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## USE OF SURVEY DATA TO GUIDE THE DEVELOPMENT OF BEST PRACTICES FOR INSTRUCTION FOR THE RECRUITMENT OF VOLUNTEER FIREFIGHTERS

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Dr. Kristen Perry, Director of Graduate Studies

USE OF SURVEY DATA TO GUIDE THE DEVELOPMENT OF BEST PRACTICES  
FOR INSTRUCTION FOR THE RECRUITMENT OF VOLUNTEER FIREFIGHTERS

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DISSERTATION

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Education in the  
College of Education  
at the University of Kentucky

By  
Jeffrey Taylor Kimble  
Lexington, Kentucky  
Director: Dr. Joan Mazur, Professor of Instructional Systems Design  
Lexington, Kentucky  
2020

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## ABSTRACT OF DISSERTATION

### USE OF SURVEY DATA TO GUIDE THE DEVELOPMENT OF BEST PRACTICES FOR INSTRUCTION FOR THE RECRUITMENT OF VOLUNTEER FIREFIGHTERS

The number of calls for service by firefighters has increased by over three times since the 1980s while during the same time, the numbers of firefighters per population has decreased. The increase in the number of calls for service by fire departments is further complicated by that fact that nearly 70% of the firefighters who respond to these calls are volunteers. Further, the number of training hours to become a certified firefighter has also increased. Complicating the issue more is a decrease overall of volunteerism in general in the United States. Increased demand for calls for service, more demanding training requirements and competition for volunteers' limited time has created a serious problem for the millions of Americans who depend on volunteer firefighter assistance in an emergency.

A survey was provided by the International Association of Fire Chiefs – Volunteer Workforce Solutions to the North Carolina Fire Chief's Association. The responses from this survey, which was completed by firefighters in North Carolina, were analyzed for this study. The data from the study identified firefighters' perceptions about the recruiting efforts employed by the departments participating in a recruitment and retention program. Additionally, the study determined if volunteer firefighter's age or years of service impacts their perceptions about which recruiting methods are effective.

The study concluded that the data indicate both age and years of service can impact perceptions about effective recruiting methods. Recruitment activities that involve some form of personal contact with another person were reported to be more effective regardless of age or years of service. Recruitment methods such as Twitter and Facebook had stronger relationships to those with less years of service or lower ages, while recruitment methods such as fundraising events or being asked by a firefighter exhibited a stronger relationship to those who were older or had more years of service.

Implications for these findings include how to design public relations campaigns for those indicating interest in volunteering for firefighting as well as informing initial instruction and orientation training for new recruits that will promote retention of new recruits and increases in interest in volunteerism. Without those willing to volunteer many residing in rural areas will have little to no access to the services offered by fire and emergency medical services in their communities.

**KEYWORDS:** Firefighter Recruitment, Volunteer, Fire Departments

Jeffrey Taylor Kimble  
*(Name of Student)*

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11/18/2020  
Date

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USE OF SURVEY DATA TO GUIDE THE DEVELOPMENT OF BEST  
PRACTICES FOR INSTRUCTION FOR THE RECRUITMENT OF VOLUNTEER  
FIREFIGHTERS

By  
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11/18/2020

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Date

## DEDICATION

To my wife and best friend Dr Gina Kimble. Gina has constantly encouraged me through this project. She has provided input from beginning to end to improve the quality, clarity and purpose of my writing. But even more she has provided me with never ending love and support.

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## CHAPTER 1. INTRODUCTION

### 1.1 Overview of the Problem

There has been a remarkable change in the American fire service in the last thirty years. According to data available from the National Fire Protection Association on fire department calls (NFPA, 2020) the number of calls for service has increased by over three times, from approximately 11 million calls in 1986 to over 35 million calls in 2016. During the same time, the numbers of firefighters per population has decreased. An increase in the number of emergency medical calls accounts for a portion of the increase in call volume, due in part to an aging population. This growing number of aging Americans results in a higher likelihood in calls for medical assistance. Additionally, the fire department has increasingly become a resource for almost any emergency incident, not just those that involve fire resulting in an increase in calls for service. These other calls for service include, but are not limited to, hazardous materials incidents, technical rescues, traumatic injuries and motor vehicle accidents (NFPA, 2020). While an increase in requested service might not present an issue in many occupations, this dramatic increase in calls presents a unique challenge in that nearly 70% of the firefighters who respond to these calls in the United States, are volunteer. The increased call demand has placed many rural and suburban communities at risk as voluntarily staffed organizations cannot keep pace with the calls for service (U.S.F.A, 2007).

Further compounding the problem is the fact that the number of training hours required to become a certified firefighter, one who can operate in an Immediately Dangerous to Life and Health (IDLH) environment, has more than doubled in this same

time period. The required number of training hours needed to become an emergency medical technician has also increased, as has the hours needed for technical rescuer certification. The increased time for certification plus the time demands for work, parenting, pressure to maintain a level of affluence consistent with others within their community” and other activities creates a serious demand on a volunteer’s available time. This demand for time forces each of us into prioritizing our activities. As a result, those who volunteer are increasingly devoting their time to other activities and increasingly choosing not to volunteer their time to local fire departments. Sadly, those communities where the number of active volunteers is decreasing are not immune from the increase in number of calls for service. This lack of adequate staffing and increased call volume is creating a dire situation. A situation that is leading to longer response times or in some cases even unanswered responses to emergency incidents (U.S.F.A, 2007).

While no state is exempt from the difficulty in finding staffing for volunteer fire departments, this project focuses on data collected from fire department members in North Carolina. Increasingly, departments within North Carolina are struggling to have enough members to respond to calls and simultaneously meet the suggested guidelines of *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. In an effort to reverse the trend, the North Carolina Association of Fire Chiefs (NCAFC) applied for and was awarded a Staffing for Adequate Fire and Emergency Response (SAFER) grant. SAFER grants are a component the Federally funded Assistance to Firefighters Grant (AFG), commonly known as the FIRE Act. The Assistance to Firefighters grants were created to meet the firefighting and emergency response needs of

fire departments and nonaffiliated emergency medical service organizations. Since 2001, the AFG has helped firefighters and other first responders obtain critically needed equipment, protective gear, emergency vehicles, training and other resources necessary for protecting the public and emergency personnel from fire and related hazards.

The SAFER grant program was specifically created to address concerns over the adequacy of firefighter staffing (Kruger, 2018). The Staffing for Adequate Fire and Emergency Response Act—popularly called the “SAFER Act”—was introduced into the 107th and 108th Congresses. The 108th Congress enacted the SAFER Act as Section 1057 of the FY2004 National Defense Authorization Act (P.L. 108-136; signed into law November 24, 2003). The SAFER Act authorizes grants to career, volunteer, and combination fire departments for the purpose of increasing the number of firefighters to help communities meet industry-minimum standards and attain 24-hour staffing to provide adequate protection from fire and fire-related hazards. Also authorized are grants to volunteer fire departments for activities related to the recruitment and retention of volunteers (Kruger, 2018). SAFER is administered by the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security (DHS).

After being awarded the SAFER grant, the NCAFC partnered with the International Association of Fire Chiefs (IAFC) and the Volunteer Workforce Solutions (VWS) group to help administer the grant. The VWS provided marketing material, training and support to participating departments to assure the success of their recruitment and retention campaigns. In addition, the NCAFC provided leadership, recruitment and retention seminars throughout the state of North Carolina as part of the VWS program.



At the onset of the project, a survey was created and distributed by the (NCAFC). The purpose of the survey was to get a sampling of beliefs from firefighters as they pertain to both recruitment and retention of fellow firefighters in the state of North Carolina. The survey was made available through the online survey system, Survey Monkey, and via a paper form if requested. The survey asked a series of questions of the firefighters in several broad categories:

- Firefighter type with responses being limited to career, volunteer or both
- Primary occupation, years of service and some general demographic information
- Primary motivation for joining the fire department
- How they initially became aware of the opportunity to join the fire department
- The effectiveness of social media for recruitment efforts
- Their motivation for continuing in the fire service
- Their belief in why others may have left the fire service

## 1.2 Purpose of Study & Research Questions

In a study conducted by Todd Patterson (2009) titled *The Decline of Volunteer Firefighting in the United States: A Loss of Local Capital*, Patterson suggested studies about fire volunteerism was lacking. Patterson continued that since the 1990s there has been an increase in both academic and nonacademic studies in fire related themes, but these studies tend to be focused on operational issues or service area oriented and that gaps existed in studies on volunteer firefighting. There has been a downward trend in the number of volunteer firefighters nationwide and concurrent with this decline is a contrasting increase in the number of calls for service by volunteer fire departments. There have been some studies that give insight as to why the number of volunteers is in decline, but the

problem of decreasing numbers not only needs to be stopped but also reversed. It is critical to understand what motivates or attracts those who do volunteer.

The purpose of this project two-fold. The first purpose is to analyze the responses to the survey and identify the perceptions about the recruiting efforts employed by the departments participating in the NCAFC SAFER grant project. As a part of the first purpose, the following questions will be answered:

1. Does a fire department member's age impact their perception on what they believe is an effective recruiting method?
2. Does a fire department member's years in service impact their perception on what they believe is an effective recruiting method?
3. Using the statistical method known as a Relative Importance Analysis, can a relationship, either positive or negative be established with either years of service or member age as it relates to their perceptions about the recruiting efforts. That is to say, does a member's age or years of service impact the strength of their belief about the effectiveness of a particular recruiting method.

The second purpose, using information from the data analysis is to develop recommendations that can be leveraged into a data informed best practices training program of procedures to be used in recruitment activities for the fire departments. In addition, this dissertation will discuss recommendations and limitation based on the findings from this study. As part of this second purpose the following questions will be addressed:

4. What key components of a firefighter recruitment program are suggested

by the data analysis that fire services could use to recruit volunteers in North Carolina?

5. What key components of a training program for new recruits are suggested by the data analysis that a fire service could use to orient and retain volunteers in North Carolina?

## CHAPTER 2. REVIEW OF RELEVANT LITERATURE

### 2.1 Volunteer Fire Departments in North Carolina

According to the FEMA registry of fire departments in the United States, North Carolina has 1,088 registered fire departments. Of the 1,088 fire departments in the state 62.9% indicate they are all volunteer and 28.2% are mostly volunteer resulting in 91.1% of North Carolina's fire departments being dependent, to at least some degree, on volunteers to provide fire protection for the residents of the state (U.S.F.A, 2007). Fire Department classification types are based on the National Fire Protection Association's (NFPA) definitions where a mostly volunteer department is defined as 1% to 50% of a department's firefighters are career and the remaining members are volunteers. Fire departments that are categorized as all volunteer department are comprised 100% of volunteer firefighters. In the United States volunteer or all volunteer departments represent 82% of all departments and protect 32 percent of the US population (NFPA, 2020). While this dissertation is based on volunteers and volunteerism, the focus is specifically on recruitment and retention of volunteer firefighters in North Carolina. However, the author acknowledges that since North Carolina's volunteer fire service is very similar to other state's volunteer fire services, information from sources outside North Carolina are relevant in many instances. Of particular interest to this study is the nationwide trend indicating overall decline in the total number of volunteer firefighters that coincides with increase in the number of calls for service. In February 2020, the NFPA issued the 2018 U.S. Fire Department Profile report. This annual report indicated that in 2016 and 2017 the number of reported volunteer firefighters are the lowest recorded levels since the NFPA began the survey in 1983 (Evarts & Stein, 2020). The decline in number of firefighters is

happening concurrently with an increase in calls is creating a dilemma for many communities. According to the NFPA fire data statistics website (NFPA, 2020) the total number of calls ran by all categories of fire departments in 1980 was 10,819,000. In 2018, the total number of calls ran by all categories of fire departments was 36,746,500. While the total number of calls shown is not specific to only volunteer fire departments, the numbers show an increase of three times total calls for service for fire departments overall. A few research projects have been completed and others are ongoing in an effort to identify a cause for the decline in the number of volunteer firefighters.

Currently, the most comprehensive study of volunteer firefighter recruitment and retention was a study titled *Retention and recruitment for the volunteer emergency services: challenges and solutions* prepared by the United States Fire Administration (USFA) jointly with the National Volunteer Fire Council (NVFC) in 2007. The USFA 2007 study was a second edition of a study first conducted in 1998. The USFA 2007 study could not identify a specific root cause for the decline in the number of volunteers but noted several causes that are working in tandem contributing to the reduced numbers of volunteer firefighters. The study also addressed the numerous challenges of both recruitment and retention and offered suggestions to improve both areas. Information from the 2007 USFA study is referenced multiple times throughout this chapter.

## 2.2 Defining Volunteerism

For a study about volunteers it is imperative that what constitutes a volunteer is defined. Vinton (2012) defined volunteering as an activity in which an individual gives up his or her time for the benefit of another individual, group or community. While Vinton's definition broadly defines what a volunteer is, there are some other factors that help refine

the term and provides more depth to the definition. To further identify what a volunteer is, this dissertation will utilize the six defining and characteristic features of volunteers as established by Snyder and Omoto (2008) in their work *Volunteerism: Social Issues Perspectives and Social Policy Implications*. Those who are members of volunteer fire departments meet one or more of those six criteria.

First, the actions of volunteers must be voluntary (Snyder & Omoto, 2008) The volunteer undertakes the decision to become a member of their own volition. Volunteer fire department members typically join a volunteer fire department because of a desire to help their fellow man rather than out of a sense of obligation. Being obligated would imply some foreknowledge of who may eventually need the volunteer's assistance and assume that the volunteer was in some way obligated to the person now in need. Volunteers also choose to volunteer without any promise of any reward or from any real or perceived obligation to the organization or any of the organization's members. Continued volunteerism with the organization may eventually lead to relationships or a feeling of obligation toward the organization or its members but the initial decision to join was not predicated on such feelings.

Second, the act of volunteering to provide services for others or to further a cause involves some amount of deliberation or decision making; they are not reflexive acts of assistance or "emergency helping" (Snyder & Omoto, 2008). Snyder and Omoto's (2008) second criteria "cause involves some amount of deliberation or decision making; they are not reflexive acts of assistance or "emergency helping"" seems in contrast to the nature of volunteer firefighter's tasks. However, the author believes that Snyder and Omoto (2008) were referencing those actions undertaken by bystanders who may happen upon an

accident or incident by chance that requires immediate intervention by the one who happened on the scene. The first part of the second criterion that indicates “cause involves some amount of deliberation or decision making” is applicable to volunteer firefighters who have both deliberated and decided to participate in the volunteer fire department and therefore the second criterion is wholly applicable to those who are volunteer firefighters.

Volunteers are faced with a wide variety of social causes and organizations that vie for the volunteer’s assistance. It is up to the volunteer to decide if they want to help, where they want to help and who they want to help. Decisions about the frequency and the amount of time they have to volunteer comes into play in that decision-making process. Many organizations are happy to take volunteers for a wide variety of times. The amount of time volunteered could be as short as a few hours for a particular event ranging to many years of service, which is often the case with volunteer fire department. This intentional deliberation about the volunteers motivations distinguishes volunteerism from bystander intervention (Darley & Latane, 1968).

Third, volunteer activities must be delivered over a period of time, with particular interest in helping actions that extend over weeks, months, and years (Snyder & Omoto, 2008). Volunteer fire firefighters can remain volunteers with a volunteer fire department for decades. It is not uncommon to have members with more than 50 years of service to a department. The act of joining a volunteer fire department usually implies a commitment of extended time. The time required to accumulate the necessary training can be months to years.

Fourth, the decision to volunteer is based entirely on the person’s own goals without expectation of reward or punishment (Snyder & Omoto, 2008). The very nature of a

volunteer organization is implied through the title of volunteer. Expectation of pay for service is not usually associated with volunteer organizations. To be considered a volunteer for this dissertation study, if you were being made to be a part of a volunteer fire department by virtue of a punishment (e.g., community service) or for fear of being punished for not joining, then are you not considered a volunteer of the department.

Fifth, volunteering involves serving people or causes who desire help (Snyder & Omoto, 2008). The assumption is that those people who join a fire department are doing so to help those in need. Typically, those in need have either called for help or someone has summoned help for them. The person receiving help is willing to accept the help or have the right of refusal if they decide they no longer are in need of help.

Sixth, volunteerism is performed on behalf of people or causes, and commonly through agencies or organizations. Those who are considered volunteers for this dissertation study are those who are members of a volunteer fire department.

Strigas (2006) categorized five factors of motivators that affected one's decision to volunteer. The first is the pursuit of the volunteer activity as leisure choice to fulfill the desire for social interaction. Volunteer firefighters choose to devote some of their free time. Additionally, volunteer firefighters' social circles are frequently made of up of those that they volunteer with (Wyatt, 2007).

Strigas (2006) then categorizes the second factor as pursuit of social status and networking opportunities and the pursuit of goods and services. Volunteering in the strictest sense is doing so without monetary compensation as a motivating force. However, there other benefits such as professional development or increased opportunities for outside career progression. Gaining experience as a volunteer can enhance one's chances for



getting hired as a paid firefighter. Additionally, gaining certification and training can also give an added edge when competing for a paid firefighter position.

