research indicates that extrinsic rewards in the form of compensation can negatively impact intrinsic motivation (James, Jr, 2005; Pokorny, 2008). Essentially, the motivation for the action shifts from being internal to occurring as a result of external factors. However, this relationship is a bit more complex. In the volunteer fire service context, it is not that compensation is being provided for the completion of the voluntary act but rather compensation is being taken away from a separate entity in order for the voluntary act to be completed. Volunteering can create the absence of pay and as Lazear (2018) reinforces, "labor is supplied because most of us must work to live" (p. 195). Having to leave during (paid) work schedule can mean forgoing pay in order to participate in unpaid volunteer activities.

Leaving for emergency calls can also be disruptive for the employer in terms of overall operations. How an employer reacts to this disruption signals reflects their level of support. Actions reflecting employer support can manifest itself in many ways.

Employer support can be exhibited through actions linked to both extrinsic and intrinsic motivations. From an intrinsic point-of-view, employer support can be manifested through demonstrated appreciation of the offsite volunteer activities or reassurance of no adverse impact in the employer/employee relationship. One type of extrinsically based support is to provide monetary assistance to offset the compensation loss. As covered previously, some organizations

have formal EVPs to do this as part of their CSR commitment. However, Lough and Turner (2017) reported that compensation incentives were not significant in driving participation, rather employee volunteer policies and practices that appealed to intrinsic motivations were more successful in driving outside volunteering. In addition, EVPs are not commonly offered by employers in rural communities. Papadopoulou and Dimitriadis (2019) tested relationships involving, in part, intrinsic motivation, the public sector, and employer support and concluded that "when external incentives that can be offered to employees are limited, it is crucial to consider the importance of promoting and supporting intrinsic motivation" (p. 129). Positive feedback in the way of verbal praise can elevate intrinsic motivation (Legault, 2016). In the context of EVPs, Lough and Turner (2017) noted that awards and recognition can help create a supportive culture for volunteering.

Economic Factor. The economic industry factor considers the volunteer fire department's financial status. Limited funding for volunteer fire departments in rural communities has safety implications. For example, a self-contained breathing apparatus (SCBA) is important for fighting fires (Eyre, Hick, & Thorne, 2016) and can help reduce the associated cancer risks (due to the toxicity of burned materials) during post-fire clean up (Bodin, 2017). Yet, it was reported that 53% of fire departments are unable to equip all firefighters on a shift with a self-contained breathing apparatus (NFPA, 2016). To address budgets gaps, volunteer fire departments rely on donations and volunteer hours (Pozner et al., 2004). The financial status of the department can force volunteer firefighters either to go without, pay out-of-pocket for necessary items, and/or most commonly, participate in fundraising efforts.

Fundraising occurs in many different venues including raffles, car washes, or food offerings such as pancake breakfasts, chicken dinners, or barbeques. All create an additional

demand on the volunteers. However, fundraising as a (firefighting) team can contribute to what Vallerand (2000) referred to as the need of relatedness. Rigby and Ryan (2018) refer to relatedness as feelings of belonging and being "connected in meaningful ways" (p. 139). This is similar to the study by Bidee, Vantilborgh, Pepermans, Willems, Jegers, and Hofmans (2017) in which team inclusion was positively related to the volunteer's intrinsic motivation. Fundraising as a social activity can contribute to the development of social support across the department which can positively elevate motivation levels (Van Yperen & Hagedoorn, 2003).

Fundraising creates opportunities for interactions between the volunteer firefighters and the community. Positive interactions between volunteer fire firefighters and their community has been covered by research over decades, though sparsely. Lozier (1976) described the volunteer fire department as a "cultural institution of special importance, both symbolically and literally, in the community process" (p. 345). Perkins (1987) describes the fundraising activities not as a burden or requirement but a way for a community to express support and appreciation for their volunteer firefighters, noting that:

> "because VFDs are generally perceived by their local publics as altruistic and benevolent organizations, the community is usually willing to support them. A VFD is seen by its community as contributing to the safety of neighborhoods, and members are considered to making sacrifices for the common good. When times comes for donations, the community is happy to support the VFD" (p. 347).

Simpson (1996) called it a value of volunteer fire departments to "symbolically integrate [with their community] through a ritual of parades, fund-raising efforts, and their example of community service" (p. 17). The financial status of a fire department has both safety and

monetary implications at the individual level for the volunteer; however, the fundraising activities that occur to address budget deficiencies can be a positive event and experience.

Risk Factor. The risk factor for individuals within the fire industry is well-documented in terms of the associated physical and mental health risks as covered in the previous chapter. These risks alone are not always a deterrent; there is a certain level of risk acceptance with the commitment to a high-intensity position.

Research suggests safety risk factors of similar industries (military and police) are accepted as part of the occupational role and the voluntary choice to continue act in these roles (Braender & Anderson, 2013; Breivik, Sand, & Sookermany, 2019; Mandel & Litt, 2013). Alternatively, when trying to account for a "significant decrease in the share of eligible Army soldiers signing up for reenlistment from FY03 through FY05," Lien, McIntosh, and Stafford (2012) found that deployment history could not account for this decline alone but when a measure of risk (fatality rates) of the deployment was included, it had a "large negative effect on reenlistment" (p. 314-315).

Research on the relationship of safety risks and motivation within high-risk industries is inclusive. However, the aforementioned research did not pertain to risk acceptance and voluntary endeavors with the potential to negatively impact the volunteer's non-voluntary responsibilities. In this context, there is a study on US Marines in which Park, Rhim, Kim, Kim, and Yoo (2014) reported a negative impact that a perceived injury risk had on (voluntary sport) participation motivation.

Risk management occurs when the risk is identified, evaluated, and measures are put into place to remove or lessen the potential risk. FEMA (2018) considers risk management within three areas: organizational risk, operational risk, and community risk. Training is key aspect of

operational risk management (FEMA, 2018). Training, as a part of a risk management plan, can reduce injury or death (FEMA, 1996; 2018). This is supported by the research on how influencing employee behaviors through mechanisms such as standard operating procedures or training can contribute to safe environments (Swuste, Van Gulijk, Zwaard, & Oostendorp, 2014; Cornelissen, van Hoof, & van Vuuten, 2014).

Being adequately trained can mitigate risk factors. There is support that intrinsic motivation will increase when extrinsic variables improve perceived competence or self-efficacy (Arnold, 1985; Bem, 1972; Staw, 1976; Legault, 2016). In discussing virtual training, Williams-Bell, Kapralos, Hogue, Murphy, and Weckman (2015) identify certain firefighter injuries that could be reduced by providing firefighters training on decision-making when under stress. Along the same lines, FEMA (2018) also pointed how training to first recognize and respect dangerous situations and then in turn, work safely in these danger situations "provides a considerable amount of counterbalance to the risk inherent in the work itself" (p. 8). Training can aid volunteer firefighters in limiting themselves to physical and mental health risks.

This chapter covers a number of studies that focuses on either firefighting or occupations within the same classification or industry. The PSM measures used in the studies varied in terms of the dimensions conceptualized as part of PSM, though compassion was commonly lower for the targeted populations. There was variance across the number of survey items used to operationalize PSM, which ranged from three survey items to being undisclosed in studies. Considerations of the industry and occupation for PSM is sparsely covered in the literature. As a result, volunteer and general motivation research was utilized when discussing the theoretical implications of industry factors on PSM.

CHAPTER 4

METHODOLOGY

Purpose

The purpose for this study is to confirm the PSM construct in the fire service context and to understand the relationship with fire service industry factors. This study is rooted in motivational theory, specifically PSM theory. The research purpose is two-fold: theoretical and pragmatic. It contributes to the body of research on PSM as well as volunteer literature. It also has the potential to solve practical problems through the identification of pragmatic solutions for volunteer firefighters in rural areas. The two research questions are:

1. Is PSM applicable within a volunteer-based public service, such as the volunteer fire service?
2. Do industry factors, specific to a public service such as the volunteer fire service, influence motivational levels, specifically PSM?

These industry factors fall into the categories of regulatory, sociological, economic and risk. Those being tested are those consistently identified over time as adversely influencing volunteer firefighters' experience and participation. The follow up question is whether the relationships between the industry factors and PSM can be positively moderated. This will aid in developing pragmatic considerations for those within the volunteer fire service.

PSM Factor Analysis

Confirmatory factor analysis (CFA) on the PSM construct will be completed to answer the first research question. PSM has been tested limitedly among volunteer firefighters. Variations of PSM have been used for similar classifications as covered in the theoretical chapter. CFA will be completed using an unmodified PSM survey instrument as validated by

Perry (1996). Performing CFA will determine the applicability of the PSM construct in volunteer fire departments thus meeting a key purpose of the study.

PSM and Industry Factors Testing

With the confirmation of PSM within the volunteer fire service, its relationship with industry factors can be explored. Specifically, the influence of the four industry factors, regulatory, sociological, economic and risk factors, on PSM is tested. Twelve relationships are explored across the four industry factor categories.

Consideration of industry factors and their relationship with PSM has remained largely unexplored. The tested relationships focus on the influence of industry factors on PSM as opposed to PSM antecedents or consequences (Camilleri, 2006; Greentree, 2011; Perry, 1997) or PSM outcomes (Castaing, 2006: Perry, Hondeghem, & Wise, 2010; Nurung et al., 2020). The anticipated relationships are based on the preceding theoretical chapter which focused on PSM research as well as general motivational and volunteer research.

Hypotheses. The factors being tested 1) reflect challenges of the fire service industry, 2) are framed negatively when discussing volunteers' experience and overall participation, and 3) have been identified consistently over time. Research indicates that a positive experience can positively impact PSM levels (Ward, 2014). When industry factors have the potential to create a negative experience, the question becomes whether they can, in turn, negatively impact PSM levels. This is tested through six hypotheses (*H1, H2, H3, H4, H5, H6*) to determine the level of influence, if any, that negatively-perceived industry factors may have on PSM.

The follow up inquiry is whether the influence of industry factors on PSM can be moderated. It is hypothesized that certain factors can strengthen or weaken the impact industry-specific factors have on PSM. To explore this aspect, an additional six hypotheses (*H1a, H2a,*

H3a, H4a, H5a, H6a) with moderators are tested (see Appendix D for graphical models). The entire list of hypotheses across the four industry factors is located in Table 4.1.

Table 4.1 Research hypotheses

Industry Factor	Dimension	No.	Hypothesis
Regulatory	Response Times	*H1*	*Concerns about meeting the regulatory call response times will negatively influence public service motivation levels.*
		H1a	*The influence of call response concerns has on public service motivation will be positively moderated by the view that government regulations are necessary.*
	Training Mandates	*H2*	*A negative assessment of not meeting government training mandates will negatively influence public service motivation levels.*
		H2a	*The influence of not meeting government training mandates has on public service motivation will be positively moderated by the view that government regulations are necessary.*
Sociological	Employment Impact	*H3*	*The employment impact of compensation loss for volunteer firefighters will negatively influence public service motivation levels.*
	Employer Support	*H3a*	*A positive assessment of employer support will positively moderate the influence compensation loss has on public service motivation levels.*
Economic	Department Financial Status	*H4*	*An assessment of being personally impacted by the financial status of the volunteer fire department will negatively influence public service motivation levels.*
	Departmental Fundraising	*H4a*	*A positive assessment on fundraising participation will positively moderate the influence the personal impact of the department's financial status has on public service motivation levels.*
Risk	Physical Well-Being	*H5*	*An assessment that firefighting negatively impacts physical well-being will negatively influence public service motivation levels.*
		H5a	*An assessment of being adequately trained will positively moderate the influence physical well-being risk concerns has on public service motivation levels.*
	Mental Well-Being	*H6*	*An assessment that firefighting negatively impacts mental well-being will negatively influence public service motivation levels.*
		H6a	*An assessment of being adequately trained will positively moderate the influence that mental well-being risk concerns has on public service motivation.*

Regulatory Factor. The first industry factor is regulatory which focuses on the role of the government and the regulations set forth. It is anticipated that regulated call response times (*H1*) and meeting government-established training standards (*H2*) will negatively influence public service motivation levels.

> *H1: Concerns about meeting the regulatory call response times will negatively influence public service motivation levels.*
> *H2: A negative assessment of meeting government training standards will negatively influence public service motivation levels.*

Moderating Regulatory Factor. It is proposed when the regulation's purpose is seen as being meaningful or valid, the challenges presented through these regulatory factors can be moderated. It is hypothesized that the assessment that governmental regulations are necessary will positively moderate the influencing effect that call response mandates (*H1a*) and governmental training standards (*H2a*) have on PSM.

> *H1a: The influence of call response concerns has on public service motivation will be positively moderated by the view that government regulations are necessary.*

> *H2a: The influence of not meeting government training standards has on public service motivation will be positively moderated by the view that government regulations are necessary.*

Sociological Factor. The second industry factor is sociological and focuses on employer support and the subsequent employment impact for volunteer firefighters. Specifically, the impact of compensation loss for the volunteer firefighter is tested in the third hypotheses. Not only is the act of providing fire service not compensable, but compensation is being taken away from a separate entity in order for the voluntary act to be completed. It is hypothesized that the personal economic implications of compensation loss (*H3*) will negatively influence public service motivation levels.

> *H3: The employment impact of compensation loss for volunteer firefighters will negatively influence public service motivation levels.*

Moderating Sociological Factor. A volunteer having to leave during their (paid) work schedule has negative implications for both the employee-who-is-a-volunteer and the employer. Employer support is the reaction to this workplace disruption. Employer support can manifest itself in many ways, and it is hypothesized that an overall positive assessment of employer support (*H3a)* will moderate the influence compensation loss has on PSM.

> *H3a: A positive assessment of employer support will positively moderate the influence of compensation loss has on public service motivation levels.*

Economic Factor. The third industry factor is economic and looks at the impact of the volunteer fire department's financial status on PSM. The financial status of the department can force volunteer firefighters to cover costs themselves and/or participate in fundraising efforts. It is anticipated the perceived personal economic impact (*H4)* from the department's financial status will negatively influence public service motivation levels.

