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MILLENNIALS IN THE FIRE SERVICE: THE EFFECTIVENESS OF FIRE SERVICE RECRUITING, TESTING, AND RETENTION

by

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December 2017

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Modern-day fire service methods' ability to effectively attract and retain millennials is in question. Stale marketing and static testing processes may be contributing to smaller hiring pools and the inability to reach recruits with the skillsets needed to replace experienced firefighters lost through attrition. Millennials are looking for employment in organizations that complement four-year college degrees and offer immediate inclusion and growth. These traits may be misaligned with the fire service business model.

Through a customized survey, this thesis gathered data needed to explore the challenges plaguing fire service attraction and retention. The research concluded: 1) the fire service is not attracting the number and quality of applicants that it once did, 2) the generational traits of millennials do not fully align with the business model of the modern fire service, and 3) parents direct their children toward the college education many of them did not have themselves. These issues are preventing the fire service from replenishing the profession with the quality and quantity of talent needed to ensure continuity of response at the local level.

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MILLENNIALS IN THE FIRE SERVICE: THE EFFECTIVENESS OF FIRE SERVICE RECRUITING, TESTING, AND RETENTION

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Submitted in partial fulfillment of the
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ABSTRACT

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LIST OF ACRONYMS AND ABBREVIATIONS

ALS	Advanced Life Support
BCFD	Bullhead City Fire Department
CPAT	Candidate Physical Agility Test
CQI	Continuous Quality Improvement
EFO	Executive Fire Officer
EMT-B	Basic Emergency Medical Technician
HRO	High-Reliability Organization
NAPSE	National Association of State Personnel Executives
NFA	National Fire Academy
NFPA	National Fire Protection Administration
NNFD	Newport News Fire Department
NPS	Naval Postgraduate School
NTN	National Testing Network
OPM	Office for Personnel Management
SCBA	Self-contained Breathing Apparatus

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EXECUTIVE SUMMARY

This exploratory thesis asks if the current methods used by the fire service to attract and retain millennials are effective. The idea for this study was developed from firsthand experience in diminished hiring pools. Competing interests with the private sector along with misalignment of millennial traits with the fire service business model are contributing factors to this perceived problem. It may be that the generational shift from Generation X to millennials has contributed to the challenge of recruiting and retaining new applicants for the fire service, especially within midsize or smaller fire departments in suburbia and small-town America. Either traditional hiring campaigns have failed to reach millennials or other career paths are simply more attractive. The conclusion of this research is designed to heighten awareness of the generational issues that appear to plague recruitment, hiring, and retention in the fire service.

The modern-day challenge for the fire service—a profession that constantly looks for recruitment of a strong talent base—is attracting the best millennial talent to a profession that once had an automatic draw. So where are the millennials going? It is safe to say the most talented people are the most sought-after candidates.[1] In the absence of definitive data to illustrate exactly what sector millennials are gravitating toward, it may be more relevant to understand the type of work environment that suits them. Some organizations excel at recruitment by embracing strategic tactics that provide a competitive advantage. Developing human capital that aligns with the business model is not an exact science.[2] The private sector is more responsive to the changes needed for successful attraction of millennial talent. Without the handicap of bureaucracy looming over changes in the business model, private-sector employers are able to integrate creativity that matches the desirable traits millennials seek.

---

[1] Kimberly Bugg, "Best Practices for Talent Acquisition in 21st-Century Academic Libraries," *Library Readership and Management* 29, no. 4 (August 2015): 4.

[2] Ibid., 1.

The fire service has a unique business model, unlike any other profession in the public-service sector—even law enforcement. Firefighters spend over one-third of their 25-year careers living together—day and night—in 24- and 48-hour increments. There may not be another profession—outside professional athletics—in which a group of co-workers spend so much time together. The special circumstances that bring firefighters together are important for understanding not only the type of people who enter the fire service, but also the civilian staff working alongside them in municipal governments. Many components of the fire service have remained static for hundreds of years, spanning generations, while others change from one generation to the next. The same components of the fire service that once attracted prior generations may be repelling millennials. Marketing, hiring, and testing practices have largely remained static in many organizations. This perceived failure to adapt business practices to the millennial talent pool remains a weak point in the fire service.

The survey used for data collection was designed to examine four main components of fire department attraction, testing, and retention:

- marketing methods,
- testing methods,
- attrition rates, and
- change agents.

Each question was designed to take an exploratory look at current fire department practices without directly interviewing human subjects. Questions in the survey were isolated and analyzed based on the compilation of data provided by the 27 respondents. From this information, trends in the methods used to attract, test, and retain newly hired firefighters begins to take shape. The basic methods used to attract talent are stale and lack creativity. For example, survey results showed that a high percentage of respondents mainly use newspaper advertisements and department websites as the main attraction tools—predictable responses prior to the culmination of data. These types of trends carry out through many of the survey questions.

The research in this thesis produced three main conclusions. First, the fire service—within the defined scope of the survey—is not attracting the number and quality of applicants that it did 20 years ago. Second, the generational traits of millennials do not fully align with the traditional business model of the modern fire service. Parents direct their children toward the college education many of them did not get themselves. This interest competes with trade-based professions like the fire service. The forces of influence that shaped millennials during their childhood are rendering recruitment methods ineffective in maintaining a stable workforce. Finally, the fire service testing process does not necessarily identify the most desired traits in a candidate. The traditional written exam, physical agility test, and oral board schematic have remained unchanged for decades. Using a systematic evaluation process—like that found in continuous quality improvement—can help make necessary fundamental changes to fire service testing. Although a high percentage of survey respondents are proactively changing their testing model, additional adjustments on a wider scale are necessary. Unlike businesses that fail to adapt in the private sector, the fire service is not threatened with extinction. However, the fire service cannot remain a profession held in high esteem by the public if the best millennial talent chooses to find employment elsewhere. The strongest business models are not the ones that have the most intelligence, but the ones that respond best to change.

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Writing this thesis would have been an impossible task without the support and guidance of key people in my personal, professional, and academic life. This acknowledgment is more than the last words inserted into my thesis; it is a place to document my eternal gratitude for all the people responsible for where I am in life.

Inspiration to continue my education started ten years ago, from my parents, who supported me to finish my bachelor's degree from the Eastern Michigan University. To my parents—Mark and Patti Neal, and Janice Hartzler—all of you emphasized the importance of education in my adolescence and into adulthood. This educational trait will live on as it is passed to your grandsons, who will be headed to college themselves in a few years.

Not all employers cultivate professional excellence. However, I am fortunate to have worked with two fire chiefs in two separate organizations who have allowed me to pursue higher education and career development. Fire Chief Michael J. Reddy promoted me to assistant chief in 2006 and for six years supported my path to a bachelor's degree and other fire service education needed to enter the Naval Postgraduate School. I am eternally grateful for his friendship and mentorship over the last 25 years. Fire Chief Rick Southey took a chance on me as an outside hire for the position of assistant fire chief of operations in 2012. From the first day of my employment, he allowed me to pursue application to NPS. I could not have completed this program without the support of Chief Southey and his emphasis on raising the level of academia in the fire service.

Acceptance into NPS is one thing; successful completion is another. There may not be a better academic support network on the planet. Starting with Dr. Lauren Wollman—the thesis guru of this master's program—who has instilled in me a writing work ethic that I honestly did not know I possessed; thank you for helping me build the confidence needed to reach the end of this long and winding academic document. However, there is not a person more instrumental in the 20,000+ words written in this thesis than Noel Yucuis. For 18 months Noel was the backbone of correcting my passive

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I. THE FIRE SERVICE ONE GENERATION REMOVED

In 1991, I left Eastern Michigan University to pursue a career in the fire service. I was 20 years old and a member of the Generation X workforce at a time when baby boomers were the dominant generation. The first round of fire-service candidate testing attracted more than 1,000 applicants to the City of Westland, Michigan, who were vying for nine vacancies within a department of 80 fire fighters. Testing consisted of a civil service exam that required a minimum passing score of 70 percent, a physical agility test administered by the host department, and an oral board in front of a civil service commission. Scores from those three assessments were combined to rank applicants.

Requirements for applying in 1991 were not stringent. An applicant needed to be over the age of 18, have a high school diploma, and be certified as a basic emergency medical technician (EMT-B). Other factors, including a clean driving record and criminal background check, were part of the vetting process. Candidates who scored high on the quantitative test and passed the qualitative background check generally comprised a list of high-quality candidates. In a hiring list ranked by the highest overall scores, candidates who fell below the top 15 or 20 were less likely to be hired due to the intense competition. As a best practice, most municipalities would rather have tested 1,000 new applicants to identify the next-best "top 20" in the area than take candidates below the top 20.

In my first attempt in this process, I scored high on all of the testing criteria and ranked number one on the hiring list. In total, 25 applicants made it to the hiring list while the other 975 received letters suggesting they find other testing opportunities. The department hired the top six candidates and sent us to a local fire academy for eight weeks. Upon completion of the fire academy, the department provided a four-week orientation followed by an assignment to 24-hour shifts.