The third category identified by Strigas (2006) deals with the desire to become a better person and improving your self-esteem. While the second and third categories appear similar when given a cursory review, the third category focuses on one's desire to improve personal image internally, which is different from the external image suggested in the second category. Other researchers (Matsuba et al., 2007) discuss the same difference in motivation based upon internal versus external image.

Strigas (2006) surmises the fourth category is related to altruism of the individual. The person volunteering is contributing to benefit either the organization or to benefit the community in general. In her book, *The Heart of Altruism* (1996), Kristen Monroe expounds there are many types of altruism. Thusly there are several reasons why one person may choose to act to help another. Monroe goes on to explain that self-interest is a starting point for the analysis of why one commits acts of altruism it, but self-interest leaves out many of the other reasons and opens the door to questions about the moral obligations one may feel toward the welfare of another human.

Finally, Strigas' (2006) fifth category is based upon some external influence causing the volunteer to act. This may be from family affiliations or possibly peer pressure from the social connections of the volunteer. Fire departments frequently have members with extended family histories that may include different relatives who are or who have been associated with the organization. In these instances, the volunteer may be under pressure, real or perceived, to continue the family tradition of volunteer for the organization.

According to Matsuba, Hart & Atkins (2007), there are three research areas in the study of volunteerism. These three areas are: the social structure model, the personality research tradition and the identity and self-esteem model. The social structural model focuses on demographic qualities and how those qualities are associated with volunteerism. Factors such as gender, educational status, social class, and age are evaluated as predictors of volunteerism. In the personality and research tradition personality characteristics and motives of those who are likely to volunteer are examined. Personality traits such as concern and empathy are often evident in those who tend to volunteer. The influence that volunteering has on one's identity and self-esteem makes up the last research tradition. Research by Strigas (2006) & Matsuba et al (2007) conclude that one motivation for volunteering is a desire to feel better about oneself. Moreover, Matsuba et al (2007) concludes that all three research traditions converge around the idea of civic mindedness in the volunteers.

### 2.3 Volunteer Fire Department History

The threat of fire has been an ongoing concern since the Europeans first arrived on the North American continent and began to colonize what was to become the United States. The first permanent settlement in Jamestown, Virginia was nearly destroyed by fire in 1608. The fire resulted in the loss of the settler's stores of food, medicine, clothing and ammunition. As a result, many of the settlers died of malnutrition or exposure over the following winter. North in the Plymouth colony in New England, the colonists had to take shelter aboard their ship the *Mayflower* after a fire had destroyed their new buildings.

The homes in these new settlements were often built close together, were made of wood and generally had thatched roofs, making them ripe for fire. No organized fire departments existed, and it was generally understood that it was the responsibility of all able-bodied males to assist in the firefighting activities. These firefighting activities were generally limited to bucket brigades which were rarely effective (Collins, 2012).

The first organized volunteer fire companies were started by Benjamin Franklin. After a visit to Boston, Franklin noted that, to some degree, Boston was much better prepared to handle a fire than his home city of Philadelphia. This was due to the existence of what was known as Mutual Fire Societies. These societies, or fire clubs, only provided protection to those who were members of their society and the at large community of non-society members gained no benefit from these firefighting groups. However, they were reasonably well prepared to take care of their own. Philadelphia had suffered several devastating fires and Franklin knew Philadelphia was woefully unprepared should a large fire occur again. To better prepare Philadelphia created what was known as the Union Fire Company in 1736. The Union Fire Company became the model for fire companies throughout the Colonies. Several people who would later become instrumental to American independence served as volunteer firefighters in these volunteer fire companies. Some of those first volunteer firefighters included include George Washington, Alexander Hamilton, John Hancock, Samuel Adams and Paul Revere. After America won its independence, volunteer firefighting entered into a kind of golden age. Firefighters were often seen as a kind of urban folk heroes. This folk hero image was cultivated by lithographers Nat Currier and Jim Ives who produced prints exalting the firefighter. It was

during this period that the firehouse began to become a social centerpiece in many communities. (Collins, 2012)

#### 2.4 The Continued Need for Volunteer Fire Departments

The first full time, fully paid fire department was established in Cincinnati on April 1, 1853. While most larger metropolitan areas and densely populated communities have followed Cincinnati in the establishment of paid fire departments, the need for fire protection and emergency services is not diminished in more rural and/or less densely populated areas and this necessary protection is provided by volunteers.

Just as their paid counterparts have, volunteer fire departments adapted and changed along with technology. Manpower was quickly supplemented with horsepower. Horse drawn pumping equipment was replaced with steam engines and then eventually gasoline powered fire engines allowing firefighters to respond more quickly and to greater distances. Even with advancements such as the ones mentioned, the population growth in the U.S. and associated housing growth has led to an increase in the number of fires and fire related death (NFPA, 2020). Housing booms often led to shortcuts to being taken with construction and the lack of uniform and codified building standards led to structures that were not fire safe. Emphasis was rarely put on fire prevention and America's prosperity often fostered an attitude of "it won't happen to me". Factors such as this led to a fire and fire fatality rate that was higher than most other industrialized nations (FEMA, 2011).

In 1971, a 20-member panel, the National Commission of Fire Prevention and Control, was created to study the nation's fire problem and needs of the fire service. The commission's report, *America Burning* was issued in 1973 and is widely considered to be

the most influential document in the history of the American fire service (Collins, 2012). While not the focus of this dissertation, this report indicated that the United States surpassed all other industrialized nations in annual fire death rates and property loss (The United States National Commission on Fire Prevention and Control, 1973). Most relevant to this research is that the report named the fire service as part of the problem and offered 90 recommendations for improving the nation's fire service (The United States National Commission on Fire Prevention and Control, 1973). One of these recommendations was the creation of a U.S. Fire Administration (USFA) to focus nationwide efforts and establish priorities for research and action. Much of the data used to drive changes for the fire service comes from the efforts of the USFA. Another of the 90 recommendations was to increase staffing and to increase in the number of firefighters. As previously stated, many communities in the United States are dependent on volunteer fire departments. Therefore, there is a need to increase the number of volunteer firefighters. A more recent focus of the USFA has been recruitment and retention strategies for volunteer fire departments.

## 2.5 Why Do People Volunteer for Fire Departments?

As previously discussed, those who volunteer their time to an organization do so for a variety of reasons. Often those who volunteer have difficulty expressing just why they volunteer other than they just feel it is the "right thing to do". Helping friends, neighbors or others who are in a time of need out of a sense of compassion and empathy is frequently mentioned in conversations with volunteer firefighters. According to a national survey that was conducted in the year 1996, roughly 44% of the adult population of the United States engaged in some form of volunteerism (Independent Sector, 2001). Snyder and Omoto (2008) reported that volunteers are needed to fill gaps in services or programs that would

otherwise go unfilled. Further, they said that volunteerism is one form of social action that people in engage in for various reasons to benefit others or the society in which one is embedded. In a study on volunteer firefighting, Wyatt (2007) spent over a year observing and participating in activities within the Mansett Volunteer Fire Department and she reported that nearly all of the firefighters cited more than one reason they joined.

### Excitement and Challenge

Many firefighters are drawn to the thought of fighting fire from young age. Many dreamed of being firefighters as kid and had firefighting toys when they were young. Firefighting television shows like *Emergency* have been cited as having had an impact on people's decisions to join the fire service. Wyatt (2007) during volunteer firefighter interviews reported that one of the interviewees indicated that he became intrigued by the challenge of the work shown in the show *Emergency*. The television show *Emergency* show portrayed exciting scenes of fires and rescue situations and the characters in the show always came out as heroes. A generation of people who grew up with this television show emulated the courageous acts of firefighter Johnny Gauge and Roy Desoto through childhood play. As children they may have carried their lunch to school in an *Emergency* themed lunch box and then played with the toys based on the show when they were at home. The memories of the show lasted into their adult years when they finally could join a fire department and have a chance to experience in real life those imagined experiences from childhood. More recently, movies such as *Backdraft* and *Ladder 49* showcased the heroics of being a firefighter in the same way *Top Gun* glamorized being a Naval aviator. The researcher has noted that movie advertisement posters from *Backdraft* are still popular selling items at fire expositions and trade shows even though the film was released 1991.

There is an element of excitement that comes from the adrenaline rush of responding to an incident. There is a sense of the unknown as firefighters are responding and wondering what they will be facing. Working fires and rescue operations create a sense of urgency and often some level of fear that gives way to a profound sense of relief and accomplishment when the incident is over. Leaving after a tough job is completed and knowing you risked your own wellbeing to help another can be satisfying.

### Family Tradition

Family tradition may also play a role. Also, in the study by Wyatt (2007), the researcher found that almost half of the members in a particular volunteer fire department were preceded in the department by their fathers. Her research went on to find that volunteer firefighting was central to their family lifestyle and beliefs about obligations to others. Firefighting families are common. Although somewhat stereotypical, firefighters in television and in movies are often Caucasian and of Irish ancestry. This is not a coincidence as there are very high numbers of firefighters in the northeast who are of this lineage. But firefighting as a family business is not limited to Caucasians of Irish ancestry. The 2018 Fire Department Profile report published by the indicated there were 78,500 volunteer firefighters who were female, which was 11% of the total number of volunteer firefighters. Nationwide, minority firefighters (non-Caucasian) make up about 17.5% of the total number of firefighters (NFPA, 2020).

### Socialization

Many members joined the fire department because they had friends who were already in the fire department or join for an opportunity for socialization especially with

other men. Wyatt (2007) reported that many joined the fire company when they were teens or young adults. The fire service has a fraternal nature and often appeals to young men.

The fire service is frequently cited as being a brotherhood. The strong relational bonds that are built among members often remain the strongest motivating factor for continued involvement. Many of the fire department members' closest personal relationships and friendships are with other members of the fire department. Their social life and fire department membership are often intertwined and are almost inseparable from each other.

Strikwerda and May (1992) found that men tend to socialize around activities and shared experiences. When confronted with dangerous situations, men tend to seek out other men on whom they can depend. Having shared common dangerous or stressful experiences frequently fosters closer and more dependent relationships among the members. Jablin and Putnam (2001) describe metamorphosis as settling into a role. For firefighters this metamorphosis or transition occurs as volunteers are trained and become a part of the organization. As firefighters go through training, they frequently find roles that coincide with their individual interest and skills and, being able to utilize their own specific skills and satisfy their own interests while serving a greater purpose makes commitment much more likely.

Trivers (1971) suggests that a reciprocal altruism emerges in jobs that critically require mutual dependence such as firefighting. Although Trivers was addressing combat situations, volunteer firefighters are also dependent upon each other much the same way as soldiers would be in many emergency situations. This solidarity that is built among the



members reinforces their belief that they have an obligation to help the other members within the department and thereby a strengthens their commitment to the department.

Humor can also be an aspect of socialization that is a part of the fire department culture (Collinson, 1981). Practical jokes and pranks are common within the confines of the fire department. To fall victim to a practical joke or prank usually signals some form of acceptance thus creating some higher level of comfort for the would-be victim. Humor allows firefighters to retain a sense of control, vent emotions, and enhance group cohesiveness (Collinson, 1981). Becoming part of a group that accepts you socially and creates bonds of friendship are inviting characteristics that draw people in.

## 2.6 The Decline in the Number of Volunteers

The volunteer fire service is facing a challenge that appears to have no easily discernible solution. The number of calls for service is steadily rising and the number of volunteers to answer these calls are not increasing accordingly. In many departments the number of volunteers is decreasing. A recent document published by the National Fire Protection Association (2020) indicated that since 1983 the number of volunteer firefighters nationwide has dropped over 15%; from 905,650 to 745,000 in 2020 (Evarts & Stein, 2020). Even in departments that are not dwindling in membership numbers, the increase in call volume is creating issues as the membership is being overworked. The USFA (2007) found that that both recruitment and retention were a problem nationwide.

Volunteer firefighters provide fire protection to three-fourths of the geographical area of the United States (NFPA, 2020). Having such a large percentage of the country receiving its fire protection by volunteers makes this issue one of critical concern. In North Carolina, volunteer fire departments have lost approximately 600 members since 2016.

Having a diminished roster of responding firefighters creates a strain on resources that can cascade across more than one community. With fewer personnel responding to calls, departments are frequently forced to call in assistance or “mutual aid” from neighboring departments. Pulling these resources from a neighboring community then depletes their ability to respond to their own calls. Calls that were once handled by a single well-staffed volunteer department may now require three or four departments before the incident is properly controlled.

Volunteer fire departments are expected to respond to a variety of calls that may include hazardous materials response rescue and medical emergencies as well as traditional fire-related calls. Small towns and rural locations are often faced with some of the same problems that larger metropolitan areas may have but are much more limited in both resources and personnel. Railroads, highways, and interstates pass through the countryside and usually there are some industries located within the rural setting. All these factors present the possibility for incidents beyond the scope of what a small department may be able to handle with reduced personnel.

The nature and number of calls answered by volunteer fire departments has increased dramatically over the past 50 years. The National Fire Protection Association, in addition to its primary function of being the primary code development organization in the U.S., also provides statistical information on fire departments and their calls. The number of calls responded to by fire departments since 1986 as reported by the NFPA (2020) is shown in Figure 2.1.

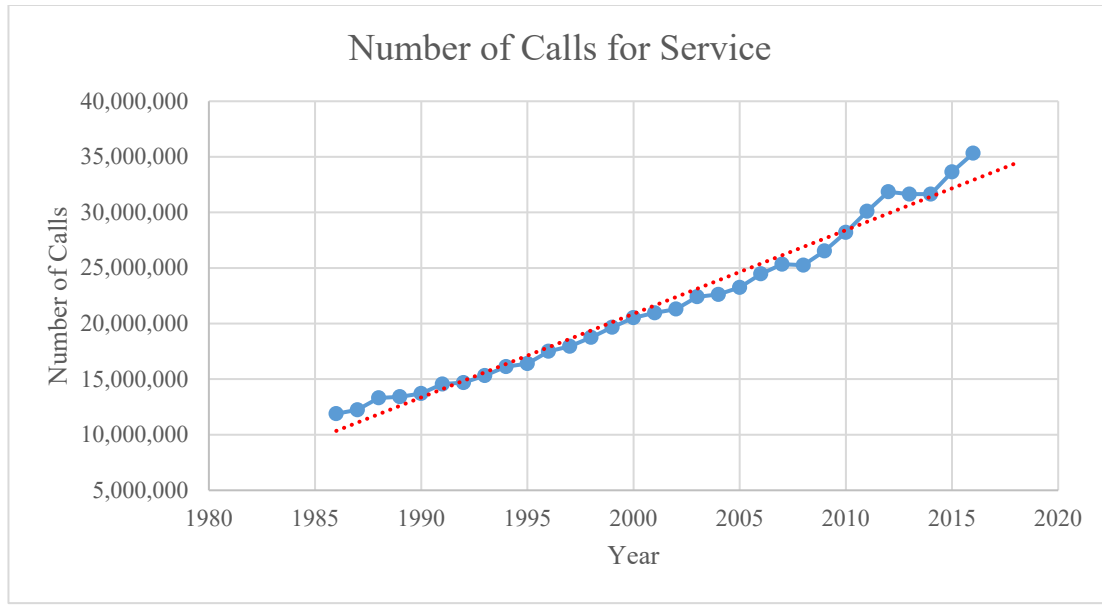


Figure 2.1 Number of Calls since 1986 (NFPA 2020)

The total number of volunteer firefighters is trending downward even though there were some years where the overall numbers showed an increase. There was a slight increase in numbers after the events of September 11, 2001 but the by 2007 the numbers of volunteer firefighters resumed the gradual decline. 2011 saw the lowest number of volunteer firefighters since records started being kept. This new low benchmark prompted a call to action that turned the downward trend back positive for a few short years. However, in April 2019, the NFPA issued the 2018 U.S. Fire Department Profile report. This annual report indicated that in 2016 and 2017 the number of reported volunteer firefighters were at the lowest recorded levels since the NFPA began the survey in 1983 (NFPA 2020) (see Figure 2.2). As in 2001, recruiting efforts intensified and the numbers are showing some upward movement.