> *H4: An assessment of being personally impacted by the financial status of the volunteer fire department will negatively influence public service motivation levels.*

Moderating Economic Factor. The financial standing of the volunteer fire department can have serious implications. Many volunteer firefighters must participate in fundraising activities to assist in reducing funding gaps. These fundraising activities create opportunities for interactions between the volunteer firefighters and the community which has been established as having value. Based on this, it is hypothesized that views on fundraising participation (*H4a*) can moderate the influence of the volunteer fire department financial status on PSM levels.

> *H4a: A positive assessment on fundraising participation will positively moderate the influence the personal impact of the department's financial status has on public service motivation levels.*

Risk Factor. The risk factor refers to both physical and mental-health risks. The next hypotheses explore how assessments of these risks impact PSM. It is anticipated that assessments of risks to physical (*H5)* and mental well-being (*H6)* will influence PSM levels.

> *H5: An assessment that firefighting negatively impacts physical well-being will negatively influence public service motivation levels.*
> *H6: An assessment that firefighting negatively impacts mental well-being will negatively influence public service motivation levels.*

Moderating Risk Factors. Training is one aspect of risk management. Being adequately trained is explored as a moderator between risk factors and PSM. It is hypothesized that the influence of physical (*H5a*) and mental well-being (*H6a*) risks on PSM is positively moderated by the assessment of being adequately trained.

> *H5a: An assessment of being adequately trained will positively moderate the influence physical well-being concerns has on public service motivation levels.*
> *H6a: An assessment of being adequately trained will positively moderate the influence of mental well-being concerns has on public service motivation levels.*

Study Variables

The following covers the study variables reflected in the models and hypotheses. There are three sections: pertinent industry factors, PSM, and demographics. The entire survey instrument can be found in Appendix E.

Industry Factor Variables. The following regulatory, sociological, economic, and risk factors are part of fire service industry. Derived from the literature review, these four categories of industry factors 1) reflect challenges of the fire service industry, 2) are framed negatively when discussing volunteers' experience and overall participation, and 3) have been identified consistently over time. These four sets of factors are exogenous variables, and the survey items capture the respondent's factor assessment using a 5-point Likert scale. The following breaks down the survey items by industry factor.

Regulatory. Government oversight includes regulations, codes, and other mandated requirements at the local or federal level. This section of the questionnaire addresses government-based training standards and call response times. The survey includes an assessment of the necessity of the codes and regulations. All four survey items for the government role industry factor are listed in Table 4.2.

Table 4.2. Regulatory industry factor survey items.

Factor	Dimension	Question
Regulatory	Response Times	Meeting call responses times is a concern for me and my department.
	Training Mandates	My department is meeting government (federal and local) mandated training and certifications.
	Purpose	Government fire service codes, regulations and requirements are unnecessary.
	Training Standards	My department is adequately trained to address emergency calls per government standards.

Sociological. Sociological influence (Table 4.3) is assessed in terms of overall employer support and compensation loss as a result of leaving work (employment impact).

Table 4.3. Sociological industry factor survey items.

Factor	Dimension	Question
Sociological	Employment Impact	Leaving work for an emergency call does not impact my pay.
	Overall Employer Support	My employer is supportive of me fulfilling my responsibility as a volunteer fire fighter.

Economic. The financial status of the respondents' volunteer fire department is assessed for the economic industry factor. Table 4.4 reflects survey items to assess the impact of the department's financial status along with an assessment of participating in fundraising efforts.

Table 4.4. Economic industry factor survey items.

Factor	Dimension	Question
Economic	Department Financial Status	The financial status of the department impacts me. (reverse)
	Departmental Fundraising	I enjoy participating in local fundraising efforts for the fire department.

Risk. The final industry factor is the safety risk to volunteer firefighters. The risk industry factor consists of an overall safety risk assessment (life in danger), an assessment to the physical risks, and one question on mental well-being (see Table 4.5).

Table 4.5. Risk industry survey items.

Factor	Dimension	Question
Risk	Safety	I feel that my life is in danger when responding to emergency calls. (reverse order)
	Physical Well-Being	Firefighting negatively impacts my physical well-being. (reverse order)
	Mental Well-Being	Firefighting negatively impacts my mental well-being. (reverse order)

PSM Variables. The PSM construct is a measured latent variable and consists of four latent variables, self-sacrifice, compassion, commitment to public interest, and public policy making. The PSM scale replicates the 24-item survey validated by Perry (1996) with no modifications. Table 4.6 contains the 24-item PSM instrument. Self-sacrifice and compassion each contain eight survey items. Commitment to public interest consists of five questions while attraction to policy making has three survey questions. The PSM scale uses a 5-point Likert scale for each of the four dimensions of PSM.

Table 4.6. PSM survey items, validated by Perry (1996).

Factor	No.	Question
Self-Sacrifice	PSM1	Making a difference in society means more to me than personal achievements.
	PSM2	I believe in putting duty before self.
	PSM3	Doing well financially is definitely more important to me than doing good deeds (reverse score).
	PSM4	Much of what I do is for a cause bigger than myself.
	PSM5	Serving other citizens would give me a good feeling even if no one paid me for it.
	PSM6	I think people should give back to society more than they get from it.
	PSM7	I would risk personal loss to help someone else.
	PSM8	I am prepared to make enormous sacrifices for the good of society.

Table 4.6 Continued.

Compassion	PSM9	I am rarely moved by the plight of the underprivileged (reverse score).
	PSM10	Most social programs are too vital to do without.
	PSM11	It is difficult for me to contain my feelings when I see people in distress.
	PSM12	To me, patriotism includes seeing to the welfare of others.
	PSM13	I seldom think about the welfare of people whom I don't know personally (reverse score).
	PSM14	I am often reminded by daily events about how dependent we are on one another.
	PSM15	I have little compassion for people in need who are unwilling to take the first steps to help themselves (reverse score).
	PSM16	There are few public programs that I wholeheartedly support (reverse score).
Commitment to Public Interest	PSM17	It is hard for me to get intensely interested in what is going on in my community. (reverse score)
	PSM18	I unselfishly contribute to my community.
	PSM19	Meaningful public service is very important to me.
	PSM20	I consider public service my civic duty.
	PSM21	I would prefer seeing public officials do what is best for the whole community even if it harmed my interests.
Public Policy Making	PSM22	Politics is a dirty word (reverse score).
	PSM23	The give and take of public policy making doesn't appeal to me (reverse score).
	PSM24	I don't care much for politicians (reverse score).

Source: Perry (1996)

Demographic Variables. There is a qualifying question as to whether the respondent is a volunteer firefighter, and the answer must be 'yes' to be considered for analysis. There are seven individual demographic questions: role, tenure, gender, age, marital status, dependents in household, and educational background. There are also three questions regarding the department (type and size) and surrounding community size. All survey items for demographics can be found in Table 4.7.

Table 4.7. Survey items for demographics

Demographics		Question
Individual	Volunteer Firefighter Status	**Qualifier:** Are you a volunteer firefighter?
	Departmental Role	What is your role in volunteer fire department?
	Tenure	What is your accumulative tenure with the fire department?
	Gender Identify	What is your gender identity?
	Age	What is your age?
	Marital Status	What is your current marital status?
	Children	Do you have children or other dependents living in your residence?
	Education	What is your educational background?
Department	Type	What type is your fire department?
	Size	What is the size of your department?
	Community Served	What is the population of the community served by your fire department?

Research Design

A quantitative research design was used involving online-based survey. The survey was administered to a sample of volunteer firefighters within the state of South Dakota. The unit of analysis is the individual. An IRB form was completed and approved by Old Dominion University.

Population. The targeted population consists of individuals in protective services occupations. These occupations are classified as SOC 33-0000 which consist of firefighters, correctional officers, animal control personnel, police officers and other law enforcement positions (BLS, 2020a).

There are three delimitations in this research. First, the protective service population is narrowed to those providing fire service (NAICS 922160 Fire Protection industry). The population of firefighters in the US is 1.6 million (Haynes & Stein, 2017).

The second delimitation is the focus on volunteer firefighters, or those providing fire service without monetary or other compensatory consideration. There are over 370,000 paid career firefighters and over 745,000 unpaid volunteer firefighters (Evarts & Stein, 2020). This

delimitation exists because of the high percentage of non-paid volunteer firefighters (approximately 70% in the US) and the previously illustrated gap in the research on this group. In the US, there are 29,980 local fire agencies of which two-thirds (19,915) are volunteer fire departments (NFPA, 2016). Of these volunteer fire departments, 95% of them are in departments serving communities fewer than 25,000 citizens and more than half are located in small, rural departments that protect communities with populations of 2,500 or less (Karter Jr. & Stein, 2013).

The third and final delimitation of the study is the focus on volunteer fire departments in rural environments. The USFA (2007) describes the "primary defining characteristic of rural America is geographic separation—separation of communities from one another and separation of residents from one another. The low density of rural communities means a loss of economies of scale and of concentration" adding that the most "important correlated characteristic of rural America is a greater likelihood of being poor" (p. 1). The purpose of this targeted approach is to eliminate outside economic factors of urban environments that represent the 5% of volunteer fire departments that serve communities of 25,000 or more. The targeted population of this study is volunteer firefighters within rural US communities.

Sample. A non-random, purposive sampling is used for this research. It is derived from the above identified population by the geographical limits of South Dakota state lines. This state was selected for two primary reasons: its predominant rural environment and concentration of volunteer-to-paid firefighters. These two characteristics contribute to an effort to reduce sampling error and increase the confidence level. South Dakota has one of the lowest percentages of urban population make-up: 51.9%; Vermont has the lowest with 38.2% of urban population and New Jersey and California have the greatest percentage of urban population with

94.4% (US Census Bureau, 2000). There are 311 towns in South Dakota. Table 4.8 shows the percentage of South Dakota towns that fall within population ranges. Less than 5% of these 311 localities have a population of 10,000 or higher. More than half of the towns have a population of 499 or less. The entire list of South Dakota cities and their population can be found in Appendix F.

Table 4.8. Percentage of South Dakota towns within population ranges.

Population Range	Percentage of South Dakota Towns within Range
100,000+	0.03%
10,000+	3%
2000 – 9999	8%
1000 – 1999	9%
700 – 999	8%
600 – 699	5%
500 – 599	4%
400 – 499	8%
300 – 399	4%
200 – 299	9%
100 – 199	17%
<99	24%

Source: United States Census (2015a, 2015b)

In addition, over 90% of all South Dakota fire departments are volunteer based. Specifically, there are 325 volunteer fire departments in South Dakota consisting of 8,117 recorded volunteer firefighters (SD Fire Marshal, 2017). This high percentage of volunteer firefighters in a rural environment allows a concentrated, more homogenous sample to look at the volunteer firefighter population.

Data Collection. Survey questions were programmed into the web-based Qualtrics program. The survey questions can be found in Appendix E. Because many volunteer fire departments may not have numerous computers onsite with internet access, the survey could also be completed on mobile electronics such as cell phones.

There were three sections of the survey. The first section was the introduction which included a brief explanation of the research study along with anonymity assurance, voluntary participation, and surveyor contact information. The theoretical model of PSM was not directly mentioned; the description of the study and purpose is limited to the general term of motivation. This simplified explanation keeps the subject matter non-intimidating and avoids the potential for leading.

The bulk of the section contained the survey questions on the four industry factors and the public motivation variables as originally proposed by Perry (1996). The survey ended by collecting demographical information. Once the data collection process began, the survey design and tool did not change; the same questions were asked of all intended participants. Doing so addressed reliability.

Internal Validity. Design contamination was a possibility as data collection took place across a 10-week time period. Those who have already completed the survey may interact with those who have not yet taken the survey. History could have also been a potential threat due to the time lapse between providing the survey and it being completed. This threat is limited, in part, by the separation of towns and that this aspect (firefighting) of the participants' life being secondary to a full-time job or other responsibilities. Experimental mortality is not a concern as there are no two groups being evaluated. Instrumentation is not a concern as the survey does not change, nor is there a pre/post-test. Because this is a one-time survey, maturation is not a concern. Self-selection was also an internal validity concern. Participants may feel they need to provide socially-desired responses. Having the questions in both positive and negative voice and making the survey anonymous may assist with this. In addition, there is a statement on answer anonymity in the notification and survey instrument to encourage honest answers.

External Validity. There is no threat of interaction of setting and treatment as 95% of volunteer fire departments serve communities of 25,000 and below such as the intended population does. To avoid an external validity threat of interaction of history and treatment, before the survey is executed, it was verified that no emergency, fatality, or environmental scare has occurred recently. In addition, demographical results with be compared to the 2018 NFPA National Firefighter Survey profile (Evarts & Stein, 2020) to confirm no threats to the interaction of selection and treatment.

Bias. The researcher was born and raised in South Dakota. Having roots in the chosen demographical area introduces selection bias; however, the research purpose and delimitations are served appropriately. The researcher has never been a volunteer firefighter.

Sample Access and Notification. The Department of Public Safety (DPS) within the State of South Dakota consists of three areas: licensing, enforcement, and emergency services. The mission of SD Department of Public Safety (n.d.) is to "keep South Dakota a safe place to live, work, visit, and raise a family" (para. 1). The State Fire Marshal's office is part of emergency services. The SD State Fire Marshal Office assists DPS in their mission by assisting "fire departments with training, investigation, public education, fire prevention, and code compliance" (State Fire Marshal, n.d.).

The SD Fire Marshal was contacted prior to survey dissemination. In both email and verbal conversations, the SD Fire Marshal was encouraging of the research noting that the office would not be able to assist with survey notification due to the associated prizes. It was also mentioned that when the State Fire Marshal's office had sent their own forms in the past, there was limited responses despite the forms being directly linked to funds and the option to either complete them on a physical form or online.

Three hundred and eleven letters were addressed to all listed South Dakota fire departments. Addresses were obtained via the 50states website: https://www.50states.com/south_dakota/fire_departments.htm. In each envelope, there was a letter containing information similar to the online survey introduction. The back of the letter could serve as a poster informing volunteer firefighters of the survey and it was requested that it be hung at the station. Approximately twenty small leaflets were also provided in each letter to be passed out to members which again shared researcher information, anonymity notice, and the survey link. All letters were mailed by January 3, 2020 beginning the 10-week data collection time frame.