Over the past 25 years, the hiring process in the fire service as a whole has changed significantly. Starting in 2015, my current employer, Arizona's Bullhead City Fire Department (BCFD), discontinued internal examinations for new hires and has sent

notifications for testing through a company called the National Testing Network (NTN), which provides a written exam, a physical ability test, and a human resources test. This testing process shifts the initial vetting and risk to a third party rather than retaining it within the organization. In 2015, BCFD generated seven applicants; in 2016 there were 19 applicants. The application process now requires that applicants have Firefighter I & II—per state guidelines—and EMT-B certifications, while still adhering to the requirements of a minimum age of 18, a high-school diploma, and a clean background. However, those who desire to be at the top of the hiring pool often show advanced life support (ALS) licensure, a two-year fire science degree, and proven community service on their resumes. These additional certifications are commensurate with the trend of increased credentials for new-hire candidates in the fire service. As the demand for an all-hazards approach to 9-1-1 calls replaces the historically narrow scope of sole firefighting, a diversely skilled and higher-educated workforce is vital to the fire service profession.

A. PROBLEM STATEMENT

Each workday at a fire station is unique and full of complex challenges; this environment separates the fire service from many other professions. Firefighters must manage the human tribulations presented in 9-1-1 emergency calls, and it is during these calls that they learn to adapt and overcome. This environment is in stark contrast with the typical nine-to-five office setting. Compensation and fringe benefits do not make firefighters wealthy, but they do provide a stable lifestyle for raising a family. In general, the fire service is immune to widespread layoffs, downsizing, or insolvency. At the same time, there may not be a more revered group of professionals in the workplace. In 2009, Reuters asked citizens in the United States and Europe what they considered the most trusted profession.[1] The fire service was at the top of the list, with 92 percent of respondents saying they trusted the fire service as a group more than any other profession. If pay, benefits, long-term stability, reverence by the community, and an exciting career path are attractive traits, it seems inconceivable that the fire service

[1] "Firefighters Most Trusted Group in Europe and U.S.," Reuters, June 5, 2009, http://www.reuters.com/article/us-professions-trust/firefighters-most-trusted-group-in-europe-and-u-s-idUSTRE5543GX20090605.

struggles to fill vacant positions across the United States. Nevertheless, it does struggle, at least at certain levels.

In 2015, the millennial generation became the largest proportion of the workforce, surpassing Generation X.[2] Millennial workers, however, are not like their parents—or even their older brothers and sisters. They are not lured by benefits, large paychecks, or long-term stability. In fact, only one in five millennials stays with the same employer longer than five years.[3] Losing a new hire within the first year of employment can be a costly practice for an employer. A study conducted by Cahit Ali Bayraktar from Istanbul Technical University stands out as unique among other studies in that he uses a mathematical approach to understand the hidden costs of hiring and training employees.[4] Bayraktar provides a cost-benefit analysis for the hiring process using four mathematical models. The signature takeaway from his analysis is that an organization should not view the hiring process as an initial expense but rather as a significant investment in human capital.[5] The ability to sustain a high-quality staff relies mainly on an active hiring process, regardless of the type of organization. The fire service is not exempt from this mathematical certainty; hiring highly qualified and capable personnel is an expensive process. As millennials become the predominant demographic in the workforce, their affinity for leaving one employer for another is a trend that the fire service cannot ignore.

It may be that the generational shift has contributed to the challenge of recruiting and retaining new applicants for fire departments. Either traditional hiring campaigns have failed to reach millennials or other career paths are simply more attractive. For example, Deputy Chief Scott Kujawa from Dayton, Ohio, laments, "Some of the schools … have seen decreases in the number of people registering for firefighter school or EMT

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[2] "Survey Findings—State and Local Government Workforce: 2016 Trends," State and Local Government Workforce, May 2016, http://slge.org/wp-content/uploads/2016/05/State-and-Local-Government-Workforce-2016-Trends.pdf.

[3] Adam Kingl, "Millennials Don't Expect to Work Anywhere for More than Five Years," *Guardian*, May 26, 2014, 1, https://www.theguardian.com/sustainable-business/millennials-jobs-five-years-pay-priority.

[4] Cahit Ali Bayraktar, "Cost-Benefit Analysis of the Hiring Process," *2011 Asia-Pacific Power and Energy Engineering Conference*: 4, doi:10.1109/APPEEC.2011.5747674.

[5] Ibid., 1.

school so they're not producing as much as they would like. In turn we're not getting firefighters that are trained coming out of school."[6] As a result, Kujawa's department has resorted to offering a $1,000 signing bonus to new recruits. Such reactive recruiting measures were not necessary 20 years ago.

Recruitment of new personnel in the fire service is disparate among different-sized communities. Without question, big cities are not as challenged in replacing firefighters. This issue may exist exclusively in midsize or smaller departments in suburbia and small-town America. These smaller communities simply do not garner the same national attention as metropolitan areas like Chicago, New York, or Los Angeles. If midsize fire departments cannot consistently recruit millennials, the homeland security enterprise may face an unstable public-service workforce outside metropolises. Now that millennials are the largest demographic in the workforce, the divide in recruitment seemingly follows (see Figure 1).[7] Outside of large urban centers, midsize communities can no longer rely on archaic methods to attract the best talent and must move into the modern era of active recruitment. Talent acquisition requires proactive change—a concept with which the fire service has historically struggled as a profession.

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[6] Tremayne Houge, "Washington Twp. Using $1K Bonuses to Attract Firefighter Candidates," *Dayton Daily News*, January 17, 2017.

[7] Richard Fry, "Millennials Overtake Baby Boomers as America's Largest Generation," Pew Research Center, April 25, 2016, http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/.

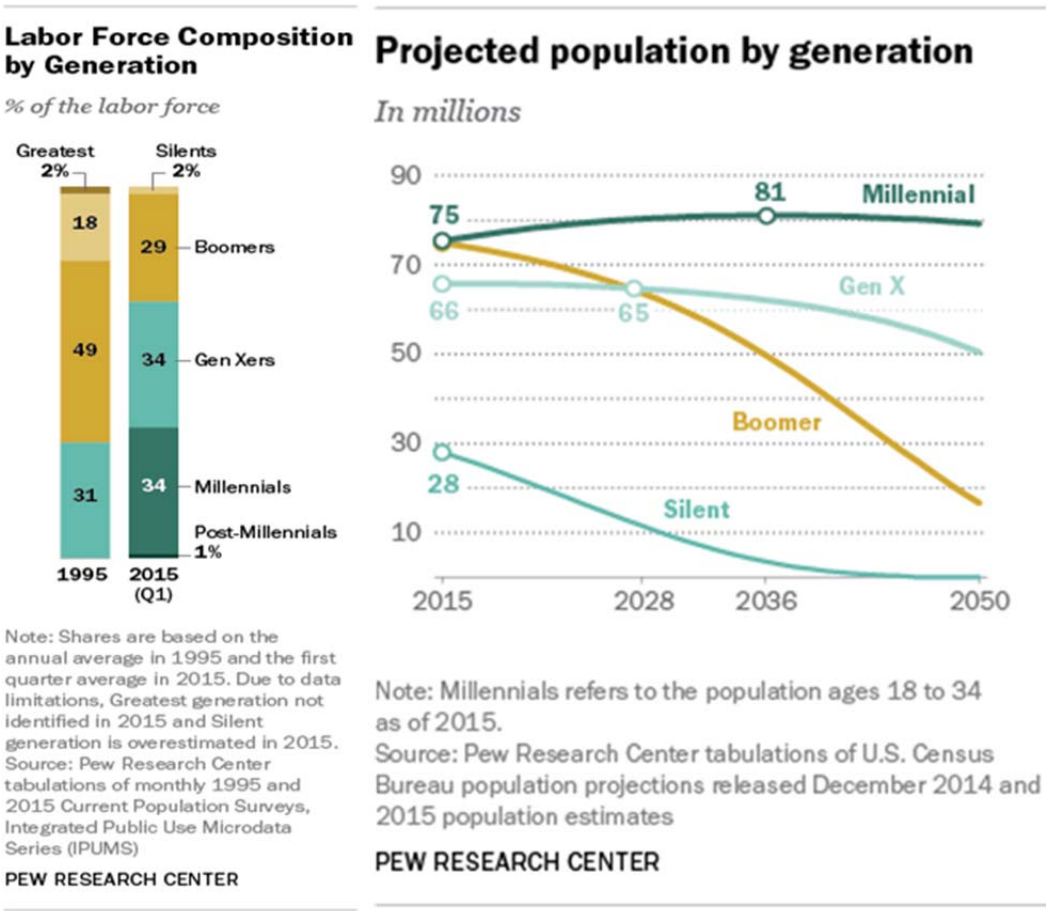

Figure 1. Generational Comparison in the Workforce[8]

B. RESEARCH QUESTION

How effective are current fire service methods for attracting and retaining millennials?