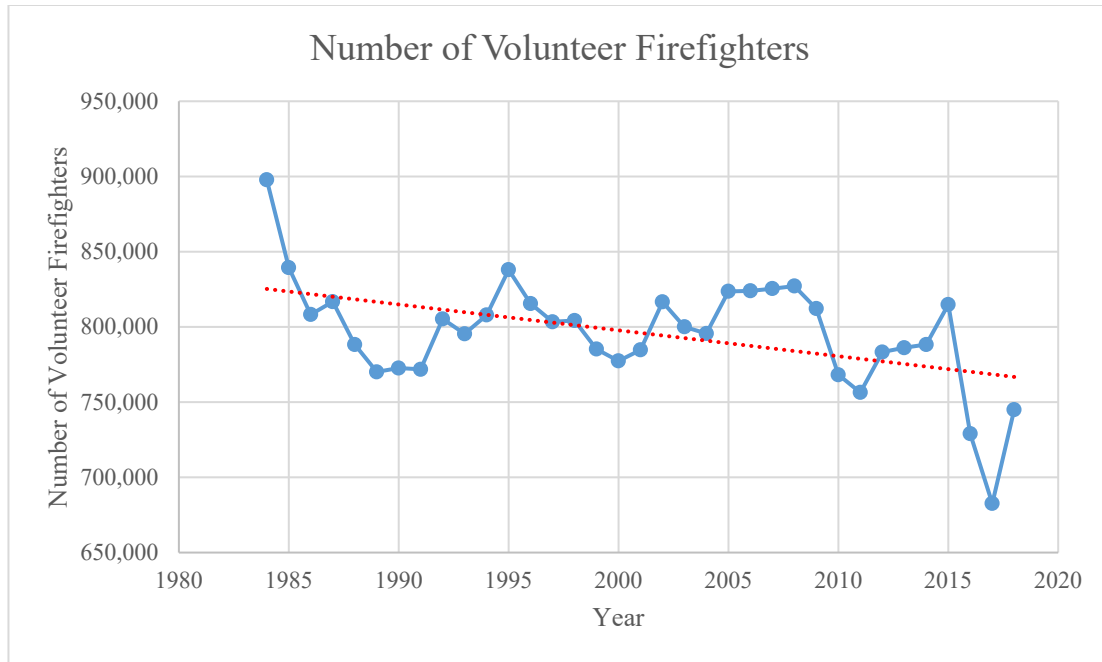


Figure 2.2 Number of Firefighters (NFPA 2020)

## 2.7 Challenges for Retention of Volunteer Firefighters

There is no one single item or element that can be identified as a cause for the decline in the number of volunteer firefighters. Rather, it appears that the decline is attributed to multiple factors often working in concert together that create conditions that make volunteers decide to leave. The USFA (2007) study on recruitment and retention listed several factors as contributing to the decline in the number of volunteers that include increased demand, on time, conflict and sociological contributors which are described in the sections below.

### Homelife Demand on Time

The number one reason cited for why members leave a department or quit responding is an increased demand on their time or no time to volunteer (USFA, 2007). This demand on time is not singularly sourced but rather multifaceted in that the demands

are interwoven with obligations at home, employment and from other competing responsibilities (Wyatt 2007). The proportion of dual earner married couples more than doubled between 1960 and 2000, increasing from 25 percent to 60 percent (Pew Research Center, 2015). In many instances the volunteer is part of a two-income family with either both parents working a single job or one parent working two jobs while the other raises the children.

With both parents working, the time needed for household chores, time for children's activities and time for the marital relationship are prioritized higher than volunteering. Failing to prioritize family needs over volunteering can lead to family conflict, and most volunteers choose harmony in the home over time at the fire station. In some instances, even if there is some amount of free time, resentment from a spouse who may feel they are carrying more than their fair share due to the their partner spending time away from home at the fire department overrides a decision to volunteer. Many couples who are working two jobs while raising a family find they have become money rich and time poor. 2.7.2

#### Departmental Demand on Time

Volunteer fire departments are one of the most time demanding volunteer activities today. Typical volunteer members may contribute 20-100 or more hours per month to the department (USFA, 2007). Volunteer department members have the same burdens for certifications and training as a career firefighter but are expected to meet these requirements on their own time and frequently at their own expense. The requirements for certification have increased over time and put more demand on those who seek to become certified. While the rationale for the increased certification time is ultimately to ensure

safety, it cannot be denied that the time required can be a deterrent to the already time strapped volunteers. In 1981 to become a certified firefighter in North Carolina, a new volunteer to a department was required to complete a 30-hour basic firemanship course. According to the North Carolina Office of the State Fire Marshal, in 2019, the required hours of training to become a certified firefighter is now 515 (NC Department of Insurance). In addition to state and local requirements, changes in federal guidelines and nationally accepted standards also add to the burden of training. For example, after the events of September 11, 2001 a directive was issued by the President that required all first responders to be compliant with the National Incident Management System (NIMS). The required training for NIMS certification varies based on your rank and the Incident Command System courses (IS) progresses from IS 100 through IS 800. Each IS course varies in the time required to complete, three hours to twenty-four hours.

Increasingly, fire departments are called upon for service to incidents that have little or no connection to fire. Fire departments frequently are called in as first responders to medical emergencies, motor vehicle accidents, hazardous materials incidents and technical rescues. The complexity of these situations not only requires additional training but are usually personnel intensive. The local fire department is frequently the “go to” agency for almost any situation in many communities. When a call for service is made, the caller expects professionally trained and competent individuals to show up and handle the crisis they were called to mitigate. The public is no longer willing to accept untrained individuals showing up in an emergency vehicle not knowing how to help. The constantly increasing number of calls for service and the pressure to handle every situation to the satisfaction of the public may increase the likelihood members may experience “burn out”. Burnout could

mean many things from suffering the effects of Post-traumatic Stress Disorder (PTSD), tired of running calls or just tired of the constant drain on their free time, which can have an effect on volunteerism.

In addition to the time requirements of the training, there are also numerous activities that are required of members. Volunteer fire departments are typically funded in whole, or in part by donations. As such, many fire departments have fundraisers to support their operations. This may be a yearly event that attempts to raise most of the needed financial support for the year via a single event or a fire department may host a weekly or monthly event such as bingo and secure the financial resources in incremental events. Members are expected to attend and participate in these events as part of their obligation to the organization.

Further, most volunteer departments will hold business meetings weekly or monthly and most departments also have dedicated departmental training nights or days as well as time devoted to truck and equipment checks. With so many time demands from within the fire department organization, members are more likely to prioritize their participation. For example, members may choose to only respond to working fires. This is problematic as this frequently leaves more mundane or routine calls shorthanded and without enough personnel to operate safely.

### Conflict with Leadership or Other Members

Cnaan and Milofsky (2007) state that retention problems in volunteer fire departments are often the result of management difficulties. However bad management alone does not provide a complete explanation of why volunteers leave the fire service. Few firefighters actually quit outright, and many tend to disengage and eventually stop

responding to calls and fire department related events. Unresolved conflict between members sometimes results in adopting a practice of one member choosing to avoid the problem (i.e., the person the conflict is with). These researchers also note avoidance strategies such as this can result in at least one member no longer attending events or running calls and may ultimately lead to a total disengagement by the member.

Disagreements on management style or perceived inability to manage the department in a way the is agreeable to a member often leads the dissatisfied member to vote with their feet. If a member doesn't like the way the departmental affairs are handled, they opt to just walk away rather than persist and try to change what they do not like.

The transition to combination departments in some communities have also been a source of discontent for many previously all volunteer staffed departments (Piper, 2014). Combination departments are created when the call volume or the shortage of volunteers is great enough that one or more paid members are hired to staff the department. Oftentimes this is in the form of one or more members who may work a daily shift during times when volunteer response is typically at its lowest. The creation of combination departments can foster discord for many reasons. One possible reason could occur if a volunteer who applied to be the paid firefighter was not selected. Possibly the paid firefighter becomes a de facto ranking officer over volunteers who may have many more years of experience. Occasionally, the conflicts result from a career firefighter treating the volunteers as amateurs (Piper, 2014). In either case. The volunteers can feel they have become second class members of their department, ranked below the paid staff and this feeling of lower standing can further erode the number of volunteers.



## Sociological Contributors to the Decline of Volunteers

James Catino noted in his study, *An Examination of Factors Influencing Retention of Volunteer Firefighters in the Commonwealth of Pennsylvania* (Catino, 2015) that several sociological changes are all playing roles in volunteer attrition. One such condition is that many volunteer firefighters work in locations other than where their volunteer department is located. The reality of industry and other workplaces becoming more urban centric has led to more community dwellers commuting to jobs that once were local to their home community. Catino goes on to point out that global commerce, online shopping and the domination of the consumer marketplace by a few key large multipurpose businesses have effectively erased many small-town main streets and the mom and pop businesses that once thrived there. Workers are traveling to larger cities, strip malls or large urban industrial parks to work. As a result, the members are no longer available locally during work hours to run calls. Another aspect of this same issue is that even if there are remaining businesses within a community, volunteers firefighters indicate there is less willingness by employers to let workers leave during work hours to respond to calls. Catino (2015) states that this practice has “nearly disappeared in the Commonwealth”. This may in part be due to the fact the frequency of calls is increasing and thus time missed from work also increases. When coupled with a reduced number of volunteers to share the workload of responding to calls and a continually rising number of calls this can lead to a situation that can become untenable for an employer who depends on employees to get the work completed.

Catino (2015) surmises in his research that there is also the issue of transience. It is common nowadays for people to move where the work is located rather than try to find a new occupation if their current job goes away. With many companies operating locations

in multiple states, workers choose not to fully engage in local communities as they know the potential for career advancement can be tied to moving to another location when a position opens and the employee wants to remain free to move quickly with fewer impediments to leaving as soon as practical. Fire departments were once sources of community pride that helped provide moral integration for the people of the that community (Simpson, 1996). Those who lived in the community wanted to help play a role in the locality. However, when those who live within the community want to remain unattached and free to move if needed, the fire department as prime source of community involvement suffers.

The transience of those who live in small towns has fostered a loss of community pride and, people do not engage in civic or social functions as they once did. More and more people tend to be self-entertained spending time with their electronic devices. A survey by the Pew Research Group found 92% of Americans go online daily and about one third of Americans say they go online almost constantly (Perrin and Kumar, 2019). An often-used phrase in conversations about leisure time is “me time”. People come home from their work and go into their house and don’t leave again until work the next day. Time in neighborhood yards chatting, visits on the front porch, and attendance at community events seem to be a thing of the past. Civic groups report the same decline in volunteerism similar to what the fire departments are experiencing (Atkins, 2011). Time, as a commodity has become more valuable to many people than money and in many instances, people tend to fulfill their civic duty by choosing to donate money to causes rather than their time.

Another situation that arises in some instances has been the change in the affluence of neighborhoods where volunteer fire departments exist. Housing and land values have risen to the point that some volunteer fire department members can no longer afford to live in the community where their volunteer fire department was located. Being dislocated from the department may eventually lead to the member dropping out of the department.

## 2.8 Predecessor Recruitment Studies

The Connecticut Fire Chiefs Association (CFCA) and the Virginia Fire Chiefs Association (VFCA) both partnered with that IAFC and VWS in the administration of SAFER grant projects prior to North Carolina's. Further, Connecticut and Virginia have both completed Phase One and Phase Two projects. North Carolina has completed a Phase One project and has been awarded funding for a Phase Two project. The projects for all three states, although similar in many respects, do have some differences. One notable difference is the SAFER projects for both Connecticut and Virginia were conducted as intervention type studies while North Carolina was not.

In traditional observational studies, two groups are selected randomly in an attempt to have similar populations in the groups. One group becomes the control group and the other group becomes the treatment group that either has something added to or taken away, and then observations are made about what effect the treatment did or did not have. In an intervention study, the investigator assigns the participants in each group rather than using a randomizing process. The rationale for the investigator making the assignments is often to add at least some amount of bias that hopefully will produce some moderately beneficial outcome which is typically not produced in a randomized study (Curtin & Hill, 2013). In

an intervention study, it is common for the researcher to provide some amount of direction or guidance about what each group should be doing.

For the SAFER studies in Connecticut and Virginia multiple fire departments were selected for participation. The selected fire departments for each state were then divided into two distinct groups. The groups were similar but not identical. One group continued their recruitment activities “business as usual” supplemented with some new marketing strategies. The other group utilized a recruitment strategy based on GIS-based citizen profile analysis (Curtin & Hill, 2013). The GIS based reports were generated largely from consumer-based activity such as income, age, family size, education and other factors and then populations were segmented based on the data. The rationale for the GIS based approach is the thinking that if a fire department’s members are part of a particular GIS segment, the best place to look for additional members would be other persons who are also a member of that same segment. This approach allows the volunteer fire departments to hold recruiting activities, target with direct mail or conduct door-to-door recruiting in neighborhoods with the highest predicted potential.

#### 2.8.1

### Survey Data from Previous SAFER Projects

Similar to the format of the NC Safer project, both the Connecticut and Virginia studies included surveys to ascertain perceptions about recruitment and retention from current fire department members. In surveys from both states when respondents were asked their reasons for joining, 73% of respondents in Connecticut and 66% of the respondents from Virginia answered “Referrals” (Curtin & Hill, 2017, 2014). Referrals are broadly interpreted to mean being asked or referred to join a fire department by some who is

affiliated or has some existing association with the department. Moreover, the respondents in the Connecticut survey continued by indicating the top-three responses for the question of what they perceived to be the “Most Effective Recruitment Tool” were “Firefighter Referral,” “Word of Mouth,” & “Being asked by a Firefighter”. Similarly, the survey in Virginia had nearly identical responses in that “Firefighter Referral,” and “Word of Mouth,” were the top two responses followed by “Open House” and then “Being asked by a Firefighter” (Curtin & Hill, 2017, 2014). The value of personal contact or a personal invitation cannot be overlooked. In both surveys, the responses to the question regarding the most effective recruitment method, eight of the top ten answers involved some variation or form of personal interaction. Both projects report that personal interaction is by far the most important factor in gaining new volunteer firefighters.

#### 2.8.2 Recruiting Results from Previous SAFER Projects

The Connecticut Phase One and Phase Two projects indicated that the use of GIS in their recruitment efforts was helpful. The GIS information allowed more customized and targeted approaches to potential volunteer fire department members. However, while the GIS information can potentially guide you to the best people to ask, you still must ask them to volunteer. The reports from Virginia and Connecticut indicated thousands of contacts with potential recruits were made as a result of the SAFER project (Curtin & Hill, 2014, 2017). The contacts came from several hundred recruiting events such as school visits, open houses, fire station open houses, fire department classes, media related events and social media exposures. Fire departments in both Virginia and Connecticut reported increases in the number of volunteer applicants by several hundred as a result of the recruiting programs in their respective states, and autumn was reported as the best time to

recruit in both studies (Curtin & Hill, 2014, 2017). Both the Connecticut and Virginia reports indicate that the fire departments that had a person or persons dedicated to the recruitment effort were more successful than those departments that did not.

### Recruitment Training

Part of the SAFER projects as administered through the Volunteer Workforce Solutions is a <sup>2.8.3</sup> partnership with a public relations firm. The public relations firms work with the fire departments to develop marketing materials, public safety announcements for radio and television and for the creation of marketing campaigns for the participating fire departments. Fire departments who are not part of the SAFER project also have access to these materials after they are developed. A potential weakness resides within the program as the fire department members are not always well versed in how to proceed with the recruitment activities even when they have been provided materials. As part of the Connecticut SAFER project, a symposium was held on November 13, 2015. The symposium was held to provide the fifteen participating departments with a chance to share results and ideas among the group of participating departments. A summary report of the *Symposium in the Sun* was created as a best practices document. The best practices document has several quotes from participant departments. One member from a participating fire department commented “The worst thing for us is when we get too many [potential members] interested, and we can't get the interviews done in a timely manner”. Another commented “We got an increase in applications because of the grant, but we don't have the manpower to stay on top of it, and unfortunately we had people falling through the cracks.” (CFCA, 2015) It is apparent that additional training for members is needed so that current volunteer fire department members can ensure potential new members are

brought on board and the recruiting effort is not wasted. Both the Virginia and Connecticut final reports (Curtin & Hill, 2017, 2014) indicated a single person dedicated to handling recruitment appeared to work better than other scenarios. The Connecticut best practices report supported this with a comment by a fire department member who stated “it took a few tries to find the right person personality-wise, but eventually we found the right fit to run the program” (CFCA, 2015)”. The SAFER projects can assist in bringing potential recruits to the fire department, but training on how to follow through and bring the recruit into active member status is lacking.

## 2.9 Recruitment Using Social Marketing

Social marketing has proven to be a powerful tool in creating desired cultural and behavioral change (Parker et. al, 2020). Social marketing uses traditional marketing tactics coupled with qualitative and quantitative research to develop strategies to foster these desirable changes (Parker et. al, 2020). The application of social marketing is an option for volunteer fire department recruitment as many of the required constructs for success are already clearly defined or are accessible. Parker and colleagues (2020) outline ten steps for a comprehensive social marketing campaign. Those ten steps are paraphrased here:

1. Identify or define the social issue of interest
2. Situation analysis (SWOT: strengths, weaknesses, opportunities, threats) of the organization
3. Develop a strategic campaign process
4. Setting of strategic objectives and target goals
5. Identification of the barriers, benefits, motivators, and competition
6. The positioning statement that references the target audience and the desired behavior
7. Strategic mix of the marketing elements: product, price, promotion, and placement
8. Monitoring and evaluation
9. Budgeting and funding

## 10. Implementation plan for the social marketing campaign strategy

Incorporating a framework such as the one listed above for volunteer fire department recruitments efforts could prove to be successful.

### 2.10 Summary

Volunteers play a vital role in filling in the gaps for many services and needs in the United States. The United States has a long history of dependence on volunteer fire departments to provide fire protection and assistance to citizens. The decline in the number of volunteer firefighters and a steadily increasing number of calls for service is creating a dilemma for the many communities. The communities that depend on the volunteer fire departments as their go to agency for many emergencies are experiencing delays in response or in some instances no response at all. Most of these communities do not have the resources to staff a full-time paid service so determining how to recruit and maintain a sufficient number of volunteers to continue the long tradition of volunteer fire departments is critical. While there are some studies that focus on fire departments, both career and volunteer, gaps still exist in the research records. More importantly a survey of the data that does exist from academic studies reveals very little of the data focuses on recruitment and retention of volunteers. Volunteer fire departments are heading into a crisis with increasing call numbers and declining numbers of volunteer firefighters to answer those calls. Academic research to help determine the most effective means of recruiting new volunteer fire department members is essential.