On January 11, 2020, the researcher also visited a training seminar for SD volunteer firefighters held in Pierre (state capitol). Additional leaflet handouts were offered and accepted by the training facilitator with expressed agreement to hand them out to training attendees. Upon receipt of a research letter and its leaflets, the South Dakota Fire Chief's Association (FCA) president also reached out in January expressing interest in the research and results. Permission was requested by the FCA president and granted for the research information and survey link to be passed onto for the SD Firefighters newsletter.

At the end of the 10-week period, the overall number of responses remained low. Ninety-percent responses occurred in the first 4 weeks of the survey. Email follow-up had been initiated to the FCA president and included an inquiry as to whether the research survey information was published in the newsletter. No response was received.

No more notification attempts were made in efforts to increase survey responses due to the COVID-19 virus being identified as a pandemic within the US. When awareness of COVID-19 first started, there was limited understanding of the virus, its effects, and how it is/was

transmitted. There was heightened concern for those providing medical services including firefighters/EMS. The main page of the NFPA website was dedicated to COVID-19 information and potential implications for fire service operations. Attempts to solicit additional responses would have introduced an external validity threat of interaction of history as heightened concerns about COVID-19 and safety could have skewed the responses comparatively.

CHAPTER 5

RESULTS

The following covers the results of the study: PSM applicability across volunteer firefighters and the influence of industry factors on it. First, a profile of the survey respondents is provided. The 2018 NFPA National Firefighter Survey profile (Evarts & Stein, 2020) is provided for composition comparative purposes. The variables of interest are then briefly covered and descriptive statistics are provided. Reliability tests and CFA were conducted to explore the applicability of PSM. Regression was used to test the potentially negative influence industry factors have on PSM levels. Finally, moderators are introduced and tested.

Profile of Survey Respondents

Survey letters were sent to 311 fire departments to reach the 8,117 volunteer firefighters recorded by the SD Fire Marshall office (2017). A total of 89 responses were generated over a 10-week period with 90% occurring in the first 4 weeks of the survey. Of those who started the online survey, 95% completed it in its entirety. The other 5% of respondents only completed 1% to 4% of the survey before terminating their process. These incomplete responses were removed therefore eliminating any need to address missing data. After the data was cleaned, there were 84 usable responses. All respondents were volunteer firefighters, a qualifier that was included.

The composition of this sample closely mirrors the 2018 NFPA national response. Table 5.1 reflects the composition of the national reports compared to this study and support no threats to interaction of selection and treatment. For example, it was reported that 11% of volunteer respondents were female nationally (Evarts & Stein, 2020). In this sample, 10.7% of respondents were female. The age of respondents ranged from 18 to 74 with the mean at 45 years old. One volunteer firefighter was a teenager, and five volunteer firefighters were over the age

of 70. Half of the respondents (50%) were between 30 and 49. Again, this is similar to the 2018 NFPA report (Evarts & Stein, 2020) which indicated that 50% of firefighters nationally are between the ages of 30 and 49. The overall distribution of age for this study reflects a slightly older population which is in line with the NFPA distinction that "departments protecting less than 2,500 people had the highest percentage of firefighters age 50 and older" (Evarts and Stein, 2020, p. 3).

Table 5.1. Comparison of Study Composition to National Study

Category	2018 NFPA Report (Paid & Volunteer)	SD Volunteer Firefighters
Gender		
Female	*11%*	10.7%
Age		
16-19	3%	0.01%
20-29	21%	11.9%
30-39	27%	25%
40-49	23%	25%
50-59	17%	18%
60 and over	9%	19%
Tenure		
< 1 year	*10%*	---
1 – 5 years	*27%*	23%
6 – 10 years	*22%*	19%
> 10 years	*41%*	58%

Source: Evarts & Stein (2020)
Italicized percentages reflect solely volunteer respondents

Tenure ranged from 1 year to 51 years with the mean being 15.2 years. This survey reflected a more tenured sample; the majority of respondents for both surveys were those who had 10 or more years of volunteer firefighting. Those less tenured in the 2018 NPFA report were those serving community sizes over 200,000 (Evarts & Stein, 2020) which do not exist in South Dakota. Finally, the majority of respondents (67%) were in a leadership position.

The majority of respondents (79.8%) were married. Half of the sample (50%) had children/dependents while the other half did not. Of those who did have children, half had either 3 or more. Over half of the respondents had worked in the public sector at some point though at

the time of the survey, only one respondent was currently working in the public sector (local level). About one-fourth of respondent's educational background consisted of a high school diploma. The rest had some type of education beyond high school with 9.5% of respondents having graduate degrees.

Survey responses confirmed that volunteer firefighters operating in rural environments were represented. Table 5.2 builds on the previously provided table (Table 4.8) by showing the percentage of respondents by community. The largest group consisted of about one-fourth of respondents which served a community size of 1,000 to 2,499 people. The 2018 NFPA report indicated that 95% of volunteer firefighters protect fewer than 25,000 people (Evarts & Stein, 2020). In this study, 97.6% of volunteer firefighters protected fewer than 25,000 people.

Table 5.2. South Dakota Community Size Comparison to Respondents per Community Size

Population Range	South Dakota Community Size	Respondents Per Community Size
100,000 to 149,999	0.03%	---
75,000 to 99,999	---	---
50,000 to 74,999	0.03%	---
25,000 to 49,999	0.03%	---
10,000 to 49,999	2.5%	19.0%
1,000 to 9,999	16.7%	41.7%
1 to 999	79.8%	39.3%

Source: United States Census (2015a, 2015b)

The most common department size was 26 to 30 people (32.56%) followed by 16 to 20 people (20.93%). In terms of volunteer fire department classifications, over three-fourths of the departments were completely volunteer based with less than 10% being combination fire departments. About 50% were considered nonprofit volunteer fire departments with about one-third still operating through their local government. Eight respondents were unsure of their department's classification.

Variables of Interest

The study variables fall into two areas: PSM measures and industry factors. Based on the Perry (1996) original PSM model, there are 24 measures of PSM. The 10 measures for industry factors fall into four categories: regulatory, sociological, economic, and risk.

PSM. Two PSM measures had notably strong agreeable responses. Only 1% of responses either disagreed/strongly disagreed with *PSM5- Serving other citizens would give me a good feeling even if no one paid me for it* and for *PSM19- Meaningful public service is very important to me.*

Unsure responses made up approximately 8-11% of the responses except for nine measures with greater uncertainty from respondents. All the measures that made up the public policy factor fell into this category with 31% unsure responses for *PSM22- Politics is a dirty word (reverse score)*, 38% unsure responses for *PSM23- The give and take of public policy making doesn't appeal to me (reverse score)*, and 19% unsure responses for P*SM24- I don't care much for politicians (reverse score)*. Two measures within the compassion factor also had higher unsure responses: *PSM9- I am rarely moved by the plight of the underprivileged* with 27% and *PSM10- Most social programs are too vital to do without* with 43%.

Industry Factors. The industry factors fall into the categories of regulatory, sociological, economic and risk. Descriptive statistics are provided in Table 5.3.

Table 5.3. Descriptive Statistics for Industry Factors

Variables (* *moderators*)		*M*	*SD*	1	2	3	4	5	6	7	8	9	10
Regulatory	1. Response Time	2.49	1.09	1.00									
	2. Training Mandates	3.54	1.07	-0.22	1.00								
	3. Purpose* 3	4.01	0.82	0.03	0.04	1.00							
	4. Adequately Trained* 5	3.54	1.07	-0.21	0.78	0.02	1.00						
Sociological	5. Employment Impact	3.30	0.96	0.04	-0.13	-0.06	-0.05	1.00					
	6. Employer Support*	3.99	0.96	-0.12	-0.08	-0.03	0.09	0.32	1.00				
Economic	7. Dept Finances	3.01	1.17	-0.37	0.15	0.19	0.00	-0.09	-0.06	1.00			
	8. Dept Fundraising*	4.05	0.86	-0.16	0.16	0.12	0.10	0.04	-0.09	0.17	1.00		
Risk	9. Physical Well-Being	2.31	0.98	-0.04	-0.05	-0.15	-0.18	-0.01	-0.01	0.03	-0.16	1.00	
	10. Mental Well-Being	3.39	1.05	-0.09	-0.16	0.20	0.08	0.02	0.21	0.23	0.19	-0.35	1.00

N = 84

Regulatory. Almost two-thirds (62%) of respondents are concerned about call response times. About a quarter of respondents (24%) did not consider themselves to be trained per governmental standards whereas 65% either agreed or strongly agreed that they were. Seven percent of respondents (7%) either agreed that governmental regulations were unnecessary or were unsure (8%) about them. The rest of respondents either disagreed (60%) or strongly disagreed (25%) that the regulations were unnecessary.

Sociological. Over one-third of respondents (36%) reported that their pay is impacted by leaving work for an emergency call. A little over one-half of respondents (56%) reported that their pay was not impacted by leaving work. The large majority (77%) either agreed or strongly agreed that their employer was supportive of their volunteer firefighter responsibilities.

Economic. Responses were mixed on whether the respondent felt personally impacted by the financial status: 44% were unaffected whereas 40% felt affected by the department's financial status. As far as participating in fundraising activities, 86% reported that they did not mind participating with 8% not liking fundraising participation.

Safety. Respondents assessed firefighting impacts to their physical and mental well-being differently. Only 15% felt that their physical well-being is negatively impacted by firefighting whereas 69% did not. This number rises for mental well-being risks with almost twice as many respondents feeling that their mental well-being is negatively impacted by firefighting and right under 60% reporting not feeling negatively impacted. For both risk factors, there were about 10% to 15% of respondents who were not sure.

Data Analysis

To meet the research objectives, two tests were used. CFA was completed to test the applicability of PSM within the fire service industry across volunteer firefighters. Next,

regression was used to test each industry factor individually with PSM followed by the introduction of moderators.

PSM Factor Analysis. In the model by Perry (1996), the four dimensions (attraction to policy making, commitment to the public interest/civic duty, compassion, and self-sacrifice) had coefficient alphas ranging from 0.69 to 0.74 though internal reliability has been questioned by subsequent research (Camilleri, 2006). Prior to running CFA, Cronbach's alpha was computed on the four dimensions based on the scale by Perry (1996) as seen in Table 5.4. Self-sacrifice (0.709) and public policy making (0.724) scored within the acceptable range while compassion (0.411) and commitment to public interest (0.592) did not.

Table 5.4. Cronbach alpha reliability coefficients results based on Perry (1996) scale

Dimension	Cronbach alpha
Self-Sacrifice	0.709
Compassion	0.411
Commitment to Public Interest	0.592
Public Policy Making	0.724

The above results raised concerns about the applicability of the Perry (1996) model, particularly with the compassion dimension. With reliability results in mind, tests were then completed for confirmatory factor analysis.

Perry (1996) PSM Model. CFA was conducted on each of the four dimensions within PSM. This approach is appropriate as each dimension has its own distinct theoretical background and is unique to the others included in the construct (Kim & Vandenabeele, 2010; Perry, 1996). To determine appropriateness of factor analysis, the Bartlett test of sphericity was conducted producing $p=0.001$ for all four factors thus meeting the requirement of $p<0.05$. A measure of sampling adequacy was also completed using Kaiser-Meyer-Olkin measure of sampling adequacy (KMO MSA). The results are recorded in Table 5.5.

Table 5.5. Dimension Factor Analysis Based on Perry (1996) PSM measurement model

Dimension	Bartlett's $p<0.05$	KMO KSA >0.50	Eigenvalue Score >1.00
Self-Sacrifice	0.00	0.704	2.40
Compassion	0.00	0.485	0.96
Commitment to Public Interest	0.00	0.647	1.50
Public Policy Making	0.00	0.664	1.26

Three of the four dimensions were suitable for factor analysis: self-sacrifice (8 items), commitment to public interest (5 items), and public policy making (3 items). The KMO for the self-sacrifice dimension was the highest at 0.704. The KMO for both public interest (0.647) and public policy making (0.664) also met the requirement of being greater than 0.50. Upon completion of these pre-tests, factor analysis was conducted for three of the four dimensions. The eigenvalues produced from the factor analysis included: self-sacrifice at 2.40 (followed by a 0.54 eigenvalue for a second factor); public interest at 1.50 (followed by a 0.199 eigenvalue for the second factor); public policy making at 1.26 (followed by a -0.10 eigenvalue for the second factor).

The fourth dimension, compassion, did not meet the factor analysis criteria. Using the 8 survey measures, compassion met the Bartlett test of sphericity but the KMO was right below the minimum value of 0.50 at 0.485. Not surprisingly, factor analysis for compassion could not meet an eigenvalue of 1.00 with its final 0.959 score. This result joins similar studies reporting the compassion dimension as not as strong as the others (DeHart-Davis et al., 2006; Wright, 2008) or not strong in general (Liu, Tang, & Zhu, 2008).

The first research question of the study is whether PSM is applicable within a volunteer-based public service, the volunteer fire service. For this sample, the 4-factor PSM model by Perry (1996) was unable to be confirmed as applicable without a theoretical explanation for scale adjustments.

There is research to support the adjustments to the PSM model due to cultural differences (Liu & Perry, 2016) and in the exploration of relationships with specific occupational classifications (Drevs & Müller, 2015; Schmidthuber & Hilgers, 2019; Battaglio & French, 2016; Anderfuhren-Biget et al., 2014; Prysmakova & Vandenbeele, 2019; Ngariuya et al., 2014; Braender & Anderson, 2013). For their study, Stefurak et al. (2020) completed EFA on the Perry (1996) model with a sample of emergency medical services (EMS) personnel which was comprised, in part, across volunteer firefighters and included those in rural environments. To answer the first research question more definitively regarding the applicability of PSM in the volunteer fire service, CFA was completed based on the Stefurak et al. (2020) model.