C. LITERATURE REVIEW

This literature review is based on the study of workplace differences between millennials and Generation X that extend into hiring and retention. The earlier generation of baby boomers—the so-called greatest generation, those who were young adults during World War II—are mentioned at times but not the central focus at any point. Each

[8] Source: Fry, "Millennials Overtake Baby Boomers."

generation has a unique skillset and breadth of life experience it brings to the workplace.[9] In order for the private sector to build a solid workforce, it must attract the millennial talent pool using quite different methods from those used for previous generations. The challenges are similar for the public sector. Government workers, from the federal level down to the local level, are struggling to bring in the same talent pool as in previous years. It is unclear whether millennials are more attracted to the private sector or just repelled by the increased responsibility and compensation changes in the public sector.

1. Generational Identity

Generational identity is a concept that scholars of social identity sort out and document in general terms. Although there is no definitive starting or ending point for baby boomers, Generation X, or millennials, sources do agree on a starting birthdate for millennials between 1978 and 1982 and an ending birthdate between 1998 and 2000.[10] These variances are apparent throughout the corresponding body of literature. Academic literature examining generational differences as they affect the workplace has flourished since the mid-2000s.[11] However, the total body of knowledge is still coming into existence while scholars of the subject continue to test the issue empirically.[12]

Regardless of the exact starting date of any generation, each one has a specific set of traits or characteristics that define members of its cohort. Generation X parents, who, like their boomer parents, want to give their children a better lifestyle than they experienced, choose to raise their millennial children with more emphasis on active parenting. However, this parental desire has come at a cost. For example, several authors, including Kelly Carbary and David Altman, agree that most millennials assimilate into a new workplace much differently than previous generations because work does not hold

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[9] Cecillia Michelle Seldon, "Understanding Effective Methods for Cultivating Millennial Leadership Talent" (doctoral dissertation, University of the Rockies, 2014), 1.

[10] Brenda J. Kowske, Rena Rasch, and Jack Wiley, "Millennials' (Lack of) Attitude Problem: An Empirical Examination of Generational Effects on Work Attitudes," *Journal of Business and Psychology* 25, no. 2 (June 2010): 265.

[11] Sean T. Lyons and Linda Schweitzer, "A Qualitative Exploration of Generational Identity: Making Sense of Young and Old in the Context of Today's Workplace," *Work, Aging and Retirement* 3, no. 2 (July 19, 2016): 209.

[12] Ibid.

the same centralization in their lives as it did for previous generations.[13] This feeling of work decentralization is in part due to technology playing such a significant role during childhood, creating an environment in which millennials rarely feel disconnected from work because work-related technology creates a constant tether to their personal lives.[14] Generation X found themselves in environments that were mostly team oriented (such as in organized team sports), and where defined winners or losers were rarely identified at a young age.[15] In addition, Carbary illustrates a difference in millennial values, namely that millennials do not place merit in high esteem as a defining characteristic for advancement.[16]

Translated to a professional career, millennials are more likely to engage in participatory leadership than they are to compartmentalize their coworkers through an authoritarian style.[17] Chou describes participatory leadership as the concept of allowing followers to provide input in the decision-making process.[18] Participatory leadership has been shown to increase subordinate motivation and strengthen buy-in to the organizational mission.[19] The two key differences that separate millennials from previous generations is their affinity for inclusion of others and direct participation in the way they lead. Conversely, many millennials are uncomfortable working individually and do not easily accept rejection or poor performance evaluations.[20] Scholars understand these traits are not mutually exclusive for each member of the millennial generation. The main takeaway is that millennials have different expectations than previous generations, and

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[13] Kelly Carbary et al., "Generation Gaps: Changes in the Workplace Due to Differing Generational Values," *Advances in Management* 9, no. 5 (May 2016): 1; Jennifer J. Deal, David G. Altman, and Steven G. Rogelberg, "Millennials at Work: What We Know and What We Need to Do (if Anything)," *Journal of Business and Psychology* 25, no. 2 (June 2010): 195.

[14] Deal, Altman, and Rogelberg, "Millennials at Work," 195.

[15] Carbary et al., "Generation Gaps," 4.

[16] Ibid., 5.

[17] Seldon, "Cultivating Millennial Leadership Talent," 34.

[18] Shih Yung Chou, "Millennials in the Workplace: A Conceptual Analysis of Millennials' Leadership and Followership Styles," *International Journal of Human Resource Studies* 2, no. 2 (May 27, 2012): 73, doi:10.5296/ijhrs.v2i2.1568.

[19] Ibid., 74.

[20] Seldon, "Cultivating Millennial Leadership Talent," 31.

these expectations can impact how they interact with their employers.[21] Without an acknowledgement of this concept, Generation X leadership will struggle to coexist in the collaborative environment that millennials expect.[22]

Chou and doctorate dissertation author Cecilia Seldon have differing opinions about the concept of followership versus leadership. Chou believes that millennials exhibit traits that lead them away from formal acknowledgement of titles or status when disagreeing with their leadership because of their affinity for inclusion.[23] Insubordination to authority or rank is problematic in the workplace but more critical in the public sector, especially in public safety where para-military and life-safety business models exist. Millennials' lack of restraint in providing opinions to the in-group demonstrates the characteristics needed to work well in teams.[24] Seldon does not cite followership as an important element of success when millennials begin their careers. Instead, Seldon states that empirical data are too limited to draw conclusions about what millennials expect from their leadership in the workplace.[25]

2. Millennials in the Fire Service

The challenge of understanding generational differences—specifically regarding the millennial generation—in the fire service has not gone unnoticed. The National Fire Academy (NFA) offers an outlet for information on this topic through the Executive Fire Officer (EFO) program, which teaches executive leadership as part of a four-year certification process. Chief officers are selected for the EFO program based on credentials and merit among their peers. Each year the participants produce a graduate-level paper on a subject that affects the fire service or their departments. Four EFO papers have been written that relate to the challenges of generational differences in specific fire departments. Collectively, the EFO papers examine how generational differences lead to

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[21] Seldon, "Cultivating Millennial Leadership Talent," 30.

[22] Ibid., 31.

[23] Chou, "Millennials in the Workplace," 75.

[24] Ibid, 76.

[25] Seldon, "Cultivating Millennial Leadership Talent," 36.

communication dysfunction, create disparate attitudes toward the fire service profession, and impact the department mission. [26]

As an example, Chief Otto Drozd III of the Hialeah Fire Department in Florida authored an EFO research paper that examines the generational impact on fire service leadership. In this research paper, Chief Drozd writes:

> The Hialea Fire Department (HFD) has experienced an atmosphere of disruptive labor management relations. As the atmosphere has persisted, the attrition rates of the department have precipitated many new entrants to the service, with over 38 percent of the workforce having less than two years of service time within the organization. In order to be successful in the future, the HFD must find the means and methods to assimilate new employees into the Department in a reasonable and effective manner.[27]

A closer analysis of this statement reveals the disruptive labor management relations and the high attrition rate described by Drozd. In this EFO paper, a notable correlation exists between the generational gap, communication differences, and high attrition rates. Drozds' research provides insight for the premise that the fire service must address generational and communication challenges with millennials to avoid high attrition rates. Millennials are already predisposed to changing employers often and management can easily mishandle their fickle loyalty.

Chief Earnest L. Bess of the Newport News Fire Department (NNFD) in Virginia authored an EFO research paper that examines the adaptive challenge of the generational divide. Chief Bess writes, "The problem is that with three generations of employee in the NNFD a lack of understanding of generational differences is creating conflict between personnel, which is having an adverse effect on achieving NNFD's mission."[28] The conflict described by Bess comes in the form of communication barriers among generations in his organization. Problems resulting from this communication conflict are shown at the task level. Generation X does not believe that millennials have the proper

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[26] "Executive Fire Officer Program Applied Research Projects," U.S. Fire Administration, October 3, 2016, https://www.usfa.fema.gov/training/nfa/programs/efop_arp.html.

[27] Otto Drozd III, "Generational Influences of Fire Department Leadership," (research project, National Fire Academy, 2006), 6.

[28] Earnest L. Bess III, "The Fire Service's Generational Adaptive Challenge: Traversing the Generational Divide" (research project, National Fire Academy, 2008), 5.

motivation for the fire service, which plays out when station duties are assigned. Conversely, millennials do not hold Generation X in as high esteem as the baby boomers due to their differences in work ethic and principle values.[29] In another EFO paper, Chief Robert Alden of the Fort Walton Beach Fire Department in Florida examined generational differences in his department. In his research paper, he warns, "If corrective measures are not taken, the number of Generation X-ers dissatisfied with the Boomers could increase and worsen the problem. Morale could drop and the Generation X employee might consider leaving the department in search of departments with younger leaders in charge."[30] These research papers, archived at the NFA, examine the generational impact, influences, differences, and adaptive challenges experienced in the fire service as millennials enter the workforce. However, the overall quality of this literature is not at the standard of other sources written by the aforementioned experts in generational studies, nor are there as many sources to draw from. The methods cited in this literature are rudimentary and the bibliographies are less comprehensive than those found in theses or dissertations.