The survey from North Carolina will provide information about the firefighters in North Carolina who are tasked with recruiting new volunteer members. Utilizing the data from the North Carolina survey as an assessment of our learners completes the first phase of the Systematic Design of Instruction. The Systematic Design of Instruction is a series of



inter-related parts that function together as a whole (Dick & Carey, 1996). In this application, the systems approach is applied to the design, implementation and assessment of instruction. Leveraging the knowledge from this assessment of our learners, the reported data from the Connecticut and Virginia studies as well as any additional information that may be gleaned from the survey data from the North Carolina study provides a foundational set of components for the development of a data informed, targeted approach better recruitment. This targeted approach can then be developed into a training program of best practices that can be utilized by volunteer fire departments that are attempting to recruit new volunteer members.

## CHAPTER 3. METHODS

### 3.1 Type of Study

This study is an analysis of an existing dataset (Cheng & Phillips (2014), Lohr, 2010). The study will analyze the responses to a survey conducted as part of the NCAFC SAFER grant project. As noted in the introductory chapter, the purpose of this project two-fold. The first purpose is to analyze the responses to the survey and identify the perceptions about the recruiting efforts employed by the departments participating in the NCAFC SAFER grant project. The second purpose, using information from the data analysis is to develop recommendations that can be leveraged into a data informed best practices training program of procedures to be used in recruitment activities for the fire departments. In addition, this dissertation will discuss recommendations and limitation based on the findings from this study. Research questions 1-3 relate to the first purpose and questions 4 and 5 to the second.

#### Research Questions for this Study:

1. Does a fire department member's age impact their perception on what they believe is an effective recruiting method?
2. Does a fire department member's years in service impact their perception on what they believe is an effective recruiting method?
3. Using the statistical method known as a Relative Importance Analysis, can a relationship, either positive or negative be established with either years of service or member age as it relates to their perceptions about the recruiting efforts. That is to say, does a member's age or years of service impact the strength of their belief

about the effectiveness of a particular recruiting method.

4. What key components of a program are suggested by the data analysis that fire services could use to recruit volunteers in North Carolina?
5. What key components of a training program for new recruits are suggested by the data analysis that a fire service could use to orient and retain volunteers in North Carolina?

Establishing whether a relationship exists between recruiting method and age or years of service will serve as the starting point for the development of recruitment materials that are specific to the particular segment (age or years of service). The first step in a recruitment campaign is educating your potential volunteers about not only the need for their assistance but also about the many ways they can volunteer and be of service. However, recruitment is only the first necessary phase for improving the levels of volunteers for local, rural fire services in North Carolina. New recruits must also be retained. As attrition has been noted in the previous SAFER surveys as a problematic area, the findings from this study will also be examined for their utility to inform the design of an orientation/retention training effort as well.

This study was approved as an exempt protocol by the University of Kentucky Institutional Review Board.

### 3.2 Participants

Participants in the study were firefighters in North Carolina who responded to a survey as part of a recruitment and retention project. The survey was created and distributed by the North Carolina Association of Fire Chiefs (NCAFC) in partnership with the International Association of Fire Chiefs (IAFC) and the Volunteer Work Force Solutions

(VWFS) group. The purpose of the survey was to sample the beliefs of firefighters as they pertain to both recruitment and retention of fellow firefighters in the state of North Carolina. The survey is part of a larger project on recruitment and retention funded by an Assistance to Firefighters Grant awarded to the NCAFC in 2018.

### Recruitment for Survey Participants

As mentioned previously in Chapter One, a survey was made available to firefighters  
3.2.1  
in the state of North Carolina. An invitation to participate in the survey was sent to every fire department in the state of North Carolina via email and/or by a United States Postal Service standard letter. Respondents could either log on and complete the survey online via Survey Monkey, or a printed paper copy could be requested and then submitted. Additionally, in August of 2018, the survey was advertised in venue displays and conference literature at the South Atlantic Fire Rescue Expo, which serves as the annual fire conference for North Carolina firefighters. The survey was also mentioned via the public address system at the conference, and computer kiosks were available at the conference for survey completion as well. The survey was available for responses from August 2<sup>nd</sup>, 2018 through November 11<sup>th</sup>, 2018.

The survey concluded with a total of 886 responses from 885 respondents. One respondent completed surveys as a career and volunteer rather than completing a single survey under the heading of both career and volunteer. Of the 886 responses, 402 were from those who classified themselves as volunteer fire department members. Thus, this study analyzed data from those 402 respondents.

### 3.3 Instrument

The survey used in the North Carolina SAFER project was developed by Dr. Kevin Curtin in cooperation with the IAFC for use in the Virginia SAFER project in 2011. Before being made available to the Virginia firefighters, the survey was reviewed by representatives of the fire departments who were participating in the project. The survey was later used by the Connecticut Fire Chiefs Association for their SAFER project. As was the case in Virginia, the representatives of the participating fire departments reviewed the survey before it was administered to the Connecticut firefighters. Finally, the survey was reviewed again by the IAFC and the representatives of the departments participating in the North Carolina SAFER Project.

#### Survey Items

##### 3.3.1

The initial section included a series of questions to gather basic demographic information about the respondents and their fire department as well as a sampling of opinions. The survey began with a question to establish the type of firefighter the respondent categorized themselves as, with the choices being: volunteer, career or both. Based on the response by the survey participant, the online survey then loaded the appropriate question set for the respondent. All respondents were asked identical sets of questions with a few exceptions. For example, these exceptions included career respondents not being asked their primary occupation. Additionally, career respondents were not asked how many months it took to become a member after submitting an application or the time to become an IDLH certified firefighter.

The survey had two main categories of questions. The first category included questions that related to either personal information (e.g., age, zip code, occupation, etc.)

or questions about the respondent's service to the fire department (e.g., years in service, rank, etc.). The second category of questions were opinion questions (e.g., areas of improvements, best recruiting method, etc.).

Some responses are numeric (e.g. age, years in service) but most responses are categorical. For many of the questions, the respondents had a defined list of responses from which to choose. The answers to some of the questions were not mutually exclusive, and in twelve instances, the respondents had the opportunity to choose multiple responses. Some questions made use of a Likert type scale using variants of effectiveness (effective, somewhat effective not effective, etc.).

#### 3.4 Face Validity and Reliability

Establishing face validity is important for surveys of this nature. The organization sponsoring the survey, the North Carolina Fire Chief's Association, wanted to have confidence that the instruments being used would generate usable data. The NCFCA contracted with Volunteer Workforce Solutions (VWS) who operate as a third party to assist in grant management for the SAFER grants and offers "turnkey solutions....by providing marketing materials, training and staff support" (IAFC VWS, 2020). One way to establish face validity is having the respondents answer the question "does the survey test or measure what it intended to measure?" Another way to establish face validity is having the survey reviewed by more than one party before its implementation. For this project, both methods of establishing validity were utilized for the survey specifically by the prior reviews of and usage of the survey in similar projects in Virginia and Connecticut.

A concern for a survey such as the one used by the NCAFC is whether the survey is reliable. Reliability is a measure of the stability or consistency of the test, or survey in this

instance over time. A typical way to measure reliability is to have the same group of respondents take the same survey again at a later time and see if the respondents answered as they had previously. For this study, that is not a practical approach and a different measure of reliability must be used. In this situation, establishing internal consistency will provide a test of reliability. Internal consistency is a measure of how well individual items that are intended to measure the same construct relate to each other. To establish internal consistency a statistical tool known as Cronbach's alpha was employed. Cronbach's alpha takes the form of a correlation coefficient. (Salkind, 2000). Cronbach's Alpha measures reliability which can give insight on how well a test item measures what it purports to measure. This study is focused on recruitment so the questions dealing specifically with recruitment, questions 11, 12, 16 & 17, were analyzed using Cronbach's Alpha. The internal consistency for the items analyzed was a .5 which is low or an indication the internal consistency is low. Ideally, Cronbach's Alpha should be a .7 at a minimum, however since this was an analysis of a secondary data set, there was no practical way to address this low number.

### 3.5 Analysis

Questions used in the survey where the respondent could only choose one answer allow the answers to be categorized, and thus are known as categorical questions. Categorical data are best analyzed and described with statistics that are either descriptive or correlative. Descriptive statistics describe or portray the observed data in simple to understand graphs or charts. This analysis usually includes summary counts, frequency distributions and histograms. Descriptive statistics also portray central tendencies such as means, medians and modes. Descriptive statistics can be used to show some variability

such as standard deviation and can provide a summary of the sample and observations about the data. Descriptive statistics only represent the observed data and do not imply any inferences about the population the sample is thought to represent. The correlative analysis is limited to comparing pairs of variables using cross tabulations and Chi-square tests for independence between the variables. Additionally, logistical regression can be used to establish the relationship, if any, between variables and note if the relationship is significant.

The analyst made attempts to try and categorize the answers when there were logical reasons to do so. For example, the question that asked, “what do you believe is the most effective ways to recruit firefighters?” generated open ended responses that included mentions of Instagram, Twitter, Facebook, etc. In instances such as these, similar responses were all categorized in manner that made sense to the analyst. For example, these previously noted responses could be categorized as social media. Several questions gave the respondent the opportunity to choose more than one answer and, in some instances, respondents could choose ten or more responses. In these situations, only the most frequently cited answers were used in the data analysis.

By surveying current volunteer fire department members, information will be gained that will be useful in the recruitment of new members. Current fire department members indicated, in the survey, how they became members and what they perceive to be the most effective way to recruit new members. However, there are some disparities in the survey data that appear when the data are segmented by age or years and service. An example would be the perceived importance of the use of a particular social media platform as a recruitment tool. A member who is younger may view a particular social media tool as



very important whereas an older member may not have that same belief or even be aware of the particular platform. It is important to note that age does not always coincide with higher years of service. For example, many volunteer fire department members are persons who have retired from a career fire department and now find they have time to volunteer. In these instances, there may be persons of an advanced age with very few years in service. There is also the issue of confounding variables that appear in the survey data. For example, the survey data indicates that the majority of respondents believe social media is the most effective way to recruit new members. However, when the respondents were asked how they became aware of the opportunity to become members themselves, very few of them indicated it was through social media. Because of peculiarities such as these, the Relative Importance Analysis (RIA) affords an opportunity to look at both age and years of service as independent variables.

Finally, using the data collected in the survey, a Relative Importance Analysis (RIA) will be conducted. RIA is a technique to calculate the relative importance of predictors (independent variables) when independent variables are correlated with each other. Relative Importance Analysis creates a set of new independent variables that are maximally related to the original independent variables but are uncorrelated to each other. Because these new, transformed independent variables are uncorrelated to each other, the dependent variable can be regressed onto this new set of independent variables producing a series of standardized regression coefficients. The goal of this analysis is to partition explained variance among multiple predictors to better understand the role played by each predictor in a regression equation. While a Relative Importance Analysis can answer the question of whether variable A is more important than B and if so, how much more important, the

analysis cannot determine this for specific categories of respondents. In a relative importance analysis, if A has a computed value of 0.3577 and B has a computed value of 0.1108, we can say A is 3 times more important than B. This percentage analysis, like other statistical analysis has of confidence interval of 95%.

The Relative Importance Analysis will be conducted for specific questions regarding perceptions about recruitment methods, and the analysis will use years in service and age as variables. The intent of this analysis is to determine the influence of each of the variables, years in service and age, on recruitment methods. Gaining an understanding of the influence each of these variables is critical in establishing a training program of best practices that can aid in the recruitment of new volunteer firefighters.

## CHAPTER 4. RESULTS

Recall that the primary purpose of this project is to analyze responses to a survey and identify the perceptions about recruiting efforts for NC firefighters and then use the survey data to guide the development of best practices for instruction for the recruitment of volunteer firefighters.

The survey provided by the NCAFC received 885 usable responses. Of the 885 responses, 402 respondents indicated they were volunteers. The remaining respondents identified as either career or both (career and volunteer). This project utilized only the 402 responses from the volunteers.

### 4.1 Responses by Region

Respondents were not required to indicate where they lived. However, 325 volunteer respondents did indicate their location and the distribution of those responses based on their respective regions as delineated by the North Carolina Firefighter's Association are shown in Figure 4.1.

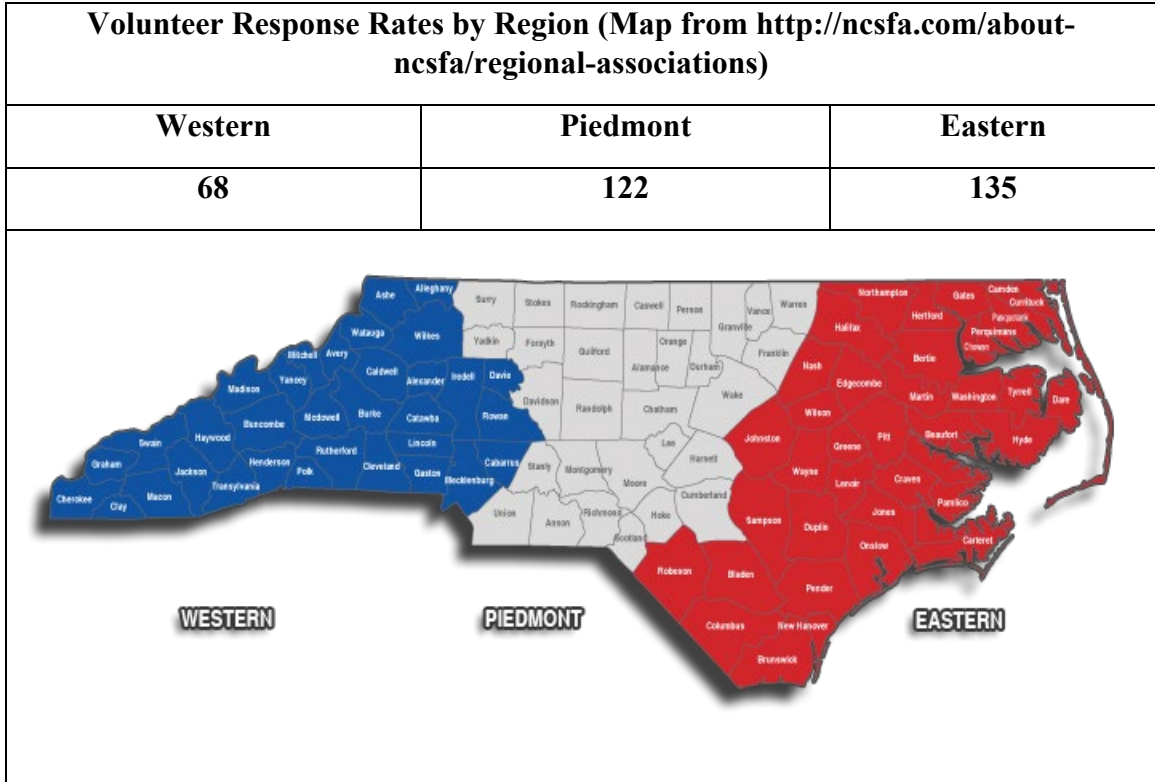


Figure 4-1 Volunteer Response Rate by Region of North Carolina

#### 4.2 Age Data Summary for Respondents

The age data summary for the survey is shown in table 4-1. Respondents of the survey ranged in age from 15 to 79 years old. The average age of the respondents was 45, while the median age was 46 years old.

Table 4-1 Age Data Summary

| Age Data Summary |             |            |           |
|------------------|-------------|------------|-----------|
|                  | Average Age | Median Age | Age Range |
| Respondents      | 45          | 46         | 15-79     |

### 4.3 Responses by Rank

When the responses are grouped by rank as shown in Figure 4-2, there is a peculiarity worth noting. The total number of responses by those who identify their rank as firefighter is 143. The total number of responses by those who identify their rank as an officer (Chief or Company) is 145. The number of firefighters in any given department should outnumber the officers by a ratio of a least 3:1 and up to 6:1 or more. This peculiarity may be explained by the fact that an officer traditionally would be the person to receive correspondence at the department. As such, the officer may have responded to the survey without making the survey known or available to the firefighters of that department.