Stefurak, Morgan, and Johnson (2020) Model. There are numerous versions of PSM models used in studies, some derived directly from the Perry (1996) model and with language adjustments or additions (Kim, 2011; Coursey & Pandey, 2007; Coursey, Perry, Brudney, & Littlepage, 2008; Lui & Perry, 2016). The PSM model by Stefurak e al. (2020) was validated across a sample of EMS professionals and is appropriate for CFA in this study due to:

1) Being U.S.-based. Alternatively, Kim (2011) studied PSM within the fire service industry in Korea; however, this introduces potential limitations based on cultural differences as discussed by Kim et al. (2013) and Lui and Perry (2016).
2) Having fire protection industry relevance (NAICS 9221; see Table 1.1). EMS programs are under the umbrella of the USFA as part of the 2008 USFA Reauthorization Act (Public Law 110-376). The evolution of fire service now includes emergency medical responses and predominantly so. For example, the majority of emergency calls made to South Dakota fire departments were 61% EMS while fire calls were only 6.7% of all incident's types (FEMA, 2018).

3) Similar occupational classifications to SOC 33-2000 (see Table 1.2). Stefurak et al. (2020) surveyed EMS professionals (N=1,403) noting that many were firefighters, though not all. While firefighters typically require training in EMS and most hold an EMT certification (BLS, 2020b), not all EMS professionals are firefighters.
4) Rural environment representation. Rural/urban distinctions are not often made for those in the fire service industry; however, Stefurak et al. (2020) collected data that indicated 44.6% of respondents served a rural area or small town followed by 24.3% for medium towns, and 31.1% in large or mid-sized cities.

Stefurak et al. (2020) used the original Perry (1996) measure and after running CFA, found it to be a poor fit. Shifting to EFA, the end result of the study by Sterfurak et al. (2020) was a three-factor PSM model.

Descriptive statistics for PSM based on the 16 measures of the Stefurak et al. (2020) PSM model can be found in Appendix G. The three-factor PSM measurement by Stefurak at al. (2020) is presented in Table 5.8. The survey item labels were kept the same for those found in the Perry (1996) 24-measure which was provided in Table 4.7.

The factor analysis completed by Stefurak et al. (2020) combined the self-sacrifice and commitment to public interest measures together; this factor was called public service. Though the compassion dimension was retained (expressed through two compassion measures and one self-sacrifice measure), the authors expressed concerns about the reverse score measures present and ultimately, the lower Cronbach alpha for compassion (.602) compared to public service (.905) and public policy (.739).

For this study, reliability was retested using the 16-measure by Stefurak et al. (2020). Public service reflected an inter-reliability score of 0.799 and public policy remained the same at

0.724 as the dimension remained unchanged from the Perry (1996) model. The compassion factor went from 0.411 (Perry, 1996) to 0.308 (Stefurak et al., 2020). The compassion dimension had been altered on the Stefurak et al. (2020) model from the Perry (1996) model; however, the reliability of the measure still raised concerns. Reliability testing is recorded in Table 5.6 for the public service, compassion, and public policy making dimensions.

Table 5.6. Initial Cronbach alpha reliability coefficients results based on Stefurak et al. (2020)

Dimension	**Cronbach alpha**
Public Service (*Self-Sacrifice and Commitment to Public Interest*)	0.799
Compassion	0.308
Public Policy Making	0.724

Pretests were completed on the 16 items with Bartlett test of sphericity producing $p=0.001$ which met the requirement of $p<0.05$ and the KMO was 0.750 which also met the requirement of being greater than 0.50. Confirmatory factor analysis was conducted on the Stefurak et al. (2020) three-factor PSM model. Two factors were retained with the first having an eigenvalue score of 4.06 followed by one with a 1.69. Table 5.7 reflects the factor loadings for the two factors.

Table 5.7 Stefurak et al. (2020) PSM Measurement: CFA Results with Factor Loading Scores

Dimension	No.	Question	Factor 1	Factor 2
Public Service	PSM1	Making a difference in society means more to me than personal achievements.	0.586	-0.094
	PSM2	I believe in putting duty before self.	0.053	-0.360
	PSM4	Much of what I do is for a cause bigger than myself.	0.767	0.130
	PSM5	Serving other citizens would give me a good feeling even if no one paid me for it.	0.286	-0.149
	PSM6	I think people should give back to society more than they get from it.	0.655	-0.130
	PSM7	I would risk personal loss to help someone else.	0.659	-0.006
	PSM8	I am prepared to make enormous sacrifices for the good of society.	0.579	-0.280
	PSM18	I unselfishly contribute to my community.	0.715	0.010
	PSM19	Meaningful public service is very important to me.	0.698	0.071
	PSM20	I consider public service my civic duty.	0.632	-0.140

Table 5.7 Continued.

Compassion	PSM9	I am rarely moved by the plight of the underprivileged (reverse score).	-0.041	0.294
	PSM10	Most social programs are too vital to do without.	0.456	0.024
	PSM3	Doing well financially is definitely more important to me than doing good deeds (reverse score).	0.451	0.174
Public Policy	PSM22	Politics is a dirty word (reverse score).	0.087	0.600
	PSM23	The give and take of public policy making doesn't appeal to me (reverse score).	0.173	0.646
	PSM24	I don't care much for politicians (reverse score).	0.083	0.708

Similar to Shefurak et al. (2020), CFA testing combined the measures for self-sacrifice (*PSM1, PSM4, PSM6, PSM7, PSM8*) and commitment to public interest (*PSM18, PSM19, PSM20*) together into one factor: public service. Two self-sacrifice variables, *PSM2* (0.053) and *PSM5* (0.286), were not included in the public service dimension. The end result was a public service dimension consisting of eight measures. Also similar to Shefurak et al. (2020), the measures for public policy (*PSM22, PSM23,* and *PSM24)* made up a second separate factor.

The compassion dimension did not materialize as a separate factor. The Shefurak et al. (2020) measures for compassion were *PSM3* (self-sacrifice)*, PSM9* (compassion)*,* and *PSM10* (compassion). In only keeping variables scoring greater than 0.500, *PSM10* (0.456) and *PSM3* (0.450) were not included in the final public service factor and nor was *PSM9* (-0.041).

Finally, reliability was tested again based on the factor loadings for the two-factor PSM model. Based on CFA, the public service dimension consisted of eight variables and the public policy dimension consisted of three variables. The results for the two factors are recorded in Table 5.8 which compares the study's CFA results to the EFA results by Stefurak et al. (2020).

Table 5.8. Cronbach alpha reliability coefficients comparison.

Dimension	**EFA***	**CFA**
Public Service *Combined factor via factor analysis:* *Self-Sacrifice and Commitment to Public Interest*	0.905	0.852
Compassion	0.602	---
Public Policy Making	0.739	0.724

* Source: Stefurak et al. (2020)

From there, goodness-of-fit was compared between the two-factor model (self-sacrifice, commitment to public interest) and the three-factor model (self-sacrifice, commitment to public interest, and public policy making). Using the generate command function in Stata, a PSM variable was produced based on the two-factor model (CFI = .896) as opposed to the three-factor model (CFI = .733), which included public policy making. The application of the Stefurak et al. (2020) produced a viable PSM measure for the volunteer firefighter study.

Industry Factors. A viable PSM measure allowed the second part of the testing to occur in which the influence of fire service industry factors on PSM was tested. There were no significant correlations between the four industry factors and PSM (see Appendix H).

Hypotheses Testing

The first set of hypotheses tested the influence of external industry factors on PSM in the areas of regulatory *(H1, H2),* sociological *(H3),* economic *(H4),* and risk *(H5).* In the literature, these factors are framed negatively and have been established through numerous studies as challenging areas associated with recruitment and retention. It was anticipated that the industry factors would negatively influence the PSM levels of volunteer firefighters. Regression was used to test the relationship of the industry factors and PSM. Results are recorded in Table 5.9.

Table 5.9. Regression Testing Results of Industry Factors on PSM

Industry Factor		Hypothesis	p-value	PSM Adj R Square	Coef.	t
Regulatory	Response Time	*H1*	*0.703*	*-0.011*	*-0.036*	*-0.38*
	Training Mandates	*H2*	***0.003******	***0.094***	***0.282***	***3.10***
Sociological	Employment Impact	*H3*	*0.203*	*0.007*	*-0.096*	*-1.28*
Economic	Dept Financial Status	*H4*	*0.079*	*0.025*	*-0.156*	*-1.78*
Risk	Physical Well-Being	*H5*	**0.006****	**0.076**	**-0.28**	**-2.80**
	Mental Well-Being	*H6*	*0.530*	*-0.007*	*-0.062*	*-0.63*

N = 84 ** $p < 0.05$ *** $p < 0.01$

The hypotheses on response time (*H1*), employment impact (*H3*), the department's financial status (*H4*) and mental well-being risks (*H6)* were rejected based on the high p-value ($p > 0.05$) indicating that these industry factors were not statistically significant in its relationship with PSM levels. Two other industry factors, training mandates (*H2*) and physical well-being threats (*H5)* met p-value standards ($p < 0.05$) of being statistically significant. The adjusted r-square value indicated the influence of these industry factors were low and not particularly statistically meaningful. The regulatory factor of training mandates (*H2)* indicated a positive influence on PSM accounting for 9.4% of the variance in PSM. The risk factor of physical well-being (*H5*) indicated a negative influence on PSM accounting for only .6% of the variance in PSM.

Moderators. The next set of hypotheses introduced moderators to determine if the effects of the industry factors on PSM could be managed. To test these, interactions were included in the regression model. The results of the hypotheses involving moderators can be found in Table 5.10.

Table 5.10. Moderating Effects on PSM

Industry Factor	IV Variable	Hypothesis	Moderator	p-value	Adj R Square	Coef.
Regulatory	Response Time	*H1a*	Purpose: Necessary	0.070	0.018	0.069
	Training Mandates	*H2a*	Purpose: Necessary	**0.001*** **	**0.109**	**0.057**
Sociological	Employment Impact	*H3a*	Employer Support	*0.112*	*0.026*	*0.251*
Economic	Dept Financial Status	*H4a*	Fundraising Views	**0.035****	**0.068**	**0.185**
Risk	Physical Well-Being	*H5a*	Adequately Trained	**0.001*** **	**0.147**	**0.103**
	Mental Well-Being	*H6a*	Adequately Trained	**0.000*** **	**0.217**	**0.113**

N = 84 ** $p < 0.05$ *** $p < 0.01$

Four factors were found to moderate the tested industry factor in the areas of regulatory (*H2a*), economic (*H4a*), and risk (*H5a, H6a*). The moderating relationships for the other regulatory factor (*H1a*) and the sociological (*H3a*) industry factor were not supported ($p>0.05$). A low-moderate level of influence was reflected for the moderating relationship of being adequately trained on the risk industry factors: physical well-being (0.147) and mental well-being (0.217).

Summary of Testing Results

The survey response rate was markedly low, but the composition of those who responded closely mirrored the composition of national firefighter survey (Evarts & Stein, 2020). This chapter covered variables of interest and presented descriptive statistics. The CFA results of the PSM measurement by Perry (1996) and Stefurak et al. (2020) were also covered. The Stefurak et al. (2020) PSM measurement was derived from the Perry (1996) PSM measurement and was validated across a sample that included respondents of the same occupation classification, industry, and in rural environments. A viable PSM measure consisting of self-sacrifice and commitment to public interest was created using this study's sample of volunteer firefighters in the fire protection industry.

Six industry factors were tested to explore the influence on PSM levels. It was anticipated that the industry factors would negatively impact PSM. Four factors did not have a significant relationship, or influence, on PSM: response time, employment impact, assessment of the fire department's financial status, and mental well-being concerns. Physical well-being concerns were supported as having significance ($p=0.006$) but had low statistical power with the potential to only explain 7.6% of the variance. Finally, while the relationship of meeting

governmental training standards was found to be significant (p=0.003), this regulatory factor showed a positive influence on PSM levels opposed to the anticipated negative relationship.

Despite the industry factors not having a significant influence on PSM levels, it was found that what effect they did have could be positively moderated. Four relationships were significant in moderating the influence of the industry factors, particularly for the two risk industry factors. Assessments of being adequately trained positively moderated the relationship of physical and mental well-being concerns on PSM with low-moderate statistical power. Employer support was not found to be an effective moderator on the employment impact factor. Overall, the regulatory industry factor of training mandates was found to be a positive influence on PSM levels, and the negative influence that an assessment of risk to physical well-being had on PSM was positively moderated by an assessment of being adequately trained.

CHAPTER 6

CONCLUSIONS

Summary of Study Findings: PSM Measure

The first research purpose was to determine whether PSM was applicable within a volunteer-based public service, the volunteer fire service. To answer this, CFA was completed using the original Perry (1996) scale which consisted of four scales: self-sacrifice, compassion, commitment to public interest, and public policy making. A great deal of research has covered the inconsistency of the measure being used to operationalize PSM though the majority of PSM measures have originated from the Perry (1996) scale (Ritz et al., 2016). In addition to study-based measures, global measures have been proposed to bring consistency to this area (Kim et al., 2013) though none have yet to become widely accepted. By using the original instrument proposed, this study aimed to provide support for it, or join the call for a new validated measure to be used consistently within PSM studies.

Perry (1996) Model. All four dimensions of the PSM model by Perry (1996) were unable to be confirmed as part of the PSM construct. As a result, the Perry (1996) original measurement scale was not found to be applicable to the volunteer firefighter sample. As part of the original study parameters, an argument would have been made to join the call for a universal measurement to improve consistency (Wright, 2008)**.** However, this study reinforces the collective research leaning toward contextual considerations, such as occupational classifications and/or industry. For example, van Loon (2013) found differences in PSM based on the contextual differences of organizations being people-changing or people-processing. Similar to adjustments being made for cultural reasons (Lui & Perry, 2016), the contextual environment can be markedly different for those within it.

While the PSM measurement through the Perry (1996) model was not confirmable across the volunteer firefighter sample, the complete answer as to whether PSM was applicable to the public service type, such as the volunteer fire service, was not clear. As a result, CFA was completed using the Stefurak et al. (2020) PSM measurement.