One redeeming factor of the four relevant EFO papers is the illustration of gaps in millennial research within the fire service. Fire Chiefs Bess, Drozd, Buckley, and Alden emphasize the dynamics of comingling generations in the fire station.[31] In individual reports published by the NFA, they recommend heightening awareness of the generational differences between command staff and line staff as well as integrating soft-skill training into their organizations.[32] The premise is that if all members of the organization understand the generational differences, communication between command staff and line staff will improve. Arguably, breaking down communication barriers

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[29] Bess III, "The Fire Service's Generational Adaptive Challenge," 26.

[30] Robert N. Alden, "Generational Differences among FWBFD Members" (research Project, National Fire Academy, 2007), 32.

[31] Alden, "Generational Differences," 21; Bess, "The Fire Service's Generational Adaptive Challenge:," 5; Drozd, "Generational Influences of Fire Department Leadership," 5; John Buckley, "The Impact of Generational Differences on the Management of a Fire Protection District" (research project, National Fire Academy, 2010), 5.

[32] Alden, "Generational Differences," 34; Buckley, "The Impact of Generational Differences," 50; Drozd, "Generational Influences of Fire Department Leadership," 22; Bess, "The Fire Service's Generational Adaptive Challenge," 35.

between generations may increase retention. One additional scholarly source—a doctoral dissertation by Francis Deleonibus—analyzes the workplace disruption experienced in the fire service due to multigenerational tension. This research mirrors the conclusions found in the selections from the NFA but comes from a civilian writer's perspective.

There are significant gaps in generational research once the focus moves from fire stations to the fire ground. Little to no research has been done to measure the impact of generational diversity on operational continuity.[33] No empirical evidence exists to document logistical or philosophical obstacles between command staff—Generation X or baby boomers—and line or task-level staff—millennials. The quandary in the fire service is that generational differences do not necessarily affect 9-1-1-call mitigation in the same way they affect fire station dynamics. Without a focused study of activity and communication on the fire ground while an event is happening, there may be no way of determining the effect of millennials working with Generation X on the outcomes of calls for service.

3. Government and Private-Sector Studies

The federal government has conducted its own research on millennials. The literature suggests there are significant challenges in recruiting and retaining top-level talent at the federal level. To analyze this problem, Natalie Hanrahan has examined forensically the recruiting challenges that face the U.S. federal government. In her qualitative dissertation, Hanrahan cites reports as far back as 2000, when the Bush administration formed a task force to pique interest in the federal government.[34] Within this study, Hanrahan highlights comments made by President George W. Bush that declared the management of government employees a top priority.[35] Citing reports from the U.S. General Accounting Office in 2001, the Partnership for Public Service in 2002,

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[33] Francis J. Deleonibus, "How Chief Officers Describe Multigenerational Workplace Tensions that Disrupt the Operational Continuity of Their Fire Department" (PhD diss., Grand Canyon University, 2014), 111.

[34] Natalie Jane Hanrahan, "The Human Capital Challenge in the U.S. Federal Government: A Qualitative Case Study" (PhD diss., University of Phoenix, 2011), 2.

[35] Ibid.

and the National Commission on Public Service in 2003, Hanrahan argues that the government has been unprepared for the unavoidable demands of millennial talent.[36]

In contrast to Hanrahan's claims, a RAND report highlights millennials' conscious choice to work for the federal government rather than primarily turning to the private sector. RAND concludes that terrorism has brought millennials a sense of responsibility to participate in the solutions needed to the fight the war on terror. As the RAND study notes, "Millennials believe that the public and private sectors have a responsibility to partner together to accomplish such goal[s]."[37] Notably, the RAND study was published more recently (in 2016) and could be a sign of a paradigm shift in the way millennials view their workplace responsibilities. The literature produced by Hanrahan in 2011 follows many of the conclusions formed in other previously documented sources in this literature review. In contrast to data provided by RAND, one poll Hanrahan cited shows that 42 percent of the respondents would not seek federal employment upon graduation.[38] And an even higher number (14 of 19) have negative perceptions about federal employment.[39] The only tangible attraction to millennials for federal employment is the stability and compensation packages. Although these are important employment characteristics, they do not ensure long-term millennial retention. During the data discovery phase of Harahan's survey, she found that millennials are not familiar with the recruiting process for federal employment.[40] If the federal government expects recruitment to improve, an emphasis will need to be placed on more focused marketing or effective outreach so that millennials are more aware of career opportunities in this sector.

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[36] Hanrahan, "The Human Capital Challenge," 3; Government Accountability Office, *Major Management Challenges and Program Risks* (GAO-03-111) (Washington, DC: Government Accountability Office, 2007), http://www.gao.gov/products/GAO-03-111.

[37] Courtney Weinabum, Richard Girven, and Jenny Olberholtzer, *The Millennial Generation: Implications for the Intelligence and Policy Communities* (Santa Monica, CA: RAND, 2016), 39.

[38] Hanrahan, "The Human Capital Challenge," 77.

[39] Ibid., 74.

[40] Ibid., 94.

D. RESEARCH DESIGN

Experts disagree about the degree to which researchers affect the outcome of discovery. Some say neutrality is possible while others argue that the researcher affects the knowledge learned in the discovery phase.[41] The relevancy of neutrality or bias to this thesis is important to note because, as the thesis develops, objective use of the data collected from the survey is necessary for plausible conclusions and recommendations.

Data was collected through a series of quantitative survey questions designed to extract information on recruitment, testing, hiring, and retention of new firefighters. These data sets do not currently exist through nationally recognized sources such as the National Fire Protection Administration (NFPA), National Fire Academy (NFA), International Association of Fire Fighters (IAFF) or International Association of Fire Chiefs (IAFC). Because of the scarcity of open-source data, the questions were designed specifically for this thesis, taking into consideration what previous literature provides in terms of reliability and validity.[42] There was no intent to ask questions that elicit personal opinions from the responders.

Interviews are the equivalent of structured conversations with the interviewee.[43] The ten main questions in this interview were worded to help ensure the research puzzle was solved through data collection. Until the questions were asked and answered, the depth and detail of the information were unknown. Errors associated with the answers fall into two categories: objective facts and subjective statements.[44] Errors can be attributed to the respondent misunderstanding the question, lacking sufficient information to answer the question, or distorting the answers to give the appearance of a high-quality response. In any case, these root causes of errors affect certain aspects of validity for this thesis. It is understood that even though measures were taken to reduce errors, they could not be eliminated entirely.

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[41] Herbert J. Rubin and Irene S. Rubin, *Qualitative Interviewing*, 2nd ed. (Thousand Oaks, CA: SAGE, 2005), 21.

[42] Floyd J. Fowler Jr., *Survey Research Methods*, 4th ed. (Thousand Oaks, CA: SAGE, 2009), 7.

[43] Rubin and Rubin, *Qualitative Interviewing*, 129.

[44] Fowler, *Survey Research Methods*, 15.

The sample size is a common dilemma when conducting survey research. How large should the sample size be to secure accurate data?[45] Most surveys incorporate small fractions of the total population and, when executed properly, this limiting factor does not affect the researcher's ability to extrapolate data from a small sample to a larger population. Therefore an arbitrary percentage, such as 1 or 5 percent, cannot accurately validate credibility.[46] Sample sizes cannot be gauged based on other studies. Each researcher must consider his or her study's goals and take into account all elements of the research design.[47] One final consideration for sample size is the researcher's tolerance for margins of error.[48] The correlation between margin of error and sample size is inverse. The larger the margin of error, the smaller the required sample size.

The sample size for this thesis encompassed a total of 50 fire departments; to be considered for the sample, a fire department was required to have between three and ten fire stations in its response model serving a population range of 25,000 to 100,000. This scope was based on the hypothesis that large urban centers always attract recruits in the numbers needed to replace personnel lost through attrition, but smaller departments or volunteer departments have diverse business models that make for difficult comparisons. As of 2014, there were 1,850 fire departments in the United States serving communities in this population range.[49] Using Yamane's formula for sample size calculation, data from 50 fire departments have a confidence interval (margin of error) in the range of +/- 13 percent with a confidence level of 95 percent.[50] The formula for calculation used is shown in Figure 2.

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[45] Fowler, *Survey Research Methods*, 43.

[46] Ibid.

[47] Ibid., 44.

[48] Ibid.

[49] Hylton J.G. Haynes and Gary P. Stein, *U.S. Fire Department Profile—2014* (Quincy, MA: National Fire Protection Association, January 2016), 21, http://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fire-statistics/The-fire-service/Administration/US-fire-department-profile.

[50] Taro Yamane, *Statistics: An Introductory Analysis*, 2nd ed. (New York: Harper and Rowe, 1967), 886.