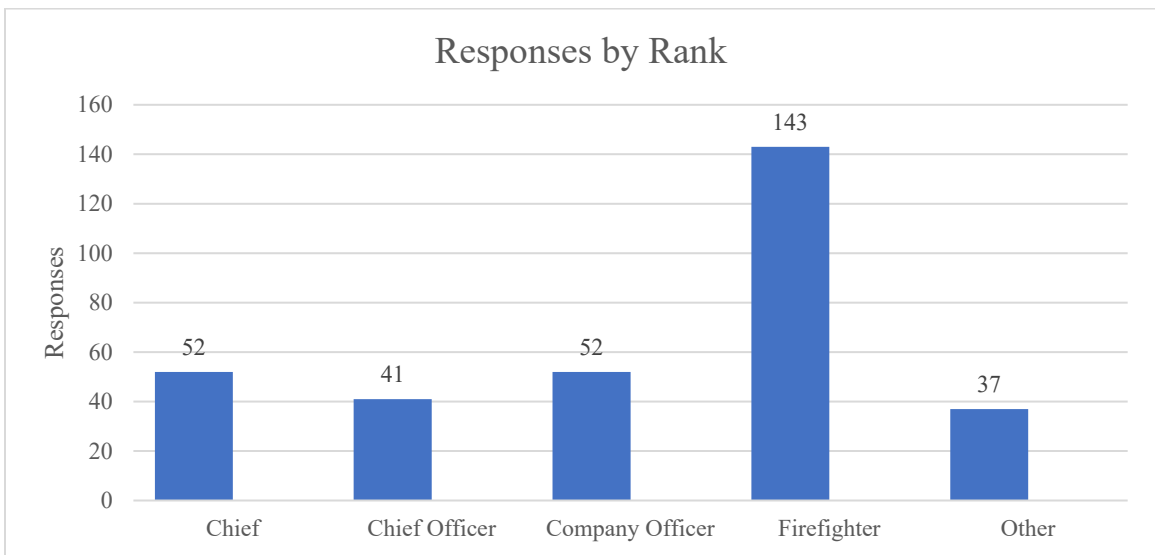


Figure 4-2 Responses by Rank

### 4.4 Responses by Years in Service

The highest number of responses 82 (25%) came from the respondents who indicated they had 30 + years of service (See Table 4-1). The larger number of responses for this category is likely attributable to at least two factors. The first factor is that many volunteers continue to serve well into the latter stages of life. As noted by the age range reported in

Table 4-2, departments have members serving into their late 70s. Moreover, existing members who have retired from their regular employment find they have more time than ever to engage in civic activities. As they are already members of a department, they now have a larger portion of their available time for volunteering with the fire department and continue to stay involved for many years in their retirement. The second factor is that the category represents a wider band of responses. The responses were categorized using 5-year increments starting from 0-5 years of service through 30+ years of service. For those who report 30+ years, the increment is open-ended, so it encapsulates a much broader range of service years than 5-year increments used in the other categories. While this information is useful, it could be more useful if respondents indicated the nature of their years of service. For example, was a respondent's 30+ years of service all with the same department, or was their years of service a combination of 2 or more departments? It is very common for someone to retire from a career fire department and then become a member of a local volunteer department upon their retirement. In this case, someone may have 25 years as a career firefighter and only 5 years with a volunteer department. Without information about the nature of a respondent's years in service, it is impossible to determine critical information such as a department's ability to establish longevity with its members.

Table 4-2 Response by Years of Service

|                          | Years of Service |               |                |                |                |                |              |
|--------------------------|------------------|---------------|----------------|----------------|----------------|----------------|--------------|
|                          | 0-5<br>Years     | 6-10<br>Years | 11-15<br>Years | 16-20<br>Years | 20-25<br>Years | 26-30<br>Years | 30+<br>Years |
| Responses                | 64               | 40            | 40             | 37             | 33             | 29             | 82           |
| % of Total<br>Population | 20%              | 12%           | 12%            | 11%            | 10%            | 8%             | 25%          |
| Average<br>Age           | 32               | 33            | 36             | 40             | 45             | 48             | 58           |

#### 4.5 Distance to Department vs Distance to Job

Survey question 5 asked respondents to indicate how far away they lived from their department. The reported distances were categorized and are shown in Figure 4-3. There were 325 responses to this question indicating 268 (82%) respondents indicated they lived less than five miles from their department, 46 (14%) indicated they lived between five and ten miles from their department and 11 (4%) respondents indicated they lived greater than ten miles from their department. These data support two broad assumptions; either volunteers tend to live near their volunteer department or the greater the distance to the department, the less likely one is to volunteer.

Conversely, volunteers indicate they have to travel greater distances to their places of employment. Of the 289 responses to this question, 67 (23%) indicated they worked within five miles of their department, while 71 (24%) work within five to ten miles from their department and 151 (52%) work greater than ten miles from their department. These data support references from other volunteer departments typically being short staffed during the normal workday. A needs assessment conducted by the US Fire Administration in 2006 indicated that at that time 21% of volunteer fire departments were responding with four or fewer firefighters to a mid-day house fire, which is below the minimum required number of personnel for this type of fire. The difference in response numbers as it relates to distance to the job or distance to the department is attributed to the fact many respondents indicated they were retired so the distance from their job to the department was not applicable to that group.

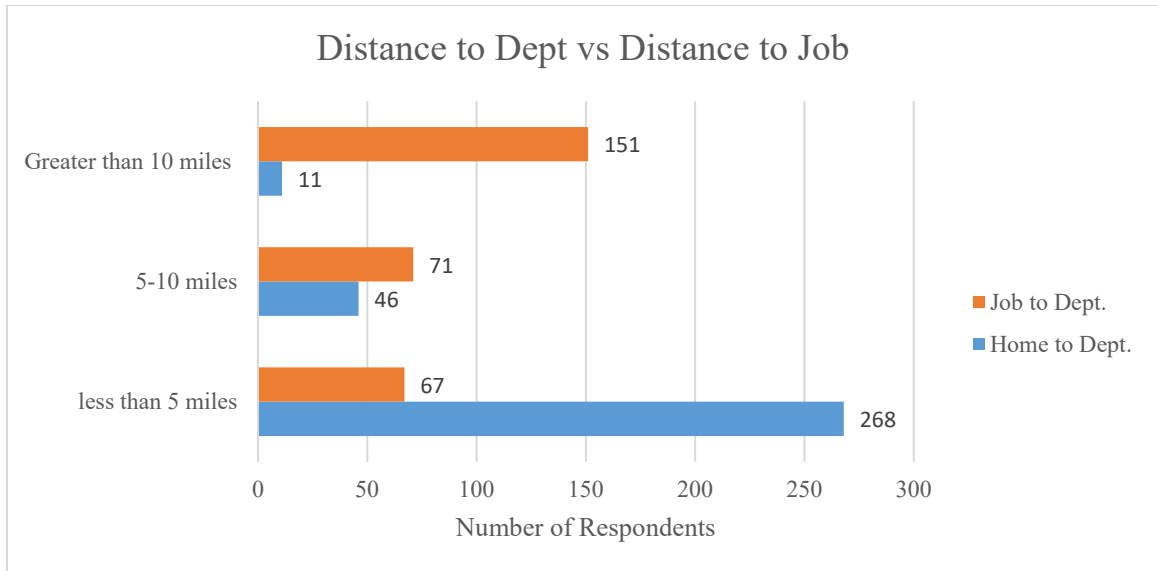


Figure 4-3 Distance to Fire Department vs Distance to Job

## 4.6 Analyses of Questions

### 4.6.1 Respondent Awareness of Volunteer Firefighting Opportunities

Survey question 11 on the survey asked how the respondent first learned of the opportunity to become a firefighter. Family or friend referral (n=170) was chosen more frequently than all other options, and word of mouth (n=71) was second most cited reason given as to how they respondents initially learned of the opportunity. Firefighter referral (n=50) and Fire station/open house (n=28) were the next most frequently chosen responses. Facebook (n=8) was cited and is included in the all other responses combined category as shown in Figure 4-4. These data indicate that the most common ways members initially learned of becoming a firefighter was through a method that involved personal contact.

It is noted that for question 11, respondents could choose more than one answer. Consequently, the total number of responses that are shown does not equal the total number of respondents who answered the question.



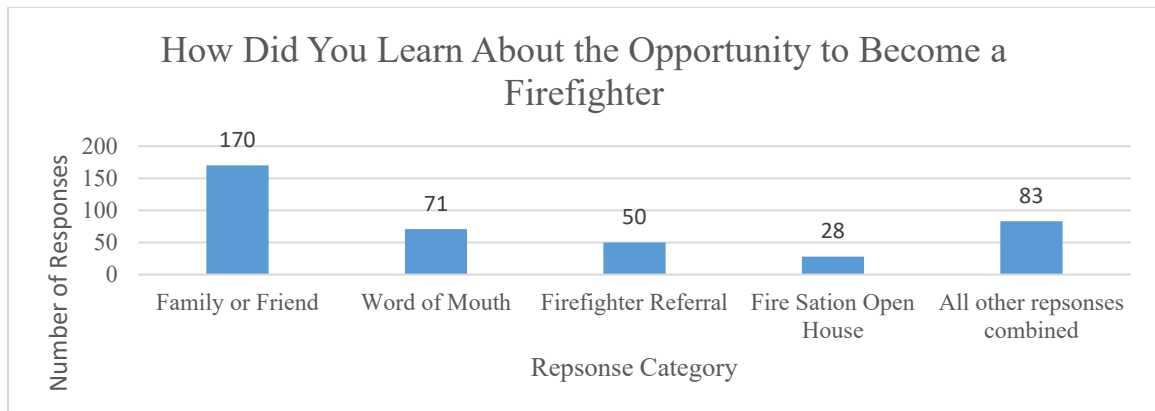


Figure 4-4 How Did You Learn About the Opportunity to Become a Firefighter

### Primary Motivation for Volunteering to Be a Firefighter

#### 4.6.2

Survey question 12 asked the respondents to indicate their primary motivation for initially becoming a firefighter. For this question, respondents had to choose one response out of 23 possible choices. The most commonly chosen answer (n=146) was service to my community as illustrated in Figure 4-5. Family connection (n=38) ranked second as the primary motivation for becoming a firefighter. Additionally, respondents could choose ‘other’ and provide a reason. Several responses in the ‘other’ category included answers such as: desire to help people, to help my fellow man, neighbors helping neighbor, always wanted to help people, etc. Since answers such as these were chosen as ‘other’ they were not included in the count of service to my community, although there is certainly similar sentiment between these responses and service to my community. Additional comments in the ‘other’ category indicated respondents appeared to have difficulty trying to narrow down their motivation to a single reason as to what their motivation was for initially joining. In some of these instances, respondents chose ‘other’, then listed multiple reasons why they were motivated and provided some narrative as to why they listed multiple

reasons. The answers of this type often included service to the community plus additional reasons. Further, there were a few respondents that mentioned they were motivated by the potential for excitement. One respondent indicated they joined after having been assigned to do community service to the department after having gotten in trouble at school.

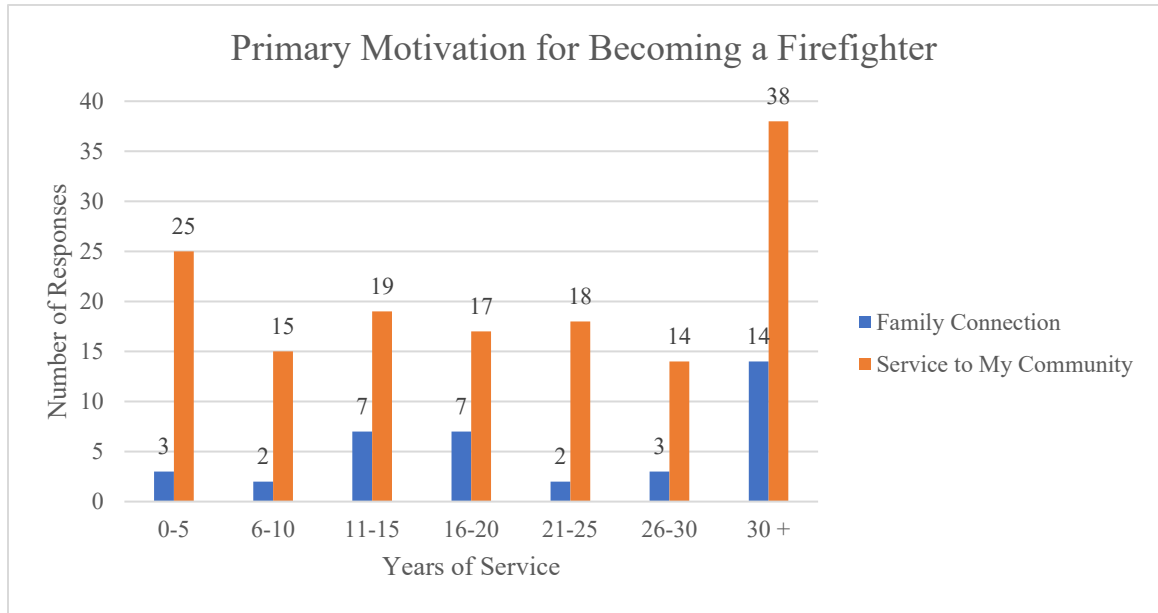


Figure 4-5 Primary Motivation for Becoming a Firefighter

#### 4.6.3

#### Respondent Beliefs for Effective Recruitment

Survey question 14 asked which way(s) do you believe is the most effective for recruitment? Respondents were allowed to select all that applied. Respondents indicated that “Fire Station/Open House” (n=174) was the most effective method for recruiting firefighters. A discrepancy is noted here because in question 11 when the respondents were asked how they initially learned about joining their department response numbers for fire station/open house were much lower (n=28). This disparity is illustrated in Figure 4-6. After the answer of Fire station/open house, the responses of word of mouth (n=171),

Firefighter referral (n=163), Community Events (n=150) and being asked by a firefighter (n=148) were the most cited answers followed by School career day (n=123). It is noted that the most frequently selected methods were options that again involved some form of personal contact.

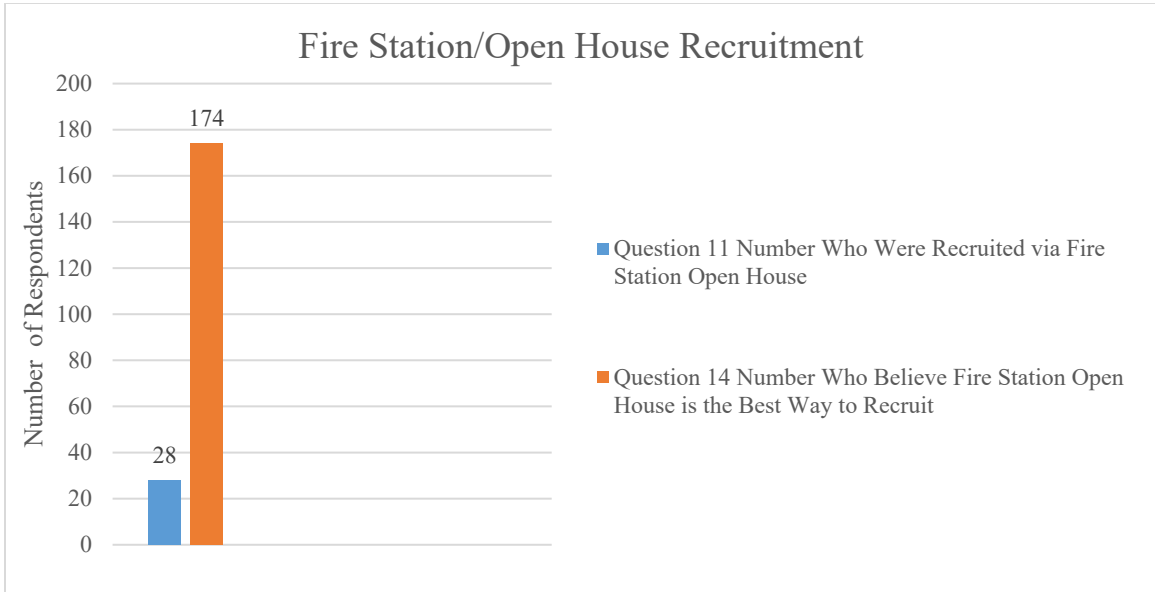


Figure 4-6 Most Effective Way to Recruit

#### 4.6.4

#### Primary Motivation for Continued Service as a Firefighter

Survey question 18 asked the respondents to indicate their primary motivation for continuing as a firefighter. Once again, respondents agreed that service to their community (n=156) was the primary reason. This trend was noted regardless of looking at the responses separated by either by age or years of service. The second most frequently cited reason for continuing with the fire service was personal fulfillment (n=43). Friendship/camaraderie (n=23) was selected as the third most cited reason.

## Retention Methods Currently in Use in Departments

Question 19 asked “which retention methods does your department use?”. Respondents could select all the answers that applied. The most frequently selected response<sup>4.6.5</sup> was awards/recognition (n=203) followed by annual banquet (n=193) and training (n=170). Volunteer Fire departments frequently have a tradition of setting aside a day to honor outstanding members. In some fire departments this is done in conjunction with an annual banquet. Awards are typically presented to members for achievements such as making the most calls, attending the most training, perfect attendance for meetings or drill night etc. Often the most coveted award is being named the firefighter of the year. A new member is usually also awarded a rookie of the year award. These annual banquets and award nights are often the only recognition a member may get for their service to the department and as such members look forward to and hold these events in high regard. It is a relatively inexpensive way to thank the firefighters for their service and it also something that the firefighter’s value and appreciate and thus it offers some effectiveness as a retention method.<sup>4.6.6</sup>

## Exit Interviews for Firefighters Leaving a Department

Survey question 22 asked the participants if their department conducted exit interviews when someone left the department. There were 283 responses to this question. Fifty-four respondents indicated their department conducted an exit interview while sixty-four did not know if their department did, which is reasonable, as the respondents had obviously not yet left . The remaining 165 respondents indicated their department did not conduct exit interviews. See Figure 4-7.