Stefurak, Morgan, and Johnson (2020) Model. The PSM measurement model proposed by Stefurak et al. (2020) resulted from EFA on the Perry (1996) model. This measurement was confirmed across a sample that either were operating in the fire protection industry or in an industry environment that was similar to the fire protection industry. By being U.S.-based, the measurement eliminated many cultural dimensions concerns that may arise from testing PSM in different countries (see Kim, 2011). Finally, this model was confirmed with a sample that represented rural environments which again has the potential to create contextual differences.

The study results of CFA on the Stefurak et al. (2020) model supported self-sacrifice and commitment to public interest being merged, which was in turn labeled public service. The other two dimensions, public policy making and compassion, were not supported to be included with the public service dimension for the PSM measure. When public policy making was combined with public service, the goodness-of-fit of the PSM model did not meet necessary thresholds. Similar to other studies (Stefurak et al., 2020; Kim, 2009; Perry & Vandenabeele, 2015), public policy making presented itself as viable factor but separate than the public service.

Compassion did not meet pre-test requirements and was unable to materialize as a viable dimension. Compassion was not as strong for Stefurak et al. (2020) either, or with those focusing on similar occupations (Battaglio & French, 2016; Anderfuhren-Biget et al., 2014). A discussion, both theoretical in nature and on the testing results, ultimately led to the compassion

factor being kept as part of the Stefurak et al. (2020) model unlike this study. Stefurak et al. (2020) noted that the findings suggest that "EMSP's have distinct beliefs about the general motivation to serve the greater good – the fusion of self-sacrifice and commitment to public interest items – versus the motivation to serve specific concrete human needs – compassion" (p. 607) referring to similar studies by Braender and Anderson (2013) with soldiers and by Schott et al. (2019) with police officers.

The resulting PSM measure from this study consisted of measures representing self-sacrifice and commitment to public interest which Stefurak et al. (2020) called public service. In addition to Stefurak et al. (2020), the public service dimension proposed is supported by the findings of Battaglio and French (2016) in which it was reported that their sample, employees in public safety, overall had higher levels of self-sacrifice and commitment to the public interest compared to those in other agencies, and had lower reports of attraction to public policy making and compassion.

Support for the self-sacrifice dimension presenting itself across an occupation classified as dangerous and high intensity appears to meet face validity at a minimum. Statistically, this study can be added to the research which has reported a strong connection of the self-sacrifice dimension and volunteering (Steijn, 2006; Lee & Brudney 2015; Costello et al., 2020). Commitment to public interest being retained as part of the PSM construct builds on the findings of Battaglio and French (2016) in which they found those in public safety roles (police and firefighters) as having significant levels of commitment to public interest.

The study's PSM model results were not an exact replica of the Stefurak et al. (2020) model. However, it does contribute to a research path stemming from the Perry (1996) model and is in line with PSM findings of those in similar industry or occupation classifications.

PSM Dimensions: Public Policy Making and Compassion. The public policy making and compassion dimensions were not part of the ending PSM measure produced in this study. In the CFA PSM test, the public policy dimension separated itself from the self-sacrifice and commitment to public interest factor. This also occurred for Stefurak et al. (2020) who concluded that the public policy dimension "did not appear to be a fundamental aspect…and may be better viewed as a distinct, separate construct" (p. 608-609) citing Kim (2009) as additional support. Perry and Vandenabeele (2015) acknowledge that perhaps the public policy dimension as the original Perry (1996) scale may "speak to alienation from politics more strongly than affinity for policy making" and that a "broader, positive scope is more desirable" to measure the dimension (p. 696). This study supports such a stance.

Compassion not materializing in the PSM measure is a little more complex. The compassion dimension of PSM not being confirmable to this volunteer firefighter sample through either the Perry (1996) scale and Stefurak et al. (2020) scale warrants discussion and can be interpreted in a couple of different ways. First, a larger sample would have been beneficial for a number of reasons including increasing confidence of test results.

One explanation is whether compassion is an aspect of PSM. This has been debated across a number of studies (Stefurak et al., 2020; Schott et al., 2019, Braender & Anderson, 2013). Multiple studies have reported the compassion dimension being as not as strong as the others (DeHart-Davis et al., 2006; Wright, 2008; Battaglio & French, 2016; Anderfuhren-Biget et al., 2014) or not strong in general (Liu, Tang, & Zhu, 2008). The following evaluates the inclusion of compassion as a dimension of PSM.

The volunteer research indicates that compassion can lead to volunteerism, but for some industries, compassion can lead to negative individual costs. Costello et al. (2020) found

compassion to be the main PSM dimension linked to volunteering frequency. Yet while compassion could lead to volunteer frequency, high levels of compassion could become problematic. In his meta-analysis on volunteerism research, Wilson (2012) asserted that "the principal function of the volunteer role is to inspire effort and commitment while at the same time limiting compassion" (p. 20) when discussing volunteer burnout. Mellow (2007) discussed how hospitals limit volunteers' knowledge of patient information with Fox (2006) adding that hospice volunteers are warned "that too much concern for patients can have negative consequences and urged to remain detached" (as cited in Wilson, 2012, p. 20). This suggests that some environments or industries encourage volunteers to stifle or repress compassion for longevity and personal mental-health reasons.

Low compassion dimensions results could be derived as a function of firefighting being a high-intensity occupation (Torpey, 2016) and the associated risk acceptance of similar job classifications (Edmunds, 2012; Desmond, 2007). Research supports compassion being low in studies involving similar occupational classifications and industry characteristics such as first responders (Stefurak et al., 2020), police officers (Neumann et al. 2019), firefighters (Kim, 2011), and the military (Braender and Anderson, 2013). Anderfuhren-Biget et al. (2014) hypothesized that compassion would not be a defining value of civil servants in relation to policing or justice (called core state functions) and the study results indeed reflected that those in core state functions had lower levels of compassion, especially in comparison to those in welfare sectors.

Compassion levels may be so low that the dimension may be unable to materialize fully. The question becomes whether it is theoretically possible to have PSM even though compassion may be significantly lower or absent. For example, dimensions such as self-sacrifice and

commitment to public interest may be heightened in high-intensity roles thus making up for any gaps or lowered levels of other dimensions. This was also suggested by Stefurak er al. (2020) who mentioned that "there is a cost to empathy and compassion" and EMS may be able to "maintain their motivation through the more abstract commitments to sacrifice and meeting their normative public service duties" (p. 608). This stance also reflects studies on burnout and compassion fatigue. While their collective service benefits the community, trauma exposure experienced by firefighters continues over time (Haugen et al., 2017). Burnout can lead to depersonalization which can have negative impacts on compassion (Shadwick, 2018). This is also supported by van Loon et al. (2013) in which empathy decreased over time for police officers and they became distant and cynical. Compassion fatigue could account for low levels of compassion as part of PSM in this study and the aforementioned studies.

Another explanation for low compassion levels in this study and across similar industries and occupational classifications is that compassion is being conceptualized inaccurately or compassion is not the appropriate dimension identification for PSM. Compassion within PSM was originally conceptualized as a reflection of patriotism and benevolence (Perry, 1996). In PSM research, Steijn (2006) refers to compassion as the "idea that public sector workers feel emotionally attached to civilians or clients which should be protected" (p. 2). While the intent of the compassion's inclusion can be viewed as appropriate, the question may be whether a similar but distinctly different dimension (such as empathy, being humane, or type of altruism) would be a more appropriate dimension of PSM. Understanding compassion or another prosocial construct as of part of PSM, particularly for those in high-intensity occupations and similar industries is beyond the scope of the paper; however, the study raises several questions as to the conceptualization and inclusion of compassion within the PSM model.

PSM and Industry Factors

The secondary purpose of the study was to determine whether industry factors, specific to respondents' industry, would influence PSM levels. To answer this research question, six factors were tested to determine the influence of regulatory, sociological, economic, and risk factors on PSM levels. It was anticipated that the industry factors would negatively impact PSM. Four factors (call response times, employment impact, the department's financial status, and mental well-being concerns) were not found to be significant and did not create a negative influence on PSM. Only one factor, concerns of physical well-being, was found to negatively influence PSM levels but had low statistical meaning. Finally, while the relationship of meeting governmental training standards was found to be significant ($p=0.003$), this regulatory factor showed a positive influence on PSM levels as opposed to the anticipated negative relationship.

Based on the literature review and the study's finding, it is proposed that industry factors are more likely to shape the PSM measurement as opposed to PSM levels. The latter point, as explained above, adds support behind similar research (van Loon et al., 2013; Anderfuhren-Biget et al., 2014). For example, Coursey and Pandey (2007) proposed a 10-item PSM scale which removed self-sacrifice altogether; however, they did note that it should be included if pertinent to their populations such as volunteers or those in the nonprofit sector.

The factors tested reflect challenges of the fire service industry and are traditionally framed negatively when discussing volunteers' experience. Yet, overall, the industry factors were not significantly meaningful in creating a negative influence on PSM levels. In their study, Makara-Studzinska, Golonka, and Izdorczyk (2019) proposed that firefighters understand the responsibilities and risks of the occupational therefore are more resistant to many of the stressors. This may explain, in part, why PSM was not negatively influenced. Similarly, Bakker

(2015) found that those with high public service motivation are able to deal with stressors because “dealing with those stressors serve the higher goal of helping others” (p. 723).

As mentioned, the industry factors remained largely uninfluential in negatively impacting PSM levels. This could be perceived positively as a reflection of strength or internal drive to serve the greater good. This also raises flags in terms of the ‘dark side’ of PSM covered in another vein of PSM research. van Loon et al. (2015) recommended that future research look closely on how the context changes PSM as a “dark or bright” force. Those with high PSM levels may work too hard or overreach themselves (van Loon et al., 2015) or have poor work-life balance (Bakker, 2015). In this study, about a third of respondents either agreed or strongly agreed that firefighting negatively impacts their mental well-being yet it had no influence on their strong intrinsic motivation (PSM). Also calling it the dark side of PSM, Jensen et al. (2019) warned of downfalls of high PSM noting that some employees may go to work even when they feel ill (thus potentially creating more absenteeism and performance issues later). This warning heeds special attention in a 2020-pandemic working environment of COVID-19 in which many symptoms are similar to typical ailments such as seasonal allergies and common colds and there are additional implications of reporting to work ill. While these industry factors remained largely uninfluential in negatively impacting PSM levels, the implications of such are unclear.

PSM, Industry Factors, and Moderators

The final piece of the research study was to determine if certain factors could positively moderate the influence of industry factors on PSM levels. In the first part, two industry factors, training mandates (*H2*) and physical well-being threats (*H5*), were reported as being statistically significant in their influence on PSM but the strength of their influence were not particularly

statistically meaningful. In the second part, the moderators in these two relationships were also statistically significant.

The moderating variable for training mandates was the assessment that government regulations are necessary (*H2a*). The results indicated that it too was statistically significant though not particularly statistically meaningful (10.9%). Regardless, upon a reflective evaluation of the question on whether governmental regulations are necessary, ambiguity can be found in how the question could have be interpreted and in turn, this would change the "perceived locus of causality" as described by Legault (2016, p. 2). For example, if the respondent perceived training as necessary because of regulations, this would suggest that an external motivational locus was used in the assessment. Conversely, if the respondent perceived training as necessary because of the self-recognized associated benefits, then this would suggest an internal motivational locus was used in the assessment. Because it is unknown if the respondent interpreted the question from an external or internal motivational locus, any confidence behind this particular relationship is limited.

The assessment of being adequately trained was tested as to whether it could offset the influence that an assessment of physical well-being risks had on PSM (*H5a*). It was considered to be statistically significant and had low to moderate explanatory power (14.7%) in exploring variance in the PSM-risk relationship. Along with training mandates positively influencing PSM, this result is encouraging of the role that training could positively play in terms of PSM levels.

Generally, the interactions from the moderators were found to be meaningful though they did not provide a lot of explanatory power on the overall relationship with PSM. This is due, in part, again to the small sample size as well as the aforementioned overall lack of significant

influence by the industry factors. Nonetheless, there are some pragmatic conclusions to be considered.

Pragmatic Outcome: Role of Training

The rigorous training requirements and mandates for volunteer firefighters are commonly discussed as a negative aspect because of the increased time commitment (FEMA, 2007), additional unpaid hours (Ignasiak, 2012), and considered a less fun part of firefighting (Van den Ende, van Steden, & Boersma, 2020). However, the positive influence of training to PSM showed up twice in this study when a number of factors had no influence. First, meeting training mandates indicated a positive influence on PSM levels. Second, an assessment of being adequately trained was found to positively moderate the negative influence physical well-being concerns (risk factor) had on PSM. While future research is necessary to confirm this relationship with a larger sample for increased confidence, these initial results reflect benefits from meeting training requirements. As discussed, almost two-thirds of personnel are not adequately trained in communities of 5,000 or less (see Table 2.2; NFPA, 2016). This study suggests a concentrated focus to reduce training gaps while looking for ways to positively frame training outcomes and maximize the way training offerings are portrayed within the volunteer fire service.

Future Research

It is recommended that future research first focuses on better understanding the PSM construct to assist in narrowing the wide variations of PSM measures used in related research. Other recommendations touch on the role that classifications may play in relationship to PSM such as industry factors and/or occupational classifications. Finally, the need to continue to focus on populations underrepresented in the literature is highlighted.

PSM Measurement. The numerous deviations of the Perry (1996) scale have created inconsistencies in measurement (Perry et al., 2010). However, the call for a universal measurement does not seem realistic or appropriate. Researchers who advocated for this have themselves used an adjusted measure years later in their research. Ritz et al. (2016) point out that "researchers have contributed to and endorsed more than one" (p. 423). Even Perry himself has been involved in PSM studies that have selectively picked measures from PSM (Coursey et al., 2008) and made cultural-based adjustments (Liu & Perry, 2016). Not one of the studies covered in the theoretical chapter that included firefighters and those within the same classifications used a PSM measure exactly like another one (with the exception of the same group of authors doing two different studies).