EXAMPLE: Sample Size Calculation

Yamane's formula:

$$*n = \frac{N}{1 + N(e)^2}$$

Where **n = Sample size**
N = Population size
e = Level of precision or Sampling of Error

which is ±5%

Figure 2. Yamane's Formula[51]

The method used to collect qualitative data samples combined probability and non-probability sampling. Probability samples use random selection to determine the final set of respondents.[52] In this data collection process, the random sampling consisted of a survey sent to fire departments defined within the scope. The method used to target survey candidates started with fire chiefs among Center for Homeland Defense and Security alumni and other carefully selected organizations based on warm calls and similar outreach. The following organizations or individuals were sent survey requests:

- Arizona Fire Chiefs Association (AFCA)
- Arizona Fire District Association (AFDA)
- Member fire chiefs of Columbia Southern University
- International Association of Fire Chiefs (IAFC)
- Mohave County Fire Officers Association (MCFOA)

[51] Source: Yamane, *Statistics*, 886.

[52] "Probability Sampling," Social Research Methods, October 20, 2006, http://socialresearchmethods.net/kb/sampprob.php.

- Various regional organizations linked to Naval Postgraduate School alumni
- Members of the Center for Fire Accreditation International (CFAI)

The premise of this method was to collect data from a vast array of fire departments across the United States while also contacting primary decision makers who could answer the survey accurately. The result was a cross-section of fire departments that cover all four regions of the United States: Northeast, Midwest, South, and West.

The topics examined in the data collection survey were as follows:

- Current hiring needs
- Current hiring practices
- Marketing and outreach for testing and hiring
- Elements of the hiring process
- Average number of applicants today versus 15–20 years ago
- Success rates of applicants in the testing process
- Attrition rates today versus 15–20 years ago
- Voluntary resignation during probation today versus 15–20 years ago
- Anticipated changes in the marketing/testing/hiring process in the next 12–24 months

E. CHAPTER OVERVIEW

Chapter II examines millennials and Generation X—the two cohorts with the highest percentage of the demographic represented in the current workforce—with the understanding that generational identity plays a significant role in attraction, hiring, and retention. As millennials seek employment—and if a choice is given—they gravitate toward the opportunities that best suit their lifestyle. The public and private sector are in competition for the best millennial talent but use different methods for attraction.

Chapter III focuses on the modern fire service business model. The image portrayed by the fire service has remained unchanged for decades and the practices used for testing and hiring are stagnant. Once hired, a probationary firefighter is placed into a

12-month evaluation period to test for desired skills and traits. Advancement and promotional opportunities exist as a firefighter moves out of probation and into vested status. An understanding of the way fire departments are constructed is necessary to determine if millennial traits are aligned with the model.

Chapter IV sets up the survey used for data collection. Source material is not readily available to support the research question and a customized survey provided the necessary qualitative and quantitative data for analysis. The construct of the survey with the combined results found in the 27 responses is documented in a question-by-question format. Summarization of the survey examines the sample size and corresponding margin of error as a result of the small sample size.

Chapter V sets up the conclusion of the thesis. There are three main takeaways. First, the fire service is not attracting the number or quality of applicants found 20 years ago. Second, parents—through the five forces of influence—are instrumental in shaping millennials into an education-focused path early in life rather than a trade-based path. The heavy emphasis from parents to attend college puts the fire service at a disadvantage for attracting millennial talent. Finally, the testing process is not identifying the best millennial talent desired by the fire service. Change is needed to adapt written testing to align with the desired traits sought from the millennial talent pool.

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II. GENERATION X AND THE ATTRACTION OF MILLENNIALS

The fire service is a profession that constantly looks for recruitment of a strong talent base with the combination of mechanical aptitude and intellect. The modern-day challenge is attracting that talent to a profession that once had an automatic draw. So where are the millennials going? It is safe to say the most talented people are the most sought-after candidates.[53] In the absence of definitive data to illustrate exactly what sector millennials are gravitating toward, it may be more relevant to understand the type of work environment that suits them. Organizations will hit a hiring block if they do not align their mission to a millennial generation with wavering loyalty toward employers.[54]

A. COMPARING GENERATIONAL COHORTS

Identifying with a generation is an important part of becoming an adult. The shared experiences during adolescence contribute to unique characteristics that define generations.[55] These subtle differences separate the four generations in the workforce: the veterans, baby boomers, Gen-Xers, and millennials (see Table 1).

Table 1. The Different Generations in the Workforce[56]

Generation	Date of Birth
Veterans	1922–1943
Baby Boomers	1946–1964
Gen-Xers	1965–1980
Millennials	1980–1996

Note: Starting and ending generational birth dates may differ across sources.

[53] Kimberly Bugg, "Best Practices for Talent Acquisition in 21st-Century Academic Libraries," *Library Readership and Management* 29, no. 4 (August 2015): 4.

[54] Joan Snyder Kuhl, "Investing in Millennials for the Future of Your Organization," *Leader to Leader* (Winter 2014): 27.

[55] Kowske, Rasch, and Wiley, "Millennials' (Lack of) Attitude Problem," 266.

[56] Adapted from Belal A. Kaifi et al., "A Multi-generational Workforce: Managing and Understanding Millennials," *International Journal of Business and Management* 7, no. 24 (2012): 88.

To examine how the characteristics of generational differences affect the current workforce, it is important to first define birth-year breakpoints. Because the majority of the fire service has lost the veteran and baby boomer generations through attrition, this section focuses mainly on Generation X and millennials.

Generation X encompasses 44 to 50 million U.S. citizens born between 1965 and 1980.[57] The name was taken from a novel written by Douglas Coupland in 1991 entitled *Generation X: Tales for an Accelerated Culture*.[58] This generation is defined by traits that are based on individualistic tendencies. Generation X workers often exhibit noticeable self-reliance but also show an affinity for diversity.[59] One specific trait, individualism, does contribute to Generation X managers exhibiting poor people skills and impatience. These two by-products of individualism can negatively affect employee retention.[60] In management roles, this generation does not use a single style; its members adapt to changing situations in the workplace. This management practice diverges from baby boomer servant-style leadership, in which leaders place their subordinates' needs ahead of their own, working with the Generation X workforce.[61]

Millennials form the generational cohort born between 1980 and 1996.[62] Millennials have a uniquely integrated relationship with technology. Unlike previous generations, technology is not something millennials try consciously to integrate, but it is apparent that their affinity for technology is a cultural phenomenon.[63] Mobile phones, social networking, and the Internet are all part of the digital immersion millennials

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[57] Kaifi et al., "A Multi-generational Workforce," 89.

[58] Timothy H. Reisenwitz and Rajesh Iyer, "Differences in Generation X and Generation Y: Implications for the Organization and Marketers," *Marketing Management Journal* 19, no. 2 (Fall 2009): 91.

[59] Kaifi et al., "Multi-generational Workforce," 88.

[60] Ibid., 89.

[61] Ibid.

[62] Ibid., 88. Starting and ending generational birth dates may differ across sources.

[63] Jackie L. Hartman and Jim McCambridge, "Optimizing Millennials' Communication Style," *Business Communication Quarterly* 74, no. 1 (March 2011): 24.

experienced from early adulthood.[64] Being tech-savvy often leads to a competitive advantage for millennials that makes them a valuable commodity when working with new or existing technology. However, the downside of growing up in a business world that changes often is that millennials may not have loyalty for one concept or business model that ultimately leads to higher rates of attrition.[65]

Distilling the impactful implications that the millennial generation has on the workforce starts with examining expert consensus. Millennials have now laid claim to the largest generational demographic in the workforce, surpassing the baby boomers in 2016.[66] For this reason, employers in all disciplines are searching for ways to attract and retain this young pool of talent. As the millennial generation's volumetric impact on the overall workforce heightens, a high percentage of millennials demonstrate an increasing affinity for changing career paths.[67] The combination of volume and volatility is not easy for employers to manage. Compared to the other three generations, the millennial generation contains the highest percentage of college graduates; this education indicates that millennials are highly qualified applicants who possess the knowledge to successfully pass entry-level examinations.[68] However, this increase in higher education has not helped millennials transition into a sustainable workforce for some private-sector employers and many public-safety organizations.[69] Millennials are different from their Generation X counterparts in that they generally do not stay at one place of employment for more than two or three years. One contributing factor to their transient nature is the desire for employment that has meaning and greater flexibility in their career paths.[70]

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[64] Andrea Hershatter and Molly Epstein, "Millennials and the World of Work: An Organization and Management Perspective," *Journal of Business and Psychology* 25 (March 2010): 212.

[65] "Want to Hire a Millennial? You Can't Afford it," *St Joseph News-Press*, August 22, 2013, sec. Online Features.

[66] Richard Fry, "This Year, Millennials Will Overtake Baby Boomers," Pew Research Center, January 16, 2016, http://www.pewresearch.org/fact-tank/2015/01/16/this-year-Millennials-will-overtake-baby-boomers/.

[67] David J. Fisher, "The Millennial Generation as an Insider Threat: High Risk or Overhyped?" (master's thesis, Naval Postgraduate School, 2015), 69.