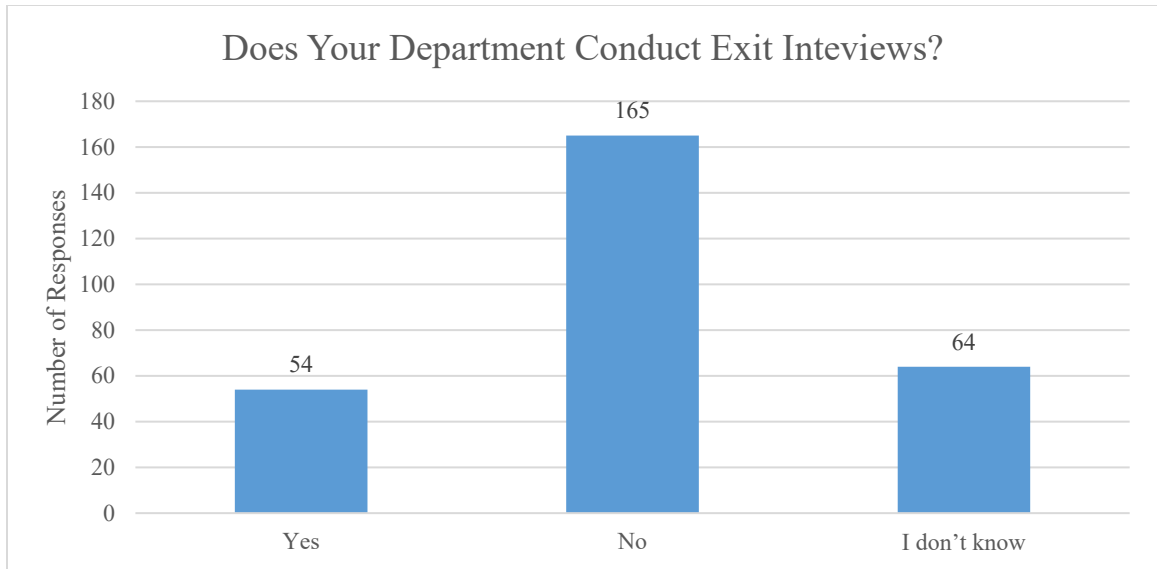


Figure 4-7 Question 22 Does Your Department Conduct Exit Interviews

### Respondent Perceptions of Department Areas of Excellence

#### 4.6.7

The survey participants were asked in survey question 23, in what areas does your department excel? Respondents were presented a list of choices and could select all that they felt applied to their department. Financial management (n=116) ranked at the top followed by leadership (n=99) then communication (n=89). The least frequently chosen response as an area the respondent's department excelled in was the response other (n=3).

The next three most infrequently chosen responses were retention (n=18), succession planning (n=27) and recruitment (n=28).

#### 4.6.8

### Leadership Issues within the Department

Survey question #24, asks, "Do you feel that negative leadership issues exist in your department. Of the 259 who responded 139 (54%) indicated yes, while 120 (46%) indicated no. For this question, the non-response rate was nearly double the non-response rate of any other question in the survey. It is normal in surveys of this nature to have at least a few questions where not everyone answers every question. This tendency to skip a

question could be for myriad reasons but often is it is simply because the respondent believes an answer does not fit their particular situation. Another reason can be that the respondent has some trepidation or fear that the survey may not be completely anonymous, and their response may somehow be attributed back to them. The number of skipped or un-answered questions increased as the survey progressed however, the number of respondents who skipped this question is anomalous. A trend line inserted onto Figure 4-8 illustrates the increase in the number of non-responses as the survey progressed and the data points show the anomalous issue of non-answers for this question. The trend of an increasing number non answers is possibly due to survey fatigue. However, the reason this question produced so many non-responses is open to speculation as there are no data to support any specific rationale for the non-response rate. However, volunteer fire departments are frequently made up of tightly knitted groups of members. This researcher hypothesizes the reluctance of respondents to answer question 24 is due at least in part to fear that a response indicating that they believe there a leadership issues within their department could be attributed back to them.

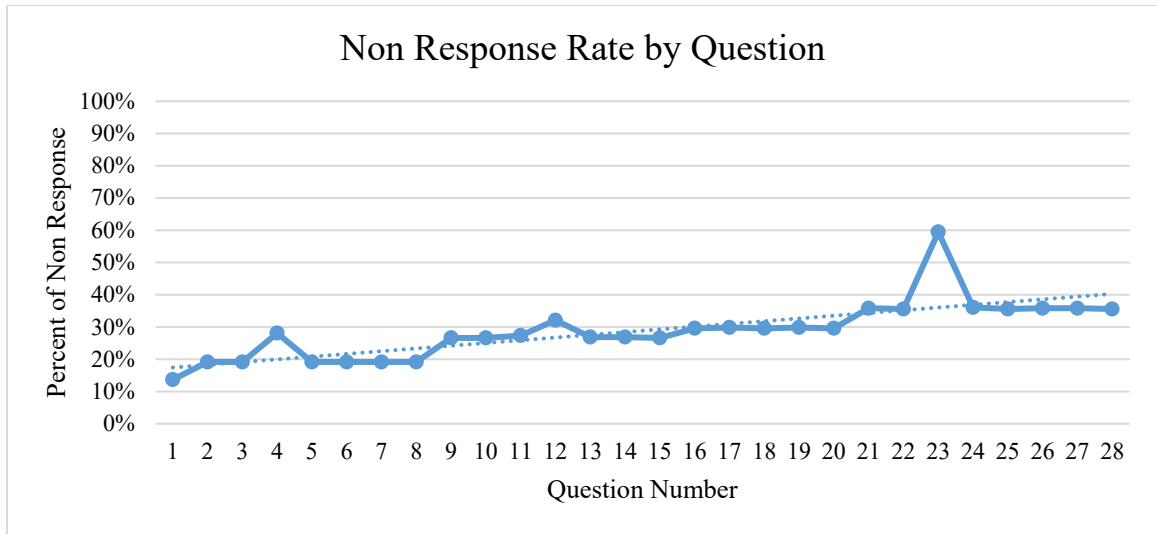


Figure 4-8 Question 24 - Non Response Rate

#### Designating Rank(s) of Leadership Issues

4.6.9

Survey question 25 asked the survey respondents at what rank leadership issues existed (if they did) within their department. As shown in Figure 4-9, the respondents indicated that there appear to be leadership issues at all levels within the department. One is unable to determine what these leadership issues are from the data as reported. Catino (2015) notes in his work that the leadership issues reported by volunteers are often poorly defined ranging from true lack of leadership to the inability to coordinate simple tasks. It is of note that the company officers are the most cited rank for the leadership issues. Company officers potentially represent a wide band of positions such as lieutenants, sergeants and captains and it is these officers who would most likely deal more closely with rank and file firefighters than a chief. Captains and or lieutenants are frequently in charge of the actual firefighting and rescue operations and therefore may be subject to more leadership scrutiny by a firefighter as opposed to a chief who is most likely in charge of the overall scene. However, these data are worth noting as a suggestion there are internal

issues present, at least some degree, that could affect the department's ability to both attract and retain new recruits.

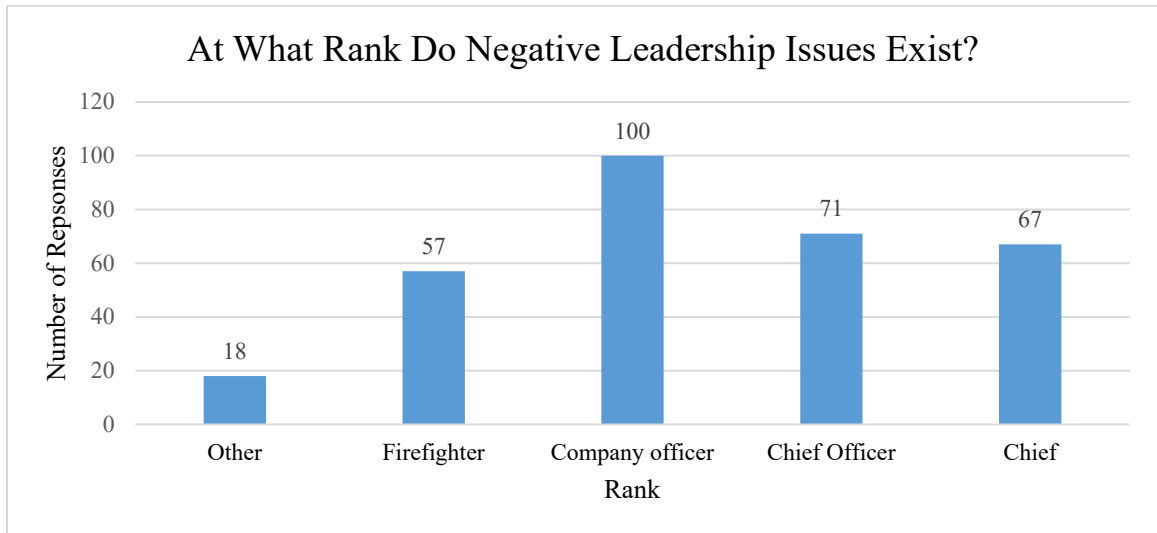


Figure 4-9 At What Rank Do Negative Leadership Issues Exist?

#### 4.7 Relative Importance Analysis

An additional analysis of the survey data was conducted using a method known as Relative Importance Analysis (RIA). To refresh the reader, Relative Importance Analysis creates a set of new independent variables that are maximally related to the original independent variables but are uncorrelated to each other. Because these new transformed independent variables are uncorrelated to each other, the dependent variable can be regressed for relationships onto this new set of independent variables producing a series of standardized regression coefficients. The purpose of using RIA is to determine if a relationship exists between either years of service or age and the variable being analyzed. In this analysis RIA was employed to establish if a relationship could be inferred between



a member's age or years of service and a recruiting method. The RIA was applied to questions numbered 11, 12, 16, 18, 19, 21, 23, and 26.

#### RIA Applied to Understanding Initial Enlistment in a Fire Department

Recall that question 11 asked respondents about their initial enlistment in a fire department. Using RIA, those with more years in service displayed a positive relationship with fundraising ( $p=0.04$ ) and word of mouth ( $p=0.03$ ). This positive relationship indicates that as the years in service increased, there was also an increase in the importance of fundraising and word of mouth to their initial enlistment. In contrast, those with fewer years in service placed more value on Facebook ( $p= 0.002$ ) as a recruiting method.

In this data set, the average of age of respondents increased as the years in the fire service increased. But age and years of service are not always mutually exclusive. It should be stressed that years of service and age are distinct and separate variables. There is no absolute connection between age and years of service. That is to say that someone doesn't have to be young to have only a few years of service. Someone could be retirement age and joined recently or conversely someone could have joined as a junior member and have six or more years of service and still fall into the young age categories.

Similar to the results from the analysis of years in service, when the responses were analyzed using the age of respondent, those who were younger again indicated Facebook ( $p=0.005$ ) was important. Also, similar to the years of service results, as age increased word of mouth ( $p=0.004$ ) increased in importance. School visits ( $p=0.06$ ) exhibited a positive relationship with age meaning as the age of the respondents increased, they placed more value on the importance of school visits. The Relative Importance Analysis shows a negative relationship with Facebook and a positive relationship with word of mouth. This

means as a respondent's age decreased the importance of Facebook increased whereas as respondent's age increased the importance of word of mouth also increased. Table 4-3 displays a summary of these findings.

Table 4-3 Question 11 Ways Respondent Learned About Being Firefighter

| <b>Q11. Thinking back to when you first enlisted as a firefighter, how did you learn about opportunities to become a firefighter? Select all that apply.</b> |                              |                                  |                              |                                  |
|--|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>  | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service   | Fundraising event            | 0.111                            | Facebook                     | 0.358                            |
|  | Word of Mouth                | 0.204                            |                              |                                  |
| Age  | Word of Mouth                | 0.307                            | Facebook                     | 0.234                            |
|  | School Visit                 | 0.116                            |                              |                                  |

4.7.2

RIA Applied to Primary Motivation for Initially Becoming a Firefighter

Recall that question 12 asked what the primary motivation was for initially becoming a firefighter. When the responses were analyzed by years in service, family connection ( $p=0.005$ ) proved to be nearly two times as important as service to my community ( $p=0.01$ ) as is shown in Table 4-4.

When analyzed by age, service to my community ( $p<0.001$ ) was nearly five times greater in importance than all other answers including family connection ( $p=0.05$ ), personal fulfilment ( $p=0.02$ ) fire response ( $p=0.02$ ) and other ( $p=0.02$ ). The RIA analysis reveals both age and years of service have positive relationships. This result means that as

either years in service or age increased, the relationship became stronger for those listed answers.

Table 4-4 Question 12 Primary Motivation for Initially Becoming a Firefighter

| <b>Q12. What was your PRIMARY motivation for INITIALLY becoming a firefighter? Select only ONE choice.</b> |                              |                                  |                              |                                  |
|--|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>  | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service   | Family Connection            | 0.439                            |                              |                                  |
|  | Service to My Community      | 0.279                            |                              |                                  |
| Age  | Service to My Community      | 0.594                            |                              |                                  |
|  | Other                        | 0.117                            |                              |                                  |
|  | Fire Response                | 0.107                            |                              |                                  |
|  | Personal Fulfillment         | 0.082                            |                              |                                  |
|  | Family Connection            | 0.068                            |                              |                                  |

4.7.3

#### RIA Applied to Responses Regarding Effective Ways to Recruit

Survey question 16 asked the respondents to identify what they believed to be the most effective ways to recruit firefighters. When analyzed by years of service being asked by a firefighter ( $p < 0.001$ ) was the most important, followed closely by a website/email ( $p < 0.001$ ) and then television ads ( $p = 0.03$ ) Refer to Table 4-5. Recruitment night ( $p = 0.03$ ) and Twitter ( $p = 0.01$ ) were also important but showed a negative relationship with years in service. The negative relationship indicates as age decreases the importance of the method increases.

When the same group was analyzed by age, recruitment night ( $p < 0.001$ ). was the most important by approximately two times, and this relationship also presented a negative relationship which means that as the age of the respondents decreased the importance of

the recruitment night grew stronger. Word of mouth ( $p=0.002$ ), and website/email ( $p=0.02$ ) all had positive relationships meaning that as the age of the respondents increased the importance of those methods to them also increased.

Table 4-5 Question 16 Most Effective Ways to Recruit Firefighters

| <b>Q16. What do you believe are the most effective ways to recruit firefighters?<br/>Select all that apply.</b> |                              |                                  |                              |                                  |
|---|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>   | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service  | Being Asked by a Firefighter | 0.174                            | Recruitment Night            | 0.098                            |
|   | Website Email                | 0.128                            | Twitter                      | 0.073                            |
|   | Television                   | 0.061                            |                              |                                  |
| Age   | Being Asked by a Firefighter | 0.142                            | Recruitment Night            | 0.278                            |
|   | Word of Mouth                | 0.158                            |                              |                                  |
|   | Website Email                | 0.047                            |                              |                                  |

#### 4.7.4

#### RIA Applied to Examining Most Effective Recruitment Efforts

Survey question 17 asked of the ways you indicated in question 16, which do you believe is the one MOST effective for recruitment? The respondents, when analyzed by years of service, indicated that they believed the use of a website/email ( $p<0.001$ ) was the most important as indicated in Table 4-6. That response was followed by word of mouth ( $p<0.001$ ) firefighter referral ( $p=0.003$ ), being asked by A firefighter ( $p=0.014$ ) and lastly a community event ( $p=.02$ ). All responses that were significant also exhibited a positive relationship. This finding means as the stated years in service of the respondent increased, the recruitment methods shown to have a positive relationship with dependent variable increased in importance to the respondent.

When analyzed by age, website/email ( $p=0.003$ ) was again ranked as most important followed by Word of mouth( $p=0.002$ ). The response of other ( $p=0.01$ ) was the next most important, then being asked by a firefighter ( $p=0.005$ ) and finally a firefighter referral ( $p=.01$ ). As was the case in the analysis of years in service, the analysis by age also exhibited a positive relationship with the recruitment methods that were significant. This result means as the stated age of the respondent increased the methods of recruitment shown to have a positive relationship with the dependent variable also increased in importance to the respondent. These findings are interesting because as mentioned previously the majority of respondents reported they joined as a result of some personal interaction rather than a website or email. Survey question 11 had 376 responses and only three (.008%) of the 376 respondents learned of the opportunity to become a firefighter via website or email. However, it is noted that the prevalence of email and websites has increased dramatically over the past 20 years. It is understood that respondents could have joined before their department had either website or email.

Table 4-6 Question 17 MOST Effective for Recruitment

| <b>Q17. Of the ways you indicated above, which do you believe is the one MOST effective for recruitment? Select only one answer.</b> |                              |                                  |                              |                                  |
|--|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>  | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service   | Being Asked by a Firefighter | 0.049                            |                              |                                  |
|  | Community Events             | 0.044                            |                              |                                  |
|  | FF Referral                  | 0.102                            |                              |                                  |
|  | Website Email                | 0.374                            |                              |                                  |
|  | Word of Mouth                | 0.249                            |                              |                                  |
| Age  | Being Asked by a Firefighter | 0.130                            |                              |                                  |
|  | FF Referral                  | 0.075                            |                              |                                  |
|  | other                        | 0.137                            |                              |                                  |
|  | Website Email                | 0.202                            |                              |                                  |
|  | Word of Mouth                | 0.188                            |                              |                                  |

4.7.5

RIA Applied to Respondent Primary Motivation for Continuing as a Firefighter

Survey question 18 asked what is your PRIMARY motivation to continue as a firefighter? The respondents when analyzed by years of service, chose career experience (p=0.02) as the primary motivation to continue as a firefighter. This data is shown in Table 4-7. There was a negative relationship with years in service which means as the years of service of the respondent decreased the importance of career experience increased. This is logical finding as many young firefighters volunteer to gain experience and increase the chances of being hired as a career firefighter.