In this study, the compassion dimension failed to materialize (being just under recommended thresholds). There are multiple studies in which compassion within PSM was scored low for similar occupation classifications and respondents operating within similar industries. Many studies have questioned its inclusion. As a result, theoretical questions as to the role of compassion within PSM were raised. While it may be tempting to proceed with PSM and outcome testing, there is a need to clarify some of the foundational issues of the PSM construct. To begin, a phenomenology qualitative study could be appropriate. This is in line with the call by Perry and Vandenabeele (2015) for a line of research that "disaggregates and unbundles public service motivation" (p. 695).

In addition, it would be advantageous to include additional demographical questions such as race to the survey questionnaire in more demographically diverse settings. Also, inquiries pertaining to potential volunteer benefits, applicable employment law, and/or practice variations between fire departments would strengthen understanding and generalizability.

The 'Dark Side' of PSM. There is also a need to better understand the 'dark side' of PSM. Based on this study's results, it is recommended that self-compassion be explored as a way to address this 'dark side' across similar occupations. The literature was clear on the presence of mental well-being threats for volunteer firefighters and this was echoed in the survey responses. The survey results indicated that twice as many respondents had mental well-being concerns in comparison to physical well-being concerns. Yet, while the physical well-being concerns had a statistically significant negative influence on PSM (albeit low statistical power), mental well-being concerns did not influence PSM levels. Self-compassion may serve as a mechanism to balance care for those being served and oneself as a provider of the public service.

Self-compassion can be a coping tool for the mental well-being stressors present. Stefurak et al. (2020) pointed out that "compassion items may reflect a tendency to cope with the stresses of the job through the use of gallows human and/or cynicism" (p. 608). Similarly, in a small-scale preliminary qualitative study by Brooms (2013), a (paid) firefighter shared that comments made to relieve the stress of the situation could be understandingly perceived by the patient or patient's family as being insensitive. Williams et al. (2016, as cited in Stefurak et al., 2020) reported that paramedic students were shown to report less empathy than others in related healthcare professions; these examples could be demonstrations of self-preservation. Desmond (2007) covered risk-acceptance across wildland firefighters and the subconscious thought process that to become injured or to die is a reflection of individual incompetence (not because of the highly volatile and dangerous setting). The role of self-compassion (Lefebvre, Montani, & Courcy, 2020) and firefighters has begun to be explored with preliminary positive findings (Kaurin, Schönfelder, & Wessa, 2018; Jonhson, Vega, Kohalmi, Roth, Howell, & Van Hasselt, 2020). Learning to balance compassion for others and oneself could be a potential area to

address the 'dark side' of PSM which was reflected in the mental well-being risks across volunteer firefighter respondents.

Industry Factors and Moderators. The role of training repeated itself in the statistically significant relationships identified through the testing of industry factors, PSM, and potential moderators. Training mandates apply to both paid and volunteer firefighters and cover an extensive range of topics (FEMA, 2013a). Time needed to complete the training requirements is not compensable and can create an additional strain on volunteer firefighters. As a result, training mandates have been framed negatively when discussing the experience of a volunteer firefighter and their overall experience (FEMA, 2007; Van den Ende et al., 2020; Carter & Fleming, 2009; Perkins, 1987; Smith, 2014). However, the regulatory industry factor of training mandates did not have the anticipated negative effect on PSM but rather a positive effect.

Research supports training as having positive outcomes such as safer environments (Swuste et al., 2014; Cornelissen et al., 2014; FEMA, 2018). Similarly, studies support that perceived competence or self-efficacy can lead to increased intrinsic motivation (Arnold, 1985; Bem, 1972; Staw, 1976; Legault, 2016). The other influential industry factor was the safety risk factor of physical well-being concerns and the anticipated negative influence on PSM was confirmed. In testing moderators, an assessment of being adequately trained was able to positively moderate the negative effect of concerns of physical well-being on PSM. It would be necessary to confirm these findings across a larger sample to increase confidence levels and to determine if perhaps other factors have more explanatory power. Nonetheless, the positive role training played within these limited findings is noteworthy and raises interest in better understanding the relationship between training and PSM.

Industry and Occupational Classifications. For US-based studies, it is recommended that the NAICS industry classification and SOC occupational classification be reflected and addressed in future research. Even if the sample characteristics are not the focus of the study, it could still be beneficial to acknowledge it as part of the study parameters. While organizational context variables continue to be studied along with outcomes from PSM, by including industry and occupation classifications, there is a potential to identify broader connections across the research and perhaps provide support for PSM measurements that theoretically unite. This is in line with the postulation that PSM measure may be more strongly tied to the service as opposed to the sector (Kjeldsen & Jacobsen, 2013). If necessary, it is recommended that the 16-item measure found in the Stefurak et al. (2020) model be used to test PSM within similar high-risk and highly regulatory industry and occupations such as emergency responders, military, and policeman in addition to firefighters to begin a focused line of research of PSM.

Continued Studies on Underrepresented Populations. Finally, it is recommended that research continues on underrepresented populations within the public administration field. This contains not only volunteer firefighters but other public service offerings that have unique challenges due to existing within a rural environment.

Limitations

The study had a low response rate. NPFA (2016) reported a 14% response rate with their national survey and a 10% response rate was desired. There were 311 fire departments that received notification of the survey. The individual who opened the notification letter became the gatekeeper or intermediary between the researcher and potential participants. The survey leaflets may have not been provided intentionally (lack of priority or interest) or unintentionally (forgotten or extended period of time between receipt of survey notification and monthly

departmental meeting. It is unknown what percentage of the 8,000 volunteer firefighters reportedly in South Dakota who were in turn notified and/or given information about the survey and how to take it. From those 311 fire departments, 89 responses were received.

Self-selection also appeared to occur. Ninety-four percent of respondents indicated that they were either satisfied or very satisfied being a volunteer firefighter and 90% of respondents were either satisfied or very satisfied with their volunteer fire department.

While the sample size was able to support testing, it is insufficient to generalize or apply the results to the volunteer firefighting population, or those in similar occupational classifications or industries. A non-random, purposive sampling additionally limits the generalization of the results across protective services and fire departments as a whole; however, the sample represented the demographics of the targeted population. The descriptive statistics indicate a similar composition between the volunteer firefighter respondents in this study compared to national studies. While the response rate limits application, the findings still strengthen the call for certain paths within the PSM field such as better understanding of its dimensions and the contextual considerations for the PSM measurement.

Implications and Contributions

Volunteer firefighters serve their communities by offering life and property protection without compensation. Their actions have considerable value, particularly for rural environments. There are over 740,000 volunteer firefighters in the US (Evarts & Stein, 2020), most of which who protect communities with 10,000 people or less (Karter Jr, 2014). Volunteer fire departments are consistently faced with challenges such as increased demand for services but struggle with inadequate resources whether it be funds or willing volunteers. Many of the explanations identified as recruiting and retention challenges have been covered throughout this

paper. This study aimed to bring awareness to these challenges while providing a theoretical and pragmatic contribution to the field through the exploration of motivation, specifically PSM, of volunteer firefighters. Three research objectives were met by testing 1) the applicability of PSM with a volunteer-based public service, the volunteer fire service, 2) the influence negatively perceived industry factors have on PSM, and 3) the viability that this influence, if any, may be positively moderated.

PSM has been limitedly tested for those within industry group NAICS 9221 Justice, Public Order, and Safety Activities and for SOC 33-0000 Protective Services, particularly when you take the paid/unpaid classification into consideration. The number does increase when you consider other PSM studies that explore overlapping firefighter classifications such as high-intensity (military and police) and first/ emergency responders (see Table 1.2). Viable PSM measures have been confirmed for these populations; however, the measurement used varies across the studies. PSM has also been confirmed within nonprofit contexts which a large percentage of volunteer fire departments operate as. Derived from a PSM measure by Stefurak et al. (2020) validated in the US across a sample of EMS/firefighters that had rural representation, a viable PSM measure was confirmed as having applicability across volunteer firefighters consisting of self-sacrifice and commitment to public interest.

These dimensions tie into the prominence of research on risk acceptance within high-intensity occupations (including firefighting) covered previously (Torpey, 2016) and that self-sacrifice is considered a fundamental aspect of PSM (Kim & Vandenabeele, 2010). Similarly, Taylor et al. (2015) noticed that tendency of the soldiers in their sample to reenlist more by the "desire to give of themselves" (self-sacrifice) as opposed to a "generalized concern for others" (compassion) (p. 151). This also builds upon the research pertaining to the association of self-

sacrifice and volunteerism (Steen, 2006; Lee & Brudney, 2015; Costello et al., 2020). Along those lines, this study also contributes to the volunteer research as this study hones in on the experience of volunteering which has not been covered in as much detail as other areas within the volunteer literature.

The study raised questions as to the role and understanding of the PSM construct and its dimensions that warrants further research. As covered above, the call for a universal measurement does not seem realistic or appropriate. In the beginning of PSM research, a prevalent or universal measure was framed more as a methodology issue and research discretion. However, in the subsequent decades, there has been a shift as to foundational concerns of the PSM construct (such as the way public policy making is operationalized). Cultural considerations (appropriately and arguably) prevent the development and acceptance of a global measure. The notion that PSM is more strongly linked to the service as opposed to the sector (Kjeldsen & Jacobsen, 2013) continues to gain momentum. This study contributes its PSM findings to the growing group of studies focusing on those in high-intensity occupations and similar classifications.

The next part of the research purpose focused on negatively framed industry factors and the exploration of their influence on PSM. Specifically, this study focused on regulatory, sociological, economic, and risk industry factors. The factors tested represent documented challenges for the fire protection industry. Overall, these industry factors remained largely uninfluential in negatively impacting PSM levels. Notably, an assessment of meeting training mandates (regulatory factor) was found to positively influence PSM whereas an assessment of physical well-being concerns (risk factor) was found to negatively influence PSM though the explanatory power of these two industry factors were both low.

The final piece of the study's purpose was to determine if the effect of industry factors could be moderated. Many of the moderators identified were found to be significant in the relationship of industry factors and PSM but with low statistical power. This could be in part, due to the low response rate of the survey. Assessments of being adequately trained was the most effective moderator raising the importance of self-efficacy and is in line with research that indicates intrinsic motivation will increase when extrinsic variables improve perceived competence or self-efficacy (Legault, 2016). Despite training requirements of volunteer firefighters consistently being framed negatively, meeting training mandates and an assessment of being adequately trained were positive factors in relation to PSM levels.

The positive role of training also led to pragmatic recommendations. Addressing training gaps can lead to potential benefits for fire departments. In doing so, departments should look at reframing how training is perceived and maximized within the volunteer fire service due to the initial positive findings between training and PSM. Also, notable was that mental well-being concerns did not influence PSM levels despite almost twice as many respondents having mental well-being concerns compared to physical well-being concerns which did negatively influence PSM. This finding highlights the 'dark side' of PSM in which participants could continue to volunteer to their own detriment. Future research recommendations specific to the 'dark side' of PSM was outlined along with other areas including the continued need to focus on underrepresented populations in the literature.

Stefurak et al. (2020) refer to PSM as the "concern beyond the self, a motivation to serve, and a belief that such service impacts a larger good to which the individual is attached and committed" (p. 592). Industry factors within the fire service represent challenges for volunteer firefighters – outdated equipment, not enough equipment, old trucks, mental health stressors,

threats to safety – yet public service motivation did not waiver amongst the volunteer firefighter sample. Research on PSM and outcomes is valuable and necessary, but there is also a time to reflect on the beauty of human nature and those intrinsically motivated to serve the greater good.

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APPENDIX A

Key Terms

Protective services: services provided which contribute to societal public safety. Protective service is a major occupational employee group (33-0000) (BLS, 2017). The top industries with those employed in protective services are local, state, and federal government and one non-government industry: investigation and security services (BLS, 2017). Most common protective services positions seen within government entities are police officers and firefighters. These positions serve large demographics and are usually limited by geographic boundaries such as city or country limits. Some protective services are more specialized such as those tasked with the protection and safety of children or the elderly, or within a specific institutional environment such as a correctional facility.

Public safety: the protection of the welfare of the general public.

The United States Fire Administration (USFA*)*: a division within the Department of Homeland Security's Federal Emergency Management Agency (FEMA) that provides leadership for the fire service in prevention, preparedness, and response at the national level (NFPA, 2011).

Fire service: a protective service that works to prevent and address fires. Over the past couple of decades, fire service has broadened to include medical emergencies. Fire service is provided by fire departments.

Emergency Medical Services (EMS): refers to the system (such as personnel and equipment) that provides medical services in emergency conditions and typically administered by a public or nonprofit private entity (NFPA, 2011).

Fire Department: an entity providing fire, rescue, and emergency medical services and related functions that include public, private, industrial, or military operations (NFPA, 2011). Fire service is provided by three types of fire departments: 1) paid, 2) volunteer, or 3) combination.

Paid Fire Department: a fire department staffed by firefighters who are paid regular wages and benefits for responding to emergency calls (USFA, 2007). Fire departments compromised of paid personnel are commonly found in urban areas and part of the local government (city or county).

Volunteer Fire Department: an entity that performs emergency operations such as fire suppression, rescue, and EMS for local municipalities and jurisdictions without compensation (USFA, 2007). Volunteer fire departments may be part of the city or county local government or, in more recent times, operate as a non-profit.

Municipal Fire Department: when a city or town has its own fire department that provides fire protection services; finances must be accounted for by the municipal (Office of the State Auditor, 2013).

Independent Nonprofit Fire Department: nonprofits that contract with a city or town to provide fire services and finances are controlled by the fire department; there are commonly local/ state government reporting requirements (Office of the State Auditor, 2013).

Combination Fire Department: a fire department with both paid and volunteer firefighters (USFA, 2007). A common structure for a combination fire department consists of those in leadership/management positions to receive compensation (such as Fire Chief) and/or medical-related positions (EMS, EMT) and non-management firefighters to be unpaid; or call respondents (firefighters or medical) receive a per-call stipend (NFPA, 2011). A combination

department may be considered either mostly career or mostly volunteer depending on the proportion of paid firefighters to volunteer firefighters (USFA, 2007).