[68] Weinabum, Girven, and Olberholtzer, "The Millennial Generation," 28.

[69] Hanrahan, "The Human Capital Challenge," 5.

[70] Kaifi et al., "Multi-generational Workforce," 89.

These traits provide some insight into the organizational structure needed for long-term millennial retention.

As millennials become the powerful generation that is reshaping the workplace, it will become increasingly important for employers to attract and retain this specific pool of talent. The public and private sectors alike are competing for highly qualified applicants to fill vacancies left through retirement and attrition. According to a 2016 poll administered by the Center for State and Local Government Excellence, 92 percent of National Association of State Personnel Executives members believe that recruiting and retaining qualified personnel is an important hiring issue.[71] According to this same survey, the most difficult fields to fill are in the fire service, law enforcement, information technology, and public works.

Like employers in the private sector, the fire service is adversely affected by attrition and persistent personnel turnover. Attrition creates a lack of continuity among the fire companies, which can affect the outcome of 9-1-1 calls.[72] It is estimated that the loss of a newly hired employee can set an organization back $15,000 to $25,000 in personnel-replacement costs.[73] When a firefighter leaves an organization due to retirement, it is an expected loss and can be predicted; however, when a firefighter leaves suddenly it causes the organization to accelerate the succession planning process. The private sector may opt to hire older (Generation X) talent, knowing that such hires take less training and are more stable long-term employees.[74] Due to the physical rigors of fire service employment, hiring a large number of older firefighters—current Gen-Xers—can lead to higher levels of attrition. The fire service can again be compared to professional athletics, where recruiting young talent to replace an aging workforce helps maintain roster stability.

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[71] State and Local Government Workforce, "Survey Findings," 7.

[72] A fire company consists of four to six fire personnel: a captain, who has the most authority in the station, an engineer, who operates the fire apparatus, and up to four firefighters.

[73] "Want to Hire a Millennial."

[74] Ibid.

Generation X leadership in the fire service is rapidly becoming the majority as baby boomers head into retirement.[75] After years of observing baby boomer traits, Generation X now has the opportunity to impact the future of the fire service by preparing millennials to lead themselves.[76] There is no doubt that Generation X will have a tremendous impact on what the future looks like for millennials.

The transition from the baby boomer generation into Generation X does have a measurable set of challenges. Generally speaking, each generation has different attitudes, values, and beliefs. These differences manifest in a divergence of leadership styles.[77] Generation X does not respect authority in the same way prior generations do. They generally prefer egalitarian relationships with their peers and subordinates.[78] Generation X leaders thrive on change and tend to deliver a message with brutal honesty.[79] Generation X is now the change agent in charge of many fire departments across the United States and it will be in incumbent upon this new leadership to instill loyalty through symbiotic relationships with millennials rather than liner relationships.[80]

B. PUBLIC- VERSUS PRIVATE-SECTOR COMPETITION FOR MILLENNIAL TALENT

The public and private sectors are constantly competing for the best millennial talent. Many public-sector recruiters fear that hiring a millennial away from the private sector is becoming increasingly difficult.[81] The Office of Personnel Management (OPM) provides human resource assistance to federal agencies to strengthen the workforce and

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[75] George Goblet, "Rookies Don't Know How to Act Like Rookies Anymore: Mentoring to Overcome Generational Differences," Fire Engineering, February 5, 2013, http://www.fireengineering.com/articles/2013/02/mentoring-to-overcome-generational-differences.html.

[76] Ibid.

[77] Paul M. Aresenault, "Validating Generational Differences: A Legitimate Diversity and Leadership Issue," *The Leadership and Organization Development Journal* 25, no. 2 (2004): 129.

[78] Ibid., 130.

[79] Ibid.

[80] Hershatter and Epstein, "Millennials and the World of Work," 220.

[81] Peter Viechnicki, *Understanding Millennials in Government* (Westlake, TX: Deloitte University Press, 2015), 9, https://dupress.deloitte.com/content/dam/dup-us-en/articles/millennials-in-government-federal-workforce/DUP-1450_Millennials-in-govt_vFINAL_12.2.15.pdf.

offers data that suggests the private sector is out-recruiting the public sector.[82] In 2014, OPM published data on federal hiring trends that show number of hires and separations from the federal government by the civilian workforce. Table 2 shows the trend in federal-level hiring within the millennial and younger Generation X cohorts.

Table 2. Hires into the Federal Civilian Workforce[83]

Age	FY 2010	FY 2011	FY2012	FY2013	FY2014
20–24	49,415	36,756	33,918	22,634	26,788
25–29	50,445	42,106	38,554	34,085	38,251
30–34	37,725	34,257	31,226	29,650	33,846

The trend in this table clearly shows the raw hiring numbers for millennials fell between fiscal years 2010 and 2014. The federal workforce is decreasing year after year within this narrow sample size (with the exception of a small increase in 2014), which will result in a shortage of millennial talent to fill in for natural attrition rates if the trend continues. It is apparent that the federal government is losing millennials to another business model at a rate that will make keeping ahead of natural attrition unsustainable.[84] This trend may be due to a slowdown in federal hiring or a fundamental shift of millennial talent toward nontraditional public- or private-sector opportunities.[85]

Some organizations excel at recruitment by embracing strategic tactics that provide a competitive advantage. Developing human capital that aligns with the business model is not an exact science.[86] The private sector is more responsive to the changes needed for successful attraction of millennial talent. Without the handicap of bureaucracy looming over changes in the business model, private-sector employers are able to

[82] "Our Mission, Role & History," OPM, accessed October 19, 2017, https://www.opm.gov/about-us/our-mission-role-history/what-we-do/.

[83] Viechnicki, "Understanding Millennials in Government," 10.

[84] Ibid.

[85] Ibid., 11.

[86] Bugg, "Best Practices for Talent Acquisition," 1.

creatively offer the desirable traits millennials seek. One example is Chesapeake Energy, a business that produces natural gas and that comes in at number 73 of the Fortune "100 Best Companies to Work for."[87] Chesapeake Energy employs a young workforce; 50 percent of its employees are under 33 years of age.[88] Assimilating this number of millennials into the business model is accomplished through an emphasis on mitigating generational differences and training Gen-Xers on what to expect from their younger coworkers. Further acceptance of millennials is accomplished through a mentorship program assuring legacy of older employees through supporting career progression of newly hired millennials. Beyond the soft-skill training, Chesapeake hires social media coordinators whose primary responsibility is to ensure millennials stay on the cutting edge of their profession through interactive outreach on the company's social media sites.[89] Finally, the company helps millennials' careers excel with merit-based, rather than longevity-based, promotions and compensation. Bonuses, stock options, and raises are offered to employees for recognition of innovative ideas.[90]

Millennials' preferred work environment differs from the their counterparts in Generation X. Millennials seek a flexible workplace that can help them achieve work–life balance.[91] Employers are now going as far as creating individual work schedules to mirror the life needs of their employees. Current data suggests that two-thirds of millennials will leave their current employers in the next four to five years, for reasons which can be avoided in many cases.[92] The absence of leadership development training is the most-cited reason for millennials leaving a current employer.[93] The culture of some private-sector employers cultivates extensive career development, educational

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[87] Hershatter and Epstein, "Millennials and the World of Work," 218.

[88] Ibid.

[89] Ibid., 219.

[90] Ibid.

[91] Claire Groden, "Five Things You Can Do to Attract Millennial Talent," *Fortune*, March 15, 2016, 183.

[92] Ibid.

[93] Ibid.

opportunities, and an emphasis on personal enrichment.[94] Millennials have proven that they are not averse to disrupting their work and personal lives to achieve training goals. The emphasis on career development over compensation is exemplified by the high percentage of millennials who change careers frequently, looking to find the training blend they desire.[95] Purpose and meaning are identified as some of the most important reasons millennials accepted their current jobs.[96] Defining a clear purpose that enables employees to see the impact their contributions have on organizational goals is highly ranked on the millennial's desired workplace checklist.[97] Employers can only make informed marketing decisions to attract millennials if administration and human resource specialists recognize that a problem with current marketing practices exists.

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[94] Groden, "Five Things You Can Do," 183.

[95] Ibid.

[96] Ibid.

[97] Ibid.

III. FIRE SERVICE TRENDS AND RECRUITMENT

The fire service has a unique business model, unlike any other profession in the public-service sector—even law enforcement. Firefighters spend more than one-third of their 25-year careers living together—day and night—in 24- and 48-hour increments. There may not be another profession—outside professional athletics—in which a group of workers spends so much time together. The special circumstances that bring firefighters together are important for understanding not only the people who choose to enter the fire service, but also the civilian staff working alongside firefighters in municipal government. Many components of the fire service have remained static for hundreds of years, spanning generations, while others have changed from one generation to the next. Understanding both the static and changing trends is critical for recruiting new talent as an organization necessarily loses experienced firefighters to attrition, retirement, and line-of-duty deaths.