When the data were reviewed by age, career experience (p<0.001) again was the most important answer followed by adrenaline rush (p=0.05) and family connection (p=0.03). Additionally, the responses all exhibited a negative relationship. This finding

means as the stated age of the respondent decreased, the importance of the motivation choices increased. As with the results of the analysis by years in service, the results by age are not unusual. The desire to advance to a career as paid firefighter, the adrenaline rush of fighting fire and the desire to follow in the family tradition are all answers that could be attributed more to younger firefighters, entering the profession, than to those who are older and are distanced in time and experience from initial motivations to join.

Table 4-7 Question 18 Primary Motivation to Continue as a Firefighter

| <b>Q18. What is your PRIMARY motivation to continue as a firefighter?</b> |                              |                                  |                              |                                  |
|---|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>   | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service  |                              |                                  | Career Experience            | 0.461                            |
| Age   |                              |                                  | Career Experience            | 0.462                            |
|   |                              |                                  | Adrenaline Rush              | 0.208                            |
|   |                              |                                  | Family Connection            | 0.100                            |

4.7.6

RIA Applied to Respondents' Reports of Departments' Retention Methods

Question 19 asked the respondents what retention methods their departments used. The responses of retirement benefits ( $p=0.007$ ), meal reimbursement ( $p=0.05$ ) and training ( $p<0.001$ ) were the only responses that were significant as shown in Table 4-8. Retirement benefits were 2 times more important than meal reimbursement. Retirement benefits exhibited a positive relationship with years in service meaning that as a respondent's age increased retirement benefits were more important to them. Training as a retention method

exhibited a negative relationship with years in service indicating that as the years in service of the respondents decreased training became important to them as a retention method.

When analyzed by age, retirement benefit ( $p=0.18$ ) and training ( $p=0.01$ ) were both significant. Retirement benefits exhibited a positive relationship meaning that as a respondent's age increased retirement benefits became increasingly more important to them. Training as a response exhibited a negative relationship with age indicating that as the age of the respondents decreased, training became more to important as a retention method the respondents.

Table 4-8 Question 19 Which Retention Methods Does Your Department Use?

| <b>Q19. Which retention methods does your department use? Select all that apply.</b> |                              |                                  |                              |                                  |
|--|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>  | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service   | Retirement Benefit           | 0.228                            | Training                     | 0.198                            |
|  | Meal Reimbursement           | 0.096                            |                              |                                  |
| Age  | Retirement Benefit           | 0.298                            | Training                     | 0.199                            |

4.7.7

RIA Respondents' Beliefs Regarding Reasons for Those Leaving the Fire Service

Question 21 asked respondents to think about those who they knew who had left the fire service and to then indicate why they believed the person(s) had left. When analyzed by years in service the following responses, couldn't meet the training requirements ( $p=0.002$ ) and time commitment required ( $p=0.01$ ), had the most importance followed by lack of leadership in station or department( $p0.02$ ) Table 4-9 contains the data from this analysis. All three reasons listed exhibited a positive relationship meaning as the



age of the respondent increased the importance of the reasons to the respondent increased as well.

When analyzed by age, the response of couldn't meet the training requirement (p=0.03) exhibited a positive relationship while lack of equipment (p=0.05) had a negative relationship. The positive relationship means that as stated the age of the respondents increased the importance of the reason increased as well. The negative relationship with lack of equipment means that as the age of the respondent decreased the lack of equipment's importance increased.

It is noted that this question asks respondents to state why they believe someone left, and it does not reflect the actual reasons why someone may have left as that information was not ascertained from those who did leave. Even with the knowledge that answers provided are based on assumptions about the beliefs of another individual, it is likely that the responses provided about beliefs why someone left have value and illuminate concerns that are held by other members of the departments represented.

Table 4-9 Question 21 Why Do You Believe Firefighters Left the Fire Service

| <b>Q21. Think about the firefighters you know who have left the fire service. Why do you believe they left? Select the top three (3) reasons.</b> |   |                                  |                              |                                  |
|---|---|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>   | <b>Positive Relationship</b>                | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service  | Couldn't Meet Training Requirement          | 0.343                            |                              |                                  |
|   | Lack of Leadership in Station or Department | 0.083                            |                              |                                  |
|   | Time Commitment Required                    | 0.249                            |                              |                                  |
| Age   | Couldn't Meet Training Requirement          | 0.238                            | Lack of Equipment            | 0.190                            |

## RIA Analysis of Respondents Indications of Department Areas of Excellence

Survey question 23 asked respondents to indicate the areas that their department excelled in. When analyzed by years of service financial management ( $p=0.01$ ) was the most important answer to the respondents while policies and procedures ( $p=0.12$ ) was second most important. These findings are displayed in Table 4-10. Third was the response of “none” ( $p=0.01$ ) indicating there was a number of responses from those who that believe their department did not excel in any area. All three previously mentioned responses exhibited a positive relationship with the years in service. The positive relationship indicates that as the age of a respondent increases the importance of the listed category increases as well. Strategic planning was also significant but exhibited a negative relationship. The negative relationship means that as the years of service decreased, the more important strategic planning became to a respondent.

When analyzed by age, the responses of general management ( $p=0.04$ ) and problem solving ( $p=0.03$ ) were the only two significant answers. The response of general management exhibited a positive relationship with age meaning as a respondent’s age increased so did the importance of general management as a response to the respondent. The response of problem solving exhibited a negative relationship which means as the respondent’s age decreases the response of problem solving increased in importance.

Table 4-10 Question 23 Areas in Which Your Department Excels

| <b>Q23. In which areas does your department excel? Select all that apply.</b> |                              |                                  |                              |                                  |
|---|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>   | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service  | Financial Management         | 0.179                            | Strategic Planning           | 0.092                            |
|   | Policies and Procedures      | 0.150                            |                              |                                  |
|   | None                         | 0.137                            |                              |                                  |
| Age   | General Management           | 0.135                            |                              |                                  |
|   |                              |                                  | Problem Solving              | 0.211                            |

RIA Respondents Identification of Needed Improvement Areas

4.7.9

Survey question 26 asked respondents to identify areas that needed improvement within their department. When the responses were analyzed by years of service, succession planning ( $p=0.002$ ) and crew resource management ( $p=0.003$ ) both exhibited positive relationships, see Table 4-11. A positive relationship means as the age of the respondents increase, the importance of the reason increases as well. Public relations ( $p=0.002$ ) and the response of “none” none ( $p=0.001$ ) exhibited negative relationships. A negative relationship indicates that as the age of the respondents decrease, the importance to the reason to the respondents increases as well. Overall, the response of none was the most important of all the responses for this question.

When analyzed by age, only two answers where significant. The response of public relations ( $p=0.001$ ) and the response of the none ( $p=0.014$ ). The response of public relations was most important of the responses provided. Both responses when analyzed by

age exhibited negative relationships. A negative relationship indicates that as the age of the respondent decreases the importance of the response increases to the respondent.

Table 4-11 Question 26 Areas in Which Your Department Needs Improvement

| <b>Q26. In which areas does your department need improvement? Select all that apply.</b> |                              |                                  |                              |                                  |
|--|------------------------------|----------------------------------|------------------------------|----------------------------------|
| <b>Variable</b>  | <b>Positive Relationship</b> | <b>Relative Importance Value</b> | <b>Negative Relationship</b> | <b>Relative Importance Value</b> |
| Years in Service   | Succession planning          | 0.229                            | Public Relations             | 0.176                            |
|  | Crew Resource Management     | 0.129                            | None                         | 0.279                            |
| Age  |                              |                                  | Public Relations             | 0.426                            |
|  |                              |                                  | None                         | 0.290                            |

## CHAPTER 5. DISCUSSION

Recall that the primary purpose of this project was to analyze responses to a survey, identify the perceptions about recruiting efforts for NC firefighters and use the survey data to guide the development of best practices for instruction for the recruitment of volunteer firefighters.

The data analysis shows that the average of the respondents is 45 years old and the median age is 46. The age range of respondents was 15 years old to 79 years old. Fifty-six percent of the respondents have from at least 16 years and some up to 30 or more years in the fire service. Both the average age and years of service were indications that the fire departments are not adequately recruiting new members.

Another concerning finding is the distance that volunteer members have to travel to their places of employment. The majority of respondents have to travel distances that are so great that responding to calls in their home community from their job is impractical. This situation creates a shortage of members who can respond during normal daytime work hours.

The survey captures both the way in which respondents became aware of the opportunity to join a fire department themselves and the perception respondents have about the recruitment of new members. In certain instances, these two facets of the survey seem to be in contrast to one another. An example of this contrast is the perception that a fire department open house event is the best method to recruit new members even though only a small number of respondents (n=28) were recruited via this method. However, according to these data, the majority of the respondents (n=291) became aware of the opportunity to join through some form of personal contact or interaction (e.g., family friend referral,

firefighter referral etc.). One may then infer a respondent may believe that the best way to foster that personal interaction is through an open house type event. Similarly, respondents frequently indicated that some form of e-media (e.g. Facebook, website, email etc.) was important for recruitment when very few respondents originally came to their department via that method. This finding is explained in part by looking at the age and years of service of the respondents and recalling that social media was not in existence or at least not prevalent when the majority of the respondents initially joined a fire service.

Data analysis also indicated there was perceived importance on the use of a department recruitment website and the use of email for recruitment. This finding has a stronger relationship with those respondents who are younger in age and/or those with less years in service. Similar questions also indicated a perceived importance in most social media as an important and viable way to recruit. However, this was in contrast with how most current members indicated they were recruited (i.e., family or friend referral).

Respondents overwhelmingly indicated that the reason they joined was to be of service to their community. Not surprisingly this same reason, *service to my community*, was also the most frequently given response as to why respondents continued to remain volunteer firefighters. One important lack in the data from this survey was to fully explore what *service to my community* actually meant to respondents. This point is extrapolated in more detail below, but while service is clearly important, what exactly this means to respondents or how it is defined would certainly have improved our understanding of this particular response choice in the survey item related to it

Volunteer fire department members who responded to the survey recognized that their departments were not very good at recruitment. The survey respondents ranked recruitment

at the bottom of the list of things their departments did well. The clear implication is that not only is recruitment an issue, *but those who most need and benefit from* recruitment can articulate this lack. Surely this realization can affect morale and combined with the report of problem solving (Questions 23 and 26) as a low priority or area for needed improvement indicate that departments could be encouraged to address the recruitment problem head on – as they do with understanding how to fight particular kinds of fires in various situations.

Also of concern in the findings for this study are that respondents report concerns in questions that dealt with leadership issues in at least two areas. Reason one is the low response rate. Respondents were hesitant to reply to the question about whether leadership issues existed and perhaps this is because the respondents had some fear of lack of anonymity. Reason two is that if there are leadership issues within a department this is a genuine concern for recruitment efforts. Discontent within an organization is often expressed by the members either intentionally or inadvertently. Departments working to recruit new members but revealing discord within, will likely be unsuccessful. Further, new recruits coming into the organization who witness leadership issues might not stay with the department.

### 5.1 Summary Results for Research Questions

Based on the results from the analyses both the member's age and years of service have impacts on their perceptions about recruiting methods. Additionally, relationships, both positive and negative are present in the data as it relates to their perceptions about recruiting. Those respondents who were of an older stated age and those who had higher stated years of service perceived recruitment methods that involved some form of personal contact were the most effective. Additionally, the strength of that perception increased as

both the years of service and stated age increased. Those with lower stated ages and lower stated years of service also perceived there was value on personal contact but placed more importance on use of methods such as Facebook. Further, those of older stated ages and years of service also place more value in a family connection for recruitment than did those of younger stated years of age and less years of service. The use of websites and email as a recruitment method was believed to be the most effective regardless of whether segmented by age or years in service. Similarly, the time commitment and lack of ability to meet training requirements were perceived by all respondents to be reasons why members leave regardless of segmentation by age or years of service.

## 5.2 Limitations

### 5.2.1 The Survey Instrument

The data collection instrument (as in all data collection instruments) introduced some limitations that also suggest modifications for the instrument to inform future research with firefighters. This survey was made available to firefighters in North Carolina. There were 885 total responses to the survey. This total includes respondents that were from career, volunteer or those who were categorized as both career and volunteer. Of the 885 responses to this survey, 402 responses were from volunteers. North Carolina has a total of 46,299 firefighters, of which 29,535 are volunteers. Therefore, only 1.36 percent of the state's volunteer firefighters responded. This number of respondents is very low when the overall number of volunteer firefighters is considered and affects applicability of findings to this general population of firefighters.



Additionally, the survey had nearly an identical number of responses by officers and firefighters. Generally speaking, there should be a considerably higher number responses from firefighters than officers due to the fact that departments will typically have more firefighters than officers. It is noted that being an officer does not exclude one from also being a firefighter. As such responses by officers are considered the same as responses by a firefighter for the purpose of this study. In volunteer departments, the officers take on both command functions on the incident scene and then frequently are tasked to handle the administrative duties back at the station. Administrative duties may include answering the phones, dealing with the mail, email or other electronic communications. The fact that there were an almost equal number of responses officers as from firefighters is only meant to highlight that there was a perceived anomaly in the response numbers. Maybe this is due to the fact that an officer may have been the contact who received the notification about the survey and then did not make the survey available to the other firefighters in the department. Or it may simply be firefighters may have chosen not to respond even if they were aware. There are no data to explain this finding.

Several of the questions in the survey were open-ended allowing respondents to provide any answer. While this provides an opportunity to include responses the survey writer may not have included, it also meant that there were many more varied responses, and this range potentially affected the statistical power in those questions. While efforts were made to categorize those open-ended responses when it made sense, there were instances where there was not a practical way to include every response in the analysis.

As the survey was only available to those who were currently firefighters, useful data may have been precluded from this research by excluding former members and the

general public. For example, one question in the survey asked current firefighters why they believed former members had left the department. The data from this question provided only assumptive information that cannot be verified. A more meaningful way to approach this issue would have been to collect surveys from former members as this could provide actual reasons why someone left a department. Knowing why people leave is critical to improving recruitment. If someone joins a department only to leave quickly because they were not aware of the time commitments, then the effort spent to recruit the member was wasted. Additionally, including the general public could provide data about what factors or reasons play a role for someone in deciding if they want to join an organization

The survey also asked respondents to indicate the number of years of service they had but the survey did not provide the means for respondents to indicate whether their years of service was at one department or through service at multiple departments. Ascertaining this data would have been useful particularly if a person's service had been at multiple locations. Knowing if a respondent's service was at different locations and also knowing what methods of recruitment had provoked them to join at different places would be beneficial.

The survey did not provide any mechanism for separation of data by factors such as gender or race. While it is understood this was an intentional decision so that firefighters were treated solely as firefighters and not distinguished by any other factor, there may have been data that could have proven useful since females and minorities are often underrepresented in fire departments. Knowing what has been successful in recruiting both of those groups would be beneficial going forward.

## Limitations of the Relative Importance Analysis Procedure

While the Relative Importance Analysis a useful statistical method which provides the researcher with beneficial information, the method is not without weakness. RIA 5.2.2 presents numerical values of the variables analyzed that can be used to rank the order of importance of the variables to each other. For example: X has an RIA value of .450 and Y has an RIA value of .225., so we can say that X is two times more important than Y. RIA can also determine if positive or negative relationship exists between the dependent and independent variable. In this study, the dependent variables used were either age or years of service and the independent variable were responses to questions in the survey. The weakness in these analyses was that if a relationship existed, either positive or negative, the RIA could not give a definitive point within the data where the relationship started or stopped. For example, if there was a positive relationship between years of service and a recruitment method utilizing word of mouth, RIA could not indicate where the relationship began. That is to say, RIA cannot provide a data point that indicates at X years of service the positive relationship begins. RIA only shows that as the stated years of service of the respondents increased, the relationship with that variable grew stronger. Similarly, if the stated age of respondents showed a negative relationship with Facebook as a recruiting method, RIA could not provide an age at which that relationship began. RIA can only demonstrate that as the stated age of the respondents decreased there was an increase in the strength of the relationship.

### 5.3 Implications for Design of Instruction for the Recruitment and Retention of Firefighters

The findings from the survey analysis provide a foundation to guide the development of instructional practices to be used in the design of a recruitment program. By using data informed decision making, the educational component can be tailored to fit the needs of the learners, who in this case are both the fire department member to be educated on how to be good recruiters and also the potential recruits for the fire department.

A needs assessment needs to be conducted to determine what category of personnel the fire department is in need of recruiting. This determination is critical as the recruitment approach to engage someone to do operational activities such as firefighting or rescue scene response will likely be different than for recruiting someone sought solely for administrative or support functions. Knowing what category of personnel the department is seeking will serve as a basic learner analysis, providing some information about age ranges, prior experiences etc. Once the needs assessment is completed and the target groups are identified, the development of recruitment training materials can begin.