Leadership Role: consists of job titles: officer, lieutenant, captain, battalion/assistant/fire chief.

Non-Leadership Role: consists of job titles: volunteer firefighter, paid/career firefighter, firefighter/EMT/paramedic, driver/ engineer.

Paid Firefighter: individuals that perform fire suppression, rescue, and EMS function for monetary pay (USFA, 2007). Also called **career firefighters.** Paid firefighters commonly remain at a fire station or designated location when reporting to a shift.

Volunteer: A volunteer provides services to and for an organization without receiving significant financial compensation for those services (USFA, 2007).

Volunteer Firefighter: individuals that perform fire suppression, rescue, and EMS function without a salary (USFA, 2007). Volunteer firefighters typically hold other employment and respond when an emergency call is received.

Emergency Call: a call made to a central number to report medical emergencies, fire or smoke alarms, actual fires, hazardous materials spills, and other emergencies (NFPA, 2011).

Rural Area: a community with less than 2,500 population (USFA, 2007).

Urban Area: 50,000 or more people (US Census Bureau, 2011). The definition for urban area has not changed since it was established in the early 1900s by the US Census Bureau.

Urban Cluster: more than 2,500 but less than 50,000 in a set mile radius (US Census Bureau, 2011). This category was established in the mid-1900s.

APPENDIX B

Results from an economic study in New York quantifying the annual and one-time cost to switch from volunteer to paid fire departments.

Summary: Added Cost If All Fire Protection Services by Paid Firefighters 2013

	Statewide All Areas*
Additional paid frefighters (full time equivalent)	30,822
	One-Time Acquisition Cost
Cost of fire houses/structures	$3,617,790,000
Cost of vehicles & equipment	$2,333,506,557
Total one-time cost**	**$5,951,296,557**
	Annual Cost of Operations
Pay and benefits	$3,124,914,720
General operating costs***	$153,105,327
Equipment & structures (ann. maint. etc.)	$68,308,530
Annual operating cost	**$3,346,328,577**
Annual debt service (for acquired structures & equip.)	$519,830,417
Total annual cost	**$3,866,158,994**

* *Excludes New York City*
** *Is assumed to be financed by borrowing covered by annual debt service.*
*** *Includes all normal outlays such as heating/cooling, electricity, communications, fuel, supplies,injsurance, clothing, etc.*

Source: FASNY (2015, p. 2)

APPENDIX C

Recruiting and Retention Challenges for Volunteer Firefighters/ EMS.

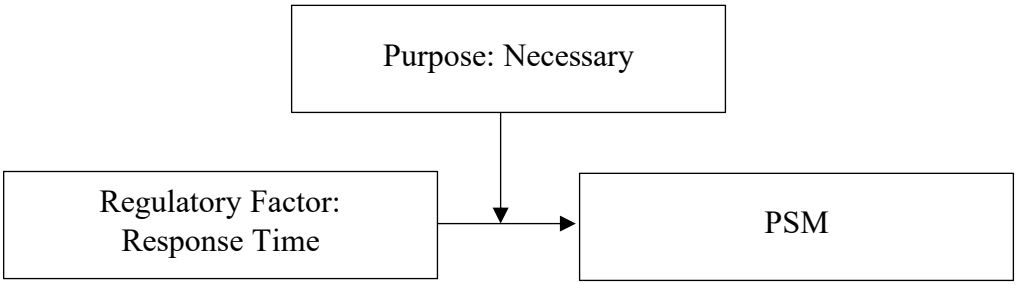
Sources of Challenges	Contributing Factors
Time Demands	• the two-income family and working multiple jobs • increased training time demands • higher emergency call volume • additional demands within department (fundraising, administrative)
Training Requirements	• higher training standards and new federal requirements • more time demands • greater public expectation of fire department's response capabilities (broader range of services such as EMS, Hazmat, technical rescue, etc.) • additional training demands to provide broader range of services • recertification demands
Increasing Call Volume	• fire department assuming wider response roles (EMS< Hazmat, technical rescue • increasing emergency medical call volume • increase in number of automatic fire alarms
Changes in the "Nature of The Business"	• abuse of emergency services by the public • less of an emphasis on social aspects of volunteering
Changes in Sociological Conditions (In Urban and Suburban Areas)	• transcience • loss of community pride • less of an interest or time for volunteering • two-income family and time demands • "me" generation
Changes in Sociological Conditions (In Rural Areas)	• employers less willing to let employees off to run calls • time demands • "me" generation
Leadership Problems	• poor leadership and lack of coordination • authoritative management style • failure to manage change
Federal Legislation and Regulations	• Fair Labor Standards Act interpretation • 2 in, 2 out" ruling requiring four firefighters on scene before entering hazardous environment • Environmental Protection Agency (EPA) life-fire burn limitations
Increasing Use of Combination Departments	• disagreements among chiefs or other department leaders • friction between volunteer and career members
Higher Cost of Housing (in Affluent Communities)	• volunteers cannot afford to live in the community they serve
Aging Communities	• greater number of older people today • lack of economic growth and jobs in some towns
Internal Conflict	• disagreements among departmental leaders • friction between volunteer and career members

Source: FEMA (2007)

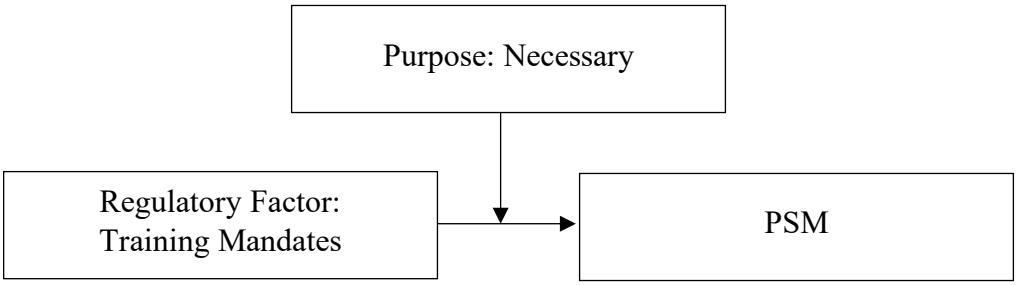
APPENDIX D

Conceptual graphical diagrams of the six tested moderator models (*H1a, H2a, H3a, H4a, H5a, H6a*) in which the effect on the independent variable (industry factors) on the dependent variable (PSM) is influenced by the identified moderator.

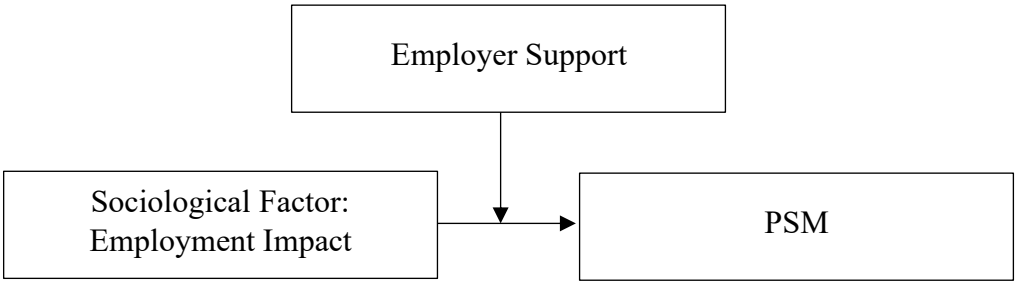
H1a: The influence of call response concerns has on public service motivation will be positively moderated by the view that government regulations are necessary.



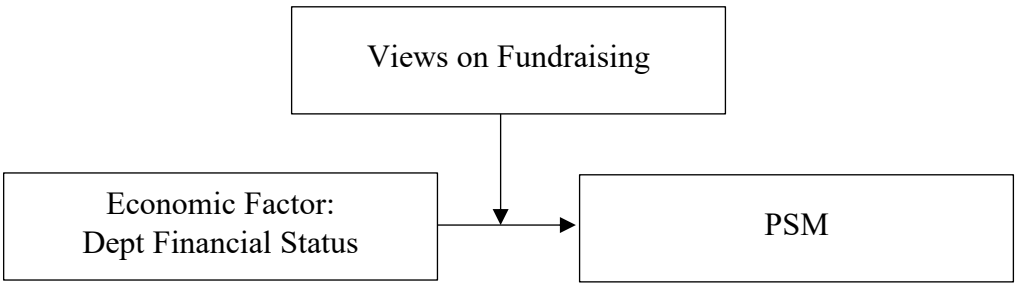
H2a: The influence of not meeting government training standards has on public service motivation will be positively moderated by the view that government regulations are necessary.



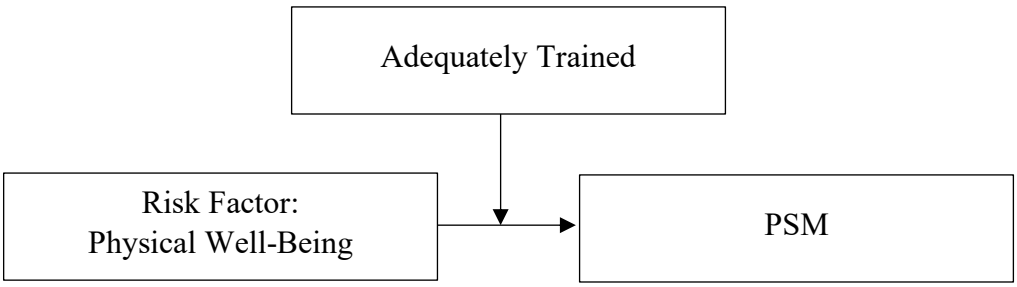
H3a: A positive assessment of employer support will positively moderate the influence of compensation loss has on public service motivation levels.



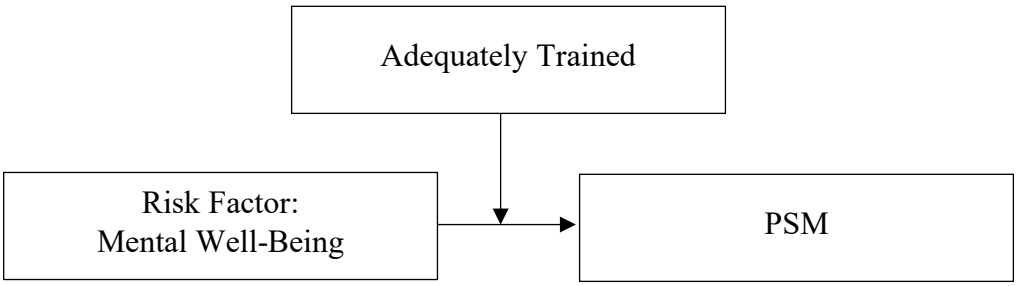
H4a: A positive assessment on fundraising participation will positively moderate the influence the personal impact of the department's financial status has on public service motivation levels.



H5a: An assessment of being adequately trained will positively moderate the influence physical well-being concerns has on public service motivation levels.



H6a: An assessment of being adequately trained will positively moderate the influence of mental well-being concerns has on public service motivation levels.



APPENDIX E

Survey Instrument

1	Are you a volunteer firefighter?	*YES*	*NO*

PART ONE: Please mark the answer that most closely represents your response on average.

2	I believe in putting duty before self.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
3	I am often reminded by daily events about how dependent we are on one another.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
4	Government fire service codes and regulations are designed to protect me and other firefighters.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
5	I do not mind participating in local fundraising efforts.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
6	Politics is a dirty word.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
7	Serving other citizens would give me a good feeling even if no one paid me for it.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
8	My employer is supportive of me fulfilling my responsibility as a volunteer firefighter.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
9	Most social programs are too vital to do without.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
10	My department is meeting government (federal and local) mandated training and certifications.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
11	I feel a strong sense of belonging to the volunteer fire department.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
12	I seldom think about the welfare of people whom I don't know personally.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
13	I am concerned about becoming injured when responding to an emergency call.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
14	There are few public programs that I wholeheartedly support.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
15	Government fire service codes and regulations are designed to protect the public (property and life).	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*

16	I would risk personal loss to help someone else.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
17	The financial status of the department impacts me.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
18	Much of what I do is for a cause bigger than myself.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
19	Meeting government fire service codes, regulations and requirements is unrealistic.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
20	I am rarely moved by the plight of the underprivileged.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
21	I enjoy being a part of the volunteer fire department.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
22	I don't care much for politicians.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
23	Firefighting negatively impacts my physical well-being.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
24	Leaving work for an emergency call does not impact my pay.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
25	I would prefer seeing public officials do what is best for the whole community even if it harmed my interests.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
26	Meaningful public service is very important to me.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
27	I'm concerned whether our department has adequate monetary funds for the fire service operations.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
28	I think people should give back to society more than they get from it.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
29	Government fire service codes, regulations and requirements are unnecessary.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
30	I am prepared to make enormous sacrifices for the good of society.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
31	I have little compassion for people in need who are unwilling to take the first steps to help themselves.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
32	Doing well financially is definitely more important to me than doing good deeds (reverse score).	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
33	My department is adequately trained to address emergency calls per my standards.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*

34	It would be very hard to leave the volunteer fire department, even if I wanted to.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
35	It is difficult for me to contain my feelings when I see people in distress.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
36	It is hard for me to get intensely interested in what is going on in my community.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
37	Making a difference in society means more to me than personal achievements.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
38	I feel that my life is in danger when responding to emergency calls.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
39	The give and take of public policy making doesn't appeal to me.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
40	I unselfishly contribute to my community.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
41	My department is adequately trained to address emergency calls per governmental standards.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
42	Firefighting negatively impacts my mental well-being.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
43	One of the major reasons I continue to work for the volunteer fire department is that I believe loyalty is important and therefore I feel a sense of moral obligation to remain.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
44	Meeting call responses times is a concern for me and my department.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
44	To me, patriotism includes seeing to the welfare of others.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
45	I consider public service my civic duty.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
46	My volunteer fire department participates in fundraising efforts in order to obtain necessary funds for fire service operations.	*strongly disagree*	*disagree*	*neutral*	*agree*	*strongly agree*
47	Considering everything, how satisfied are you with your role as a volunteer firefighter?	*very unsatisfied*	*unsatisfied*	*unsure*	*satisfied*	*Very satisfied*
48	Considering everything, how satisfied are you with your volunteer fire department?	*very unsatisfied*	*unsatisfied*	*unsure*	*satisfied*	*Very satisfied*

PART TWO. Mark the most appropriate answer to the question.