A. FIRE SERVICE IMAGE, TESTING, AND HIRING[98]

The fire service, along with other public-health and safety organizations such as law enforcement and hospitals, is considered a high-reliability organization (HRO).[99] An HRO is an organization that continually operates in a highly dangerous or stressful environment but is able to avoid catastrophe through strong leadership and strategic planning.[100] Newcomers to an HRO must be adaptable and must quickly assimilate into their new environment to succeed. To help facilitate this new employee integration, HROs emphasize reliability over productivity or efficiency among staff. When an HRO builds reliability in new hires, trust is built between the new employees and the organization's veterans. In dangerous or emergency-rescue operations, trust instills

[98] The testing and hiring practices described in this section illustrate one of the many types of processes used in the fire service. These examples provide a general outline of detail to civilians not familiar with the fire service business model.

[99] Karen K. Myers, "A Burning Desire: Assimilation into a Fire Department," *Management Communication Quarterly* 18, no. 3 (February 2005): 345.

[100] Ibid., 345.

confidence and ultimately produces more positive outcomes in the HRO's situational response.[101]

The process of becoming a full-time career firefighter is difficult. Ask any current firefighters to recall their struggles to find a department that matched their needs, and they will attest to the challenges. Recruitment into the fire service is not a one-size-fits-all package. Each department must look at the business model it employs and forecast the type of firefighter it is looking to find. For example, some departments may need a firefighter with EMT-B certification while others may need a more specialized firefighter with ALS certification. In either case, the recruitment process must target talented and qualified applicants to set up a competitive testing process. It can be shown that the median age of a firefighter has risen by an average of 1.5 years and the total number of firefighters aged 20–29 has declined by 12,000 between 2009 and 2014.[102] This notable change during such a short window of time conveys a troubling trend with recruitment and retention of young firefighters (millennials) that could have long-term effects on the profession. Much like professional athletics, the fire service depends on younger talent to replace the aging and retiring workforce. These statistics also show the overall trend of attrition in the fire service from 2011–2016.

Testing of prospective new hires combines unequal parts of qualitative and quantitative analysis. There are up to four components in any individual fire department's testing process: a written test, a candidate physical agility test (CPAT), an oral board examination, and a background check.[103] Designing or purchasing a professionally vetted written test is a best practice in the hiring process.[104] Using a written test that is not validated increases the risk of qualified candidates failing the testing process and

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[101] Myers, "A Burning Desire," 347.

[102] Michael J. Karter Jr. and Gary P. Stein, "U.S. Fire Department Profile through 2009," (National Fire Protection Association, October 2010), 13, www.nfpa.org; Haynes and Stein, "U.S. Fire Department Profile, 15.

[103] MENA, "Entry-Level Testing and Hiring Selection Process Equity Analysis," (report, MENA, 2016), 1, https://search.proquest.com.libproxy.nps.edu/docview/1829143687?accountid=12702.

[104] Walter Booth and Charles Rohe, "Recruiting for Women and Minorities in the Fire Service: Solutions for Today's Challenges," *Public Personnel Management* 17, no. 1 (Spring 1988): 60.

subsequent legal action.[105] As candidates move through the testing process, there are minimum score requirements (generally 70 percent) for quantitative tests. Qualitative tests are designated pass-or-fail tests that may add bonus points to the overall testing process. Once all testing is completed, a cumulative score is generated for each candidate. From the cumulative scores, a hiring list is established in ranked order based on total points, with the highest score occupying the top spot. Departmental hiring policies generally mandate candidate selection in a defined order, starting with the top-ranked candidate. Variations on department hiring policies sometimes allow selection from any one of the top three or five candidates as determined by the fire chief or civil service commission.

Each year, thousands of people apply to fire departments across the United States in an effort to become one of the 1.1 million firefighters in the profession.[106] Those who apply are drawn by a solid benefits package, job security, and a flexible work schedule.[107] Preparation for the testing process requires a tremendous physical, intellectual, and psychological commitment.[108] The tests and interviews are designed to produce candidates who can assimilate into the organization's culture. Once the testing process is complete, hiring a firefighter is a laborious and costly process.

In addition to human resource costs, the hard cost to hire a qualified firefighter is estimated at $6,000.[109] This sum includes $3,000 for gear and equipment, $1,500 for training, $1,000 for a National Fire Protection Association (NFPA)–compliant physical exam, and additional expenses for insurance and worker compensation.[110] The firefighting gear worn by new hires is tailored to each individual's height, weight, and body type. Custom-fitting protective gear reduces the likelihood of exposed skin during

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[105] Booth and Rohe, "Recruiting for Women and Minorities in the Fire Service," 60.

[106] Haynes and Stein, "U.S. Fire Department Profile—2014," 3.

[107] Firefighters' work schedules are 24 hours on, 48 hours off, to total a 56-hour workweek.

[108] Myers, "A Burning Desire," 358.

[109] Jennifer R. Young, "Jefferson County Battling High Cost of Hiring Volunteer Firefighters," *The State Journal* 32, no. 49 (December 22, 2016): 1.

[110] Jake Rhoades and Kim Favorite, "A Fire Department's Guide to Implementing NFPA 1582," IAFC, September 2015, 6, https://www.iafc.org/docs/default-source/1safehealthshs/shs-fdguidetoimplementingnpfa1582.pdf?sfvrsn=5c60df0d_2.

firefighting operations. For this reason, turnout gear is difficult to exchange with other personnel if there is attrition or turnover. The decision to bring a newly hired firefighter into the organization is an expensive one.

The NFPA is a "global non-profit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire, electrical, and related hazards."[111] In the early 1990s, the NFPA published Standard 1582 to address firefighter occupational health and safety, referencing physical examinations. All firefighters engaged in emergency operations must complete a physical evaluation specific to the functions performed by firefighters. Essential job tasks for firefighters vary slightly depending on the scope and scale of the department's service delivery. However, the NFPA has identified 13 essential job tasks that apply to a majority of firefighters (defined in chapter 5, section 1 of the standard).

For the 2007 edition of NFPA 1582, all medical conditions that determine an entry-level or incumbent firefighter's ability to perform essential job functions were reviewed and updated.[112] The following job functions are recommended considerations for fire department physicians evaluating a firefighter's capacity to meet the physical, mental, and intellectual components of the job.[113]

- Wearing a self-contained breathing apparatus (SCBA) while engaged in firefighting tasks, rescue, and other emergency response actions under stress, which requires a tolerance for increased respiratory loads
- Being exposed to toxins, irritants, particulates, biological hazards, and heated gases
- Wearing 50 pounds of equipment while ascending more than six flights of stairs
- Wearing encapsulating and insulated fire-protective equipment

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[111] "About NFPA," National Fire Protection Association, accessed October 19, 2017, http://www.nfpa.org/about-nfpa.

[112] National Fire Protection Association (NFPA), *NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments* (Quincy, MA: NFPA, 2006), 2, http://hamyarenergy.com/static/fckimages/files/NFPA/Hamyar%20Energy%20NFPA%201582%20-%202007.pdf.

[113] Ibid., 5.1.2.

- Extricating victims weighing more than 200 pounds
- Advancing water-filled hose lines up to 2.5 inches in diameter for 150 feet over obstacles
- Climbing ladders and operating from heights
- Engaging in acute emergency activities in the absence of stretching
- Operating fire apparatus in emergency mode
- Recognizing time sensitivity and applying critical thinking and problem solving in stressful situations
- Facilitating communication while wearing personal protective equipment
- Functioning within a team for which incapacitation can result in death[114]

NFPA 1582 defines a comprehensive but not exhaustive set of criteria for conducting medical evaluations on entry-level firefighters. The candidate must complete the physical and medical examination prior to being placed in probationary training or responding to fire department emergency activities.[115]

B. TESTING

For decades, becoming a full-time firefighter has been a difficult process. There are no formal statistics on candidate success rates, but all firefighters today can recall the highly competitive testing gauntlet they navigated to ultimately get job offers. Understanding why there are more failed than successful candidates requires an examination of the testing process, as well as the preparations made by those involved in the process. Fire departments traditionally run prospective candidates through a series of tests that evaluate their minds, bodies, and personalities or attitudes. Each category is equally important in hiring a highly competent and capable firefighter.

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[114] NFPA, *NFPA 1582*, 5.1.1.

[115] Ibid., 6.

1. Written Test

The written test administered by municipalities or fire districts varies from community to community. There is no standard content, type of questions, or format. Some tests are simply civil-service exams while others are fire service–specific. Because each test can differ so greatly, it is incumbent on the candidate to prepare for a vast array of cognitive skill evaluations, speed tests, and general knowledge.[116] To cover all the possible areas of knowledge needed to perform at a high level, the potential test sections include the following list of study topics:

- mathematical reasoning: understanding graphs and basic math,
- mechanical reasoning: identifying tools and function,
- reading comprehension: drawing conclusions from written material,
- spatial orientation: performing mapping and navigation,
- situational judgment: making decisions when faced with a dilemma,
- observation and memory: studying and recalling images, and
- personality: assessing character.[117]

2. Written Test Preparation

Preparation for written tests comes in many forms for prospective firefighter candidates. Passing the written test is a critical hurdle for success in the overall hiring process with a municipal or district fire department.[118] Generally, if a candidate fails the written test, he or she loses the opportunity to move on in the process. For most people, failure stems from two issues: being unprepared and/or being nervous.[119] Many unsuccessful candidates struggle with the fact that failure to study properly for the written

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[116] "Firefighter Written Exam Preparation," Job Test Prep, accessed October 19, 2017, https://www.jobtestprep.com/firefighter-aptitude-test.