Methods of recruitment that involve some form of personal contact are both demonstrated and perceived to be effective. Recruitment materials should be designed around the premise that having some form of personal contact and/or interaction with a potential recruit will most likely have a higher success rate than methods lacking this approach. Options could possibly include open house events at the fire department or information sessions at other community activities and venues. These events should include time for “mingling” and not just a presentation of information only.

Recruitment activities that leverage family and friend connections are valuable as well. Family and friend connections were both common for respondents and also perceived to be beneficial.

The majority of respondents indicated that service to community was the primary reason they joined. From an instructional design perspective, recruitment materials should be developed that explore this sentiment with members of the department and further define what that actually means to them. By incorporating those same sentiments recruitment campaigns can be personalized and strategic. The data from this study suggest that campaigns that center around giving back to or being a part of the community may work well.

Respondents who were younger in age and had less years of service indicated that volunteering was important as it gave them career experience. Recruitment materials that conveys that volunteer experience can be beneficial in getting a job in career fire department or other emergency services would be attractive to those seeking career department positions.

Recruitment efforts should also be made in places of employment near the department. The survey indicates many respondents travel distances to work that makes it impractical to respond to calls from the location of their employment. Businesses that are located within the community may be willing to let employees respond during work hours. Emphasizing that the business also is dependent on the volunteer department for their fire protection may be key to winning their support.

Materials are also needed that clearly outline what the expectations are for new members. Requirements for membership as well as certifications should be clearly

presented. The survey data indicated members frequently left because they could not meet the training requirements or the time commitments. If potential new members are aware of this information at the outset, it may help ensure you get members who will stay with the department.

Social media can be powerful tool for recruiting when used correctly. If the department is seeking a particular type of member (e.g. age, education level etc.) social media can often be leveraged to give the best results. Information is available from social media websites that can allow you to target specific groups with ads or information about your department's recruiting effort.

Finally, any materials developed in the context of traditional instructional systems design approaches involve evaluation of the materials, campaigns and or assessments of outcomes. Any recruitment efforts need to include methods of evaluating the effectiveness of the training and solicit feedback so that recruitment materials can be continually improved to meet the needs of the specific department and communities it serves. An example outline of a training program is found in Chapter 6 of this study.

#### 5.4 Generalizability of Findings

This study was limited to responses that came from firefighters in the state of North Carolina. Findings from this survey may or may not be applicable to other states, particularly if the demographic, socioeconomic status or the structure of the volunteer fire department system is different. While there is usually some commonality across all volunteer fire departments, distinct differences in application processes, membership criteria and training requirements may preclude this study from being usable in some situations.

## 5.5 Future Research and Recommendations

Future studies should strive for a larger sample size. Additional increased subject recruitment could possibly be accomplished by using direct mail to identified populations as well as general announcements through print media and announcements via email to participating organizations and individuals. Additionally, utilization of targeted advertising on social media platforms might also be effective. Direct solicitation of responses at in-person events such as conferences, expositions, meetings and other community events might increase response rates. Having the survey available in multiple formats (e.g., paper, online, etc.) as well as produced in multiple languages could be beneficial. The issue regarding a more sensitive demographic portion of the survey contributed to these future efforts at targeted recruitment of subjects, and a revised survey would improve targeted recruitment efforts. Ensuring that the response window is sufficient in length and having reminders may also increase response. Finally, where appropriate, enticements such as gift cards, logo items and other participation incentives could be used.

Future studies should make a concerted effort to solicit responses from former fire department members who have left. Understanding the rationale of why a former member chose to abandon the department would most likely provide useful data. Also, seeking input from females and minorities would be beneficial in future attempts to recruit the same.

Improvements to the survey would include multiple revisions related to designing the questions to be more specific related to interrogating basic demographics and clear multiple choice/forced response questions related to recruitment and retention. Having numerous open-ended questions resulted in data that was difficult to analyze and derive meaningful results. The number of open-ended questions should be limited. Also, questions should be designed so that respondents have a limited number of responses rather than

options chose all that apply options, that have only limited possibility to report respondents' actual experience. An example would be the question that asks respondents to choose what they believe to be the most effective method of recruitment. The options respondents could choose included fire station open house, word of mouth, firefighter referral, community event, and being asked by a firefighter. All of these available choices of methods could have been interrelated or considered as a form of personal contact. Since respondents could select all that applied some level of ambiguity is introduced into the question and it is difficult to determine which single method may be perceived to be the most effective. Future studies should narrow the possibility of choices to select only one or categorize so that there are clearly delineated responses.

Data sets are available from research firms that provide detailed information about residential areas within the United States. These data can allow researchers to segment the populations in myriad ways from simple demographic information to complex socioeconomic indicators. Information about residents such as year and place of birth, education levels, spending habits, entertainment choices, family size religious affiliations, political leaning, etc. can all be leveraged for analysis in this type of study. Several states have partnered with firms that provide this data to do very specific and targeted recruitment and recruitment studies. The assumption is that if a department has members that are made up of a segment of population that exhibits a number of these specific factors, then non-members who have those same factors are prime candidates for recruitment. Future studies should utilize this type of information to its fullest extent even if only to see if this data is an accurate predictor.



## Social Media and Recruitment & Retention: A 21st Century Dilemma

5.5.1 Social media was cited many times throughout the survey as a viable means of recruitment. While this assertion is probably accurate, it can possibly be problematic. Over the past few years, there has been an increase in the number of fire departments that have implemented stringent social media policies for their members. Violation of these policies has resulted in dismissals of members from the departments and in some instances spurred litigation against the departments from those members who were dismissed citing first amendment infringements. Future studies should investigate how departments are dealing with being active on social media for recruitment, while seeking to limit member activity on the same social media platforms

### 5.5.2 Social Marketing

Survey respondents ranked recruitment at the bottom of the list of things their departments did well. Therefore, one area for future research could include the development of a comprehensive social marketing campaign for volunteer fire department recruitment. A campaign such as this could be useful as the campaigns are designed to identify motivators of and benefits to the potential recruits. Additionally, the campaigns actively work remove barriers that may impede the recruitment of new members. An additional benefit of a well-planned social marketing campaign is the monitoring and evaluation of the process which will allow the determination of the successfulness and a provide data for corrective actions to improve the overall process. Utilization of a strategic and well thought out process for recruitment should be explored.

## CHAPTER 6. EXAMPLE OUTLINE AND INSTRUCTIONAL MODULE

The purpose of this final chapter is to propose content for an instructional module for volunteer firefighter recruiters based on the findings and implications of this study presented in the previous two chapters of this dissertation. The continuing decline in the number of volunteer firefighters is an area of concern and efforts must be made to reverse this trend. The development of a strategic recruiting campaign that identifies the areas of need, prepares recruiters for the challenges of recruiting new people and makes the potential recruit aware of both the challenges and rewards of volunteering could be instrumental in addressing this problem. To address this need the concept of social marketing could be utilized. According to Parker and colleagues (2020) social marketing has proven to be very effective in a variety of campaigns to create desired behavior changes in varying areas of applications and could prove to be effective in this endeavor as well. Critical to the success however is ensuring that the recruiters are well prepared for the task of recruiting. A key element to ensure recruiting success would include having an understanding of what aspects volunteering appeals to a potential recruit as well as what means of recruitment may be most effective. The analysis of responses of the survey conducted by the North Carolina Association of Fire Chiefs in this dissertation study provides several of those insights. Further, it is also critical that the potential recruit understand the time and training requirements that will be expected of them if they join. Failing to convey the expectations to the potential new recruit at the onset of the process may result in effort expended for no net gain in new members. To that end, having a recruiting process that encompasses these and other elements including a process for evaluation and continuous improvement may help in increasing the number of

recruits who join and remain with the department. An example table of contents of recruitment training and an example outline for a recruitment training program follow.

Table 6-1 Fire Department Example Recruitment Training Manual

| <b>Fire Department Recruitment Education Training Manual</b> |   |
|--|---|
| <b>Purpose</b>   | <b>This manual is to serve as the guide for the training and development of recruiters for the fire department.</b>   |
| <b>Activity</b>  | <b>Description of Activity</b>  |
| Learner Analysis   | Pretest to determine the learner's knowledge about needs assessment and recruiting.   |
| Training Module #1<br>Needs Assessment                       | This module defines what a Needs Assessment is and explains the purposes as well as the types of needs assessments. Additionally, this module details the process of conducting a Needs Assessment. |
| Module # 2<br>Effective Recruiting                           | This module presents what knowledge, skills and abilities are needed to be an effective recruiter.  |
| Learner Analysis   | Posttest to determine the learner's knowledge about needs assessment and recruiting.  |
| Module # 1 & 2<br>review                                     | Information from module 1 & 2 reviewed as needed based on posttest results.   |
| Learner Analysis   | Pretest to determine the learner's knowledge about social marketing   |
| Training Module #3<br>Social Marketing                       | This module defines social marketing. Additionally, this module identifies and lists the steps for a social marketing campaign  |
| Learner Analysis   | Posttest to determine the learner's knowledge about social marketing  |
| Module # 3 review  | Information from module 3 reviewed as needed based on posttest results.   |
| Training Module #4<br>Engaging Interested<br>Recruits        | This module explains the process of engaging new recruits. This includes communicating, engaging, onboarding and orientation.   |

Table 6-1 (continued) Fire Department Example Recruitment Training Manual

| <b>Fire Department Recruitment Education Training Manual</b> |  |
|--|--|
| <b>Activity</b>  | <b>Description of Activity</b>   |
| Module # 4 review  | Information from module 4 reviewed as needed based on posttest results.  |
| Learner Analysis   | Pretest to determine the learner's knowledge about evaluations.  |
| Training Module #5<br>Evaluations -<br>Closing the Loop      | This module defines the process of evaluation. Summative and Formative evaluations processes are explained as well their application. The concept of continuous improvement based on evaluations is also introduced. |
| Learner Analysis   | Posttest to determine the learner's knowledge about evaluations.   |

The proposed example of a Table of Contents for a Recruitment Training program includes five modules of content that would be designed to prepare volunteers for a recruitment campaign. Key to the success of a proposed program like this would be an initial evaluation of what the learners (i.e. new recruiter trainees) know about recruitment and recruitment strategies. Once this is completed, the content modules as proposed would bridge the gaps between what is know and what is believed to be the knowledge necessary to make one an effective recruiter. Further, the proposed training manual also includes instruction to familiarize the recruiters on the concepts of social marketing which can be incorporated into a cohesive recruitment strategy that could include numerous avenues to reach out to possible new volunteers. Finally the proposed training includes a module that details the use of formative and summative evaluations that would be critical in determining the efficacy of the recruitment process.

Table 6-2 Example Outline for a Module from a Training Manual

| <b>Module One – Needs Assessment</b>          |   |
|---|---|
| Purpose                                       | To define what a needs assessment is and then utilize a needs assessment to determine both the type and number of new members needed.                                     |
| <b>Instructional Steps</b>                    |   |
| <b>Concept</b>                                | <b>Knowledge Skill or Ability</b>   |
| Introduction of Needs Assessments             | At the conclusion of the module the student shall be able to articulate the definition of a Needs Assessment and explain the purpose of conducting a Needs Assessment.    |
| Selection of the appropriate Needs Assessment | At the conclusion of the module the student should be able to list the types of Needs Assessments and choose the appropriate type based on the application.               |
| Define current categories of membership       | At the conclusion of the module the student should be able to list each of the membership categories within their department and list the requirements for each category. |
| Conducting the needs assessment               | At the conclusion of the module the student should be able to list the steps for conducting the needs assessment and interpret the findings from the assessment.          |
| Determining Recruitment Goals                 | Based on the Needs Assessment findings, the student shall be able to list the numbers of needed recruits for all categories of membership                                 |

While the focus of this study was not on the efficacy of social marketing campaigns as a tool for recruitment, this study provides information that could be useful for the development of a social marketing campaign for volunteer fire departments. For example, the analyses of data suggest both the member’s age and years of service have impacts on member’s perceptions about recruiting methods. When developing the social marketing campaign for recruitment, the recruitment activities can be created based around the group that will be doing the recruiting using this data to inform the final recruitment strategy.

Further, knowing the data suggests family connections can play a key role, marketing materials can be designed that appeal to the family connection aspect. This study also revealed the perceived importance of the use of e-media such as social network sites, email etc. Again, the recruitment activities should leverage those findings and devote effort to increasing the prominence of e-media interactions. The SAFER grant funded recruitment and retention programs in Virginia, Connecticut and North Carolina include marketing strategies, but that aspect of those recruitment programs are not within the scope of this study.

## APPENDIX A SURVEY QUESTIONS

1. As of today, indicate the type of firefighter you are.
2. What town (or independent city) is your VOLUNTEER department located in? (Choices A-R)
3. What town (or independent city) is your VOLUNTEER department located in? (Choices S-Z/Other)
4. What is your primary RESIDENCE zip code?
5. What is the approximate distance of your department from your home?
6. What is the approximate distance of your department from your primary job?
7. Please choose what category BEST DESCRIBES your primary occupation. Choose ONLY ONE of the options below.
8. What is your current rank?
9. How many years have you been in the fire service? (If you serve as career and volunteer, please enter total number of years.)
10. What is your current age?
11. Thinking back to when you first enlisted as a firefighter, how did you learn about opportunities to become a firefighter? Select all that apply.
12. What was your PRIMARY motivation for INITIALLY becoming a firefighter? Select only ONE choice.
13. How many months did it take you to become a member after submitting your initial application?
14. How many months did it take you to become an IDLH firefighter after being accepted as a member?
15. What minimum training and/or certifications does your department require for you to be considered a firefighter? Check all that apply.
16. What do you believe are the most effective ways to recruit firefighters? Select all that apply.
17. Of the ways you indicated above, which do you believe is the one MOST effective for recruitment? Select only one answer.
18. What is your PRIMARY motivation to continue as a firefighter?
19. Which retention methods does your department use? Select all that apply.
20. Based on your personal experience and beliefs, please rate the effectiveness of the retention methods below (even if your department doesn't have all of them).
21. Think about the firefighters you know who have left the fire service. Why do you believe they left? Select the top three (3) reasons.
22. Does your department conduct exit interviews when someone leaves the department?
23. In which areas does your department excel? Select all that apply.
24. Do you feel that there are negative leadership issues in your department?
25. At what level do negative leadership issues exist? Select all that apply.
26. In which areas does your department need improvement? Select all that apply.
27. Of your answers above, which area is the MOST in need of improvement? Select only one answer.

28. In what areas would you like to see more training? Select all that apply.
29. What type of training method/format do you prefer? Select all that apply.
30. Generally, when is the best time for you to attend classroom/live instructor-led training? Select only one answer.



## APPENDIX B IRB EXEMPTION LETTER



University of  
Kentucky

Office of Research Integrity  
IRB, RDRC

### EXEMPTION CERTIFICATION

IRB Number: 59135

TO: Jeffrey Kimble  
College of Education  
PI phone #: 9805216148  
PI email: jtkimb0@uky.edu

FROM: Chairperson/Vice Chairperson  
Nonmedical Institutional Review Board (IRB)

SUBJECT: Approval for Exemption Certification

DATE: 10/13/2020

On 10/13/2020, it was determined that your project entitled "*Use of Survey Data to Guide the Development of Best Practices for Instruction for the Recruitment of Volunteer Firefighters*" meets federal criteria to qualify as an exempt study.

Because the study has been certified as exempt, you will not be required to complete continuation or final review reports. However, it is your responsibility to notify the IRB prior to making any changes to the study. Please note that changes made to an exempt protocol may disqualify it from exempt status and may require an expedited or full review.

The Office of Research Integrity will hold your exemption application for six years. Before the end of the sixth year, you will be notified that your file will be closed and the application destroyed. If your project is still ongoing, you will need to contact the Office of Research Integrity upon receipt of that letter and follow the instructions for completing a new exemption application. It is, therefore, important that you keep your address current with the Office of Research Integrity.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "[PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research](#)" available in the online Office of Research Integrity's [IRB Survival Handbook](#). Additional information regarding IRB review, federal regulations, and institutional policies may be found through [ORT's web site](#). If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at 859-257-9428.

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VITA

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|--------------------------------------|--------------------|--------------|
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| University of Kentucky               | Research Assistant | 1997-1999    |
| Eastern Kentucky University          | Teaching Assistant | 1995-1999    |

**Publications**

*Ignite Your Career*

Article published in the July 2016 Issue of *FIREHOUSE* magazine. (pp 56-62)

Janssens, M., Kimble, J., Murphy, D., (2003) *Computer Tools to Determine Material Properties for Fire Growth Modeling from Cone Calorimeter Data*

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San Francisco CA, January 2003

*A Fire Safety Engineering Technology Program for the 21<sup>st</sup> Century*

Conference Proceedings - American Society of Engineering Educators Conference  
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*A Hybrid Approach to Web Based Course Delivery for the Fire Safety Engineering Technology Program at UNC Charlotte*

Conference Proceedings - American Society of Engineering Educators Conference  
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Kimble, J & Hopkins R (1997) *Investigation on Flashover Conditions in Compartment Fires Using Scale Models*, Conference Proceedings  
2<sup>nd</sup> International Symposium on Scale Modeling Lexington KY May 1997