49	What is your current employment status?			
	Employed Full-Time	*Employed Part-Time*	*Self-Employed*	*Multiple Employers*
	Unemployed	*Student*	*Other*	*Not Applicable*
50	What is the length of your commute?			
	Write the average miles you believe most accurately reflects the amount traveled one-way to arrive at your workplace. *Record '99' if not applicable. Record '98' if self-employed.*			----------
51	Have you ever worked in the public sector?			
	Yes – Current Local (city/county)	*Yes – Current State*	*Yes – Current Federal*	*Yes - Current Nonprofit*	*Not Applicable*
	Yes - Past Local (city/county)	*Yes - Past State*	*Yes – Past Federal*	*Yes - Past Nonprofit*	*Prefer Not to Answer*
52	Have your ever served in a branch of the military or national guard/reserves?			
	Yes – Current	*Yes – Past*	*No*	*Prefer Not to Answer*
53	Other than the fire department, how many other organizations do you volunteer for?			
	Zero (0)	*One (1)*	*Two (2)*	*Three or More (3+)*
54	Which statement most accurately reflects your educational background?			
	Some High School	*High School Diploma*	*Trade or Certificate Program*	*Associates Degree*
	Bachelor's Degree	*Master's Degree*	*Other*	*Prefer Not to Answer*
55	What is your gender identity?			
	Male	*Female*	*Other*	*Prefer Not to Answer*
56	What is your age? *Write in the number. Record '99' if you prefer not to answer.*			--------
57	What is your current marital status?			
	Single (Never Married)	*Married*	*Domestic Partnership*	*Widowed*
	Divorced	*Separated*	*Other*	*Prefer Not to Answer*
58	How any children or other dependents are living in your residence? *If married, do not include your spouse.*			
	Zero (0)	*One (1)*	*Two (2)*	*Three or More (3+)*
59	What type is your fire department?			
	Volunteer – Nonprofit	*Volunteer – Local Government*	*Volunteer – Other*	

	Paid Fire Department	*Combination Fire Department*	*Unsure*
60	What is your accumulative tenure with the fire department? *Write in the number of years. Record '99' if you prefer not to answer.*		--------
61	What is your role within the fire department?	*Leadership*	*Non-Leadership*

62	What is the size of your department? *Include all positions ie leadership, administrative.*						
	0 to 5	*6 to 10*	*11 to 15*	*16 to 20*	*21 to 25*	*26 to 30*	*30 or more*

63	What is the population of the community served by your fire department? *Include nearby towns if your fire department is the first respondents for emergency calls.*					
	<99	*100 – 199*	*200 – 299*	*300 – 399*	*400 – 499*	*500 – 599*
	600 – 699	*700 – 999*	*1,000 – 2,499*	*2,500-4,999*	*5,000-9,999*	*10,000-24,999*

	25,000-49,000	*50,000-74,999*	*75,000-99.999*	*100,000-124,999*	*125,000 or more*

APPENDIX F

List of all South Dakota cities and the population

City/Town	Population
Sioux Falls †	156,592
Rapid City †	69,200
Aberdeen †	26,297
Brookings †	22,228
Watertown †	21,658
Mitchell †	15,368
Yankton †	14,564
Pierre ††	13,860
Huron †	12,706
Vermillion †	10,706
Spearfish	10,585
Brandon	8,908
Box Elder	7,908
Sturgis †	6,656
Madison †	6,648
Belle Fourche †	5,675
Harrisburg	4,271
Tea	3,976
Dell Rapids	3,684
Hot Springs †	3,653
Mobridge	3,553
Milbank †	3,305
Canton †	3,188
Lead	3,154
Winner †	2,882
North Sioux City	2,575
Hartford	2,570
Sisseton †	2,502
Chamberlain †	2,400
Redfield †	2,355
Flandreau †	2,337
Lennox	2,200
Fort Pierre †	2,135
Custer †	2,103
Beresford	2,049
Elk Point †	2,003
Springfield	1,977
Webster †	1,896
Summerset	1,821
Volga	1,784

City/Town	Population
Wagner	1,581
Parkston	1,488
Miller †	1,485
Groton	1,469
Eagle Butte	1,335
Salem †	1,333
Freeman	1,290
Gregory	1,280
Clear Lake †	1,272
Crooks	1,285
Deadwood †	1,284
Platte	1,241
Lemmon	1,233
Britton †	1,225
Mission	1,209
Garretson	1,182
Gettysburg †	1,179
Clark †	1,116
Baltic	1,104
De Smet †	1,095
Martin †	1,074
Tyndall †	1,052
Parker †	1,021
Hill City	966
Wessington Springs †	963
Ipswich †	951
Whitewood	938
Arlington	921
Worthing	916
Lake Andes †	886
Centerville	880
Eureka	865
Howard †	846
Scotland	828
Alcester	820
Marion	783
Highmore †	782
Viborg	782
Wall	781
Estelline	777

City/Town	Population
Valley Springs	770
Philip †	767
Edgemont	762
Elkton	742
Faulkton †	737
St. Francis	723
Kimball	707
Plankinton †	704
Colton	697
Armour †	692
Kadoka †	682
New Underwood	672
Woonsocket †	664
Onida †	659
McLaughlin	658
Selby †	657
Canistota	651
Tripp	639
Castlewood	636
Alexandria †	625
Newell	613
Lake Preston	602
Menno	601
Humboldt	597
Burke †	596
Colman	593
White River †	586
Corsica	585
Avon	580
Waubay	579
Jefferson	556
Aurora	536
Dupree †	536
Veblen	522
Presho	503
Bowdle	499
Wilmot	499
White	488
Bridgewater	486
Murdo †	486

City/Town	Population
Lake Norden	473
Montrose	466
Mount Vernon	466
Bryant	462
Warner	462
Big Stone City	460
Oacoma	457
Leola †	456
Emery	454
Timber Lake †	453
Rosholt	428
Herreid	427
Faith	424
Irene	423
Hurley	415
Tabor	414
Hoven	413
Gayville	411
Hermosa	403
Hayti †	387
Wolsey	381
Florence	377
White Lake	371
Blunt	359
Keystone	344
Bristol	343
Ethan	335
Bison †	334
Buffalo †	334
Roscoe	327
Wakonda	324
Langford	309
Hudson	308
Colome	293
Summit	292
Alpena	288
Pukwana	287
Stickney	282
Egan	277
Bonesteel	271

City/Town	Population
Henry	269
Iroquois	267
Chancellor	265
New Effington	260
Willow Lake	258
Kennebec †	244
Nisland	235
Pollock	234
Delmont	231
Trent	231
Hecla	228
Gary	227
South Shore	227
Piedmont	223
Mellette	212
Toronto	211
Geddes	209
Tulare	209
Hosmer	207
Bruce	206
Pickstown	202
Frederick	201
St. Lawrence	196
Reliance	195
Roslyn	184
Doland	182
Ramona	180
Mission Hill	178
Wentworth	177
Letcher	176
Kranzburg	175
McIntosh †	171
Wessington	171
Peever	170
Volin	162
Monroe	159
Spencer	152
Frankfort	150
Goodwin	144
Northville	143

City/Town	Population
Conde	142
Carthage	141
Artesian	140
Astoria	138
Isabel	138
Columbia	137
Pierpont	136
Central City	135
Oldham	133
Westport	135
Java	133
Buffalo Gap	128
Claremont	128
Lesterville	128
Midland	128
Harrold	126
Oelrichs	123
Ashton	122
Dimock	122
Sinai	122
Dallas	118
Revillo	118
Cavour	115
Pringle	114
Fairfax	113
Batesland	110
Corona	110
Yale	109
Badger	108
Brandt	108
Glenham	107
Stockholm	107
Canova	104
Cresbard	103
Herrick	103
Interior	99
Fulton	93
Andover	92
Hazel	92
Hitchcock	92

City/Town	Population
Eden	87
Fairburn	87
Dante	85
Davis	85
Wallace	85
Wasta	83
Draper	81
New Witten	79
Sherman	78
Claire City	77
Agar	76
Brentford	76
Olivet †	74
Stratford	73
Strandburg	71
Bradley	70
Mound City †	69
Twin Brooks	68
La Bolt	67
Morristown	67
Bushnell	66
Ortley	66
Utica	65
Fruitdale	64
Camp Crook	63
Orient	63
Wood	63
Fairview	62
Ravinia	62
Ree Heights	62
Lane	58
Quinn	55
Grenville	54
Belvidere	52
Garden City	52
Lake City	51
Raymond	48
Turton	48
Ward	48
Lebanon	48

City/Town	Population
Hetland	47
Erwin	46
Nunda	45
Vienna	44
Akaska	43
Naples	41
Dolton	37
Seneca	37
Tolstoy	36
Altamont	34
Marvin	34
Rockham	32
Broadland	31
Long Lake	31
Chelsea	28
Vilas	20
Bancroft	19
Butler	17
Albee	16
Virgil	16
Onaka	15
Roswell	15
Farmer	10
Artas	9
Cottonwood	9
Wetonka	8
Lowry	6
Verdon	5
Lily	4
Hillsview	3
White Rock	3

Source: US Census Bureau (2015a, 2015b)

APPENDIX G

PSM Measurement Descriptive Statistics based on Stefurak et al. (2020) Model

PSM Measurement		*M*	*SD*
Public Service	PSM1	3.78	0.76
	PSM2	3.90	0.95
	PSM4	4.01	0.62
	PSM5	4.57	0.65
	PSM6	4.33	0.57
	PSM7	3.99	0.67
	PSM8	4.13	0.81
	PSM18	4.29	0.60
	PSM19	4.14	0.58
	PSM20	4.14	0.73
Compassion	PSM9	3.63	0.88
	PSM10	3.01	0.95
	PSM3	3.98	0.71
Public Policy Making	PSM22	2.88	1.19
	PSM23	2.28	.99
	PSM24	2.26	.99

Stefaruk et al. (2020)

	PSM Measurement	Public Service							Compassion			Public Policy Making					
		PSM1	PSM2	PSM4	PSM5	PSM6	PSM7	PSM8	PSM18	PSM19	PSM20	PMS9	PSM10	PSM3	PSM22	PSM23	PSM24
Public Service	PSM1	1.00															
	PSM2	0.02	1.00														
	PSM4	0.39	-0.07	1.00													
	PSM5	0.44	0.31	0.17	1.00												
	PSM6	0.35	0.17	0.41	0.26	1.00											
	PSM7	0.35	0.11	0.65	0.21	0.30	1.00										
	PSM8	040	0.18	0.35	0.15	0.38	0.56	1.00									
	PSM18	0.41	-0.11	0.63	0.15	0.51	0.40	0.36	1.00								
	PSM19	0.45	-.01	0.52	0.28	0.43	0.42	0.29	0.45	1.00							
	PSM20	0.36	0.02	0.49	0.21	0.49	0.32	0.32	0.51	0.50	1.00						
Compassion	PSM9	-0.07	-0.06	0.00	-0.11	-0.04	0.10	-0.08	-0.13	0.08	-0.05	1.00					
	PSM10	0.32	0.02	0.28	0.01	0.37	0.13	0.33	0.27	0.32	-0.31	-0.17	1.00				
	PSM3	0.24	-0.11	0.33	0.16	0.23	0.28	0.25	0.35	0.43	0.12	0.01	0.21	1.00			
Public Policy Making	PSM22	-0.03	-0.06	0.18	-0.07	0.06	-0.00	-0.12	0.11	0.03	-0.09	0.15	0.19	0.04	1.00		
	PSM23	-0.02	-0.24	0.15	-0.04	0.09	0.11	-0.04	0.09	0.19	0.04	0.24	0.10	0.24	0.39	1.00	
	PSM24	0.04	-0.21	0.11	0.06	-0.08	0.10	-0.16	0.02	0.08	-0.05	0.16	0.05	0.15	0.50	0.52	1.00

APPENDIX H

PSM Measurement and Industry Factor Correlations

Variables (* *moderators*) (based on Stefurak et al., 2020)		PSM
Regulatory	1. Response	-0.421
	2. Training Mandates	0.324
	3. Purpose*	0.170
	4. Adequately Trained*	0.103
Sociological	5. Employment Impact	-0.140
	6. Employer Support*	0.146
Economic	7. Dept Finances	-0.193
	8. Dept Fundraising*	0.088
Risk	9. Physical Well-Being	-0.296
	10. Mental Well-Being	-0.070

N = 84

TERINA CHAPIN BROOMS

Curriculum Vitae

EDUCATION

PhD: Public Administration and Urban Policy

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In Progress | Old Dominion University, Virginia

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Double Specialization: Human Resources and Organizational Leadership
Professional Report: Competency Model Creation and Implementation
2010 | University of South Dakota

BS: Business Administration

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1998 | Southwest Minnesota State University

TEACHING & ACADEMIC EXPERIENCE

Teacher's Assistant

PADM 695/PAUP 895 Strategic Planning
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PUBLICATIONS & CONFERENCES

Jordan, M.M., Brooms, T.C., Yusef, J.E. & Mahar, K.T. (2016, January). A conceptual model of interlocal agreements and their outcomes with illustrations using two case studies. *Public Performance & Management Review*, *39*(1).

Brooms, T.J.C., & McDowell, A. (2013, September). *Applying ethical climate theory to the public sector: A study of employee perceptions of ethics in two federal agencies.* Paper presented at the Southeastern Conference of Public Administration, Charlotte, North Carolina.

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WRITING & EDITING

Writing Advisor | University of Maryland Global College

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VOLUNTEER & PUBLIC SERVICE

Personnel Board Commissioner | Cajon Valley Union School District, California

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