[117] Ibid.

[118] "How to Pass the Firefighting Exam," FireRescue1, February 13, 2011, www.firerecruit.com/articles/1063914-How-to-pass-the-firefighting-exam.

[119] Steve Prziborowski, "The Two Main Reasons People Fail," Firehouse, June 28, 2014, 1, http://www.firehouse.com/article/11540244/why-people-fail-at-fire-service-testing-interviews.

test negatively impacts the outcome. In these cases, the candidate either studied the wrong material or used ineffective study habits.[120] The second challenge that many new-hire candidates face is nervousness or a lack of confidence during the written test.[121] In the absence of proper preparedness, it is human nature to exhibit lower confidence during the testing process. Candidates who can channel test anxiety into motivation for a higher level of preparation are more successful during the testing process.[122]

3. Physical Agility Examination

Professional firefighting is a demanding job that physically taxes the human body. The importance of maintaining a high level of physical fitness is not only critical throughout a career; it serves as a major evaluation criteria for entry-level testing.[123] A blend of strength, endurance, and agility are key attributes in a firefighter candidate who will perform at high levels during physically taxing situations.

To ensure physical ability is thoroughly examined, a CPAT is used by most fire departments. The CPAT is a timed course consisting of eight events:

- stair climb
- hose drag
- equipment carry
- ladder raise and extension
- forcible entry
- search
- rescue
- ceiling breech[124]

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[120] Prziborowski, "The Two Main Reasons People Fail," 1.

[121] Ibid., 2.

[122] Ibid.

[123] "Firefighter Physical Ability Tests," Modern Firefighter, accessed October 19, 2017, http://www.modernfirefighter.com/firefighter-physical-ability-tests/.

[124] Ibid.

Candidates don a 50-pound vest—simulating an SCBA and turnout gear—and must complete all eight events in under 10 minutes and 20 seconds.[125] The administration of this testing varies between organizations. CPAT certification may be required prior to application and obtained through a third party, or a department can administer its own CPAT during the testing process. In either case, the same criteria are met.

4. Oral Board Examination

Qualitative interviewing attempts to illuminate the subject's point of view.[126] Formally defined as standardized, open-ended interviews, qualitative interviews are used to determine whether a candidate's personality and speaking ability will fit the organization's mission and culture.[127] A set of vetted questions draws out specific information about a candidate and is subjectively scored to create a point total. The goal of the interview questions is to create a framework for candidates to accurately represent their points of view about the organization or community they desire to serve.[128]

Many oral boards for fire departments comprise a panel of scorers and one human resource representative to ensure consistency of questioning. Each scorer represents the fire department's interests either through direct employment (chief officer) or as an appointed, neutral third party (civil service commissioner). Although there are other variations of this setup, this example provides the framework for a high percentage of organizations. Generally, the oral board questions are worded to elicit responses that would not otherwise be found in other areas of the hiring process. Some examples of questions asked during oral boards include:

- How do you think you would fit into the department?
- How do you think you can help make the department better?

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[125] Modern Firefighter, "Firefighter Physical Ability Tests."

[126] Meg Sewell, "The Use of Qualitative Interviews in Evaluation," University of Arizona, accessed October 19, 2017, https://cals.arizona.edu/sfcs/cyfernet/cyfar/Intervu5.htm.

[127] Ibid.

[128] Ibid.

- How will you keep yourself mentally and physically fit during your career?[129]

Applicants who score high on oral board interviews prepare by familiarizing themselves with the community they plan to work for prior to the testing process.

There are significant advantages to qualitative testing that complement the written testing component of the hiring process. Participants have a forum in which to use their own vocabulary through conversation rather than a predefined set of answers in multiple choice questioning.[130] Throughout the questioning session, interviewers have the latitude to use their own knowledge and interpersonal skills to take the interview in different directions.[131] These advantages provide a high level of credibility for the final scoring of oral board testing within the overall testing process. In many cases, the result of an oral board test single handedly disqualifies a candidate who otherwise scored well on the written test and CPAT.

C. PROBATION

Virtually all organizations have a probationary period to evaluate the job performance of newly hired employees.[132] The fire service traditionally uses a six- to 28-month evaluation period for new hires, but the most common length is 12 months.[133] Probationary firefighters are regarded as the lowest-ranking full-time position within the fire department and are in the most vulnerable stage of employment.[134] It is during this time that the character and skillset of the individual recruit is held against the standards of the organization to ensure there is a chance for long-term sustainability.[135]

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[129] Myers, "A Burning Desire," 358.

[130] Sewell, "The Use of Qualitative Interviews in Evaluation."

[131] Ibid.

[132] John Harsch, "Evaluation of Probationary Employees in the Mansfield Fire Department" (research project, Ohio Fire Executive Program, 2005), 18, http://www.ohiofirechiefs.com/aws/OFCA/asset_manager/get_file/18580.

[133] "How Long Have You Ever Seen a Probationary Period for Your Department?" My Firefighter Nation, January 20, 2009, http://my.firefighternation.com/forum/topics/how-long-have-you-ever-seen-a.

[134] "What Are Firefighter Ranks?" FireRecruit, September 26, 2016, https://www.firerecruit.com/articles/128812018-What-are-the-firefighter-ranks#probie.

[135] Ibid.

Potentially, the quality of probationary firefighters can overwhelm long-established mentoring systems, or objective measurements of performance are not established within the probationary system.[136] The probationary period may be, within any individual organization, a focused tool for performance measurement that uses subjective, inefficient, and ineffective methods of evaluation.[137] Probationary evaluations have the most long-term impact on an organization—more so than any of the new-hire testing components—in regards to building a competent, stable workforce.[138] To ensure that a comprehensive and reliable probationary process is established for any organization, the following criteria are recommended:

- Clearly defined and updated job descriptions
- Objective evaluation criteria within a probationary task book
- Objective evaluation training for every supervisor and mentor assigned to a probationary firefighter[139]

Although these criteria are important for a successful probationary evaluation program, they are neither all-encompassing nor one-size-fits-all.

D. PROMOTIONAL OPPORTUNITY

The fire service models the military's rank structure and chain of command.[140] Through the rank structure, firefighters are provided the opportunity for promotion through a combination of service time, test outcomes, and interviews with command staff. The rank structure does not have a direct linear progression equal to that of the military, but it is organized into fire service divisions.[141] In the order of rank, the possible titles and functions within any given organization consist of the following:

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136 Harsch, "Evaluation of Probationary Employees," 6.

137 Ibid.

138 Ibid., 23.

139 Ibid., 24.

140 FireRecruit, "What Are Firefighter Ranks?"

141 Ibid.

- Probationary firefighter—a new hire that is evaluated for six to 12 months
- Firefighter—a post-probationary employee that has not yet made rank
- Driver/engineer—responsible for maintaining and driving fire apparatus
- Lieutenant—responsible for supervising day-to-day operations at a fire station and can be the first command officer on scene
- Captain—can be responsible for special functions (EMS, training, etc.) or day-to-day station activity
- Battalion chief—usually the highest-ranking officer on shift work, tasked with managing personnel moves, oversight of shift captains, and shift scheduling
- Assistant chief—responsible for management and oversight of an assigned division (e.g., operations, logistics, planning, finance)
- Fire chief—highest-ranking member of the command staff, directly responsible for budgeting, strategic planning, and disciplinary issues[142]

Each promotional opportunity has a defined system for upward movement based on merit, seniority, or a combination of the two. The identification, vetting process, and promotion of fire service leaders have a profound impact on all types of organizations—from volunteer to full-time career—and are mission critical to long-term stability.[143] In order to select the most appropriate testing process for the organization, command staff must first determine what criteria is needed to identify the best candidate for advancement. Each type of testing method can place an emphasis on seniority, training certification, education, or experience, all of which affect the candidate selection process. Promotional testing traditionally generates palpable acrimony among certain candidates and increasingly up the rank structure. Identifying the best possible candidates in the testing process requires the established promotional system to be unbiased, transparent, and valid.[144]

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[142] FireRecruit, "What Are Firefighter Ranks?"

[143] Dennis Rubin, "What Is the Best Promotional System? - Fire Service Promotions," Fire Engineering, March 1, 2017, http://www.fireengineering.com/articles/print/volume-170/issue-3/features/what-is-the-best-promotional-system.html.

[144] Ibid.

1. Promotional Considerations

Starting the quest for a promotion in any organization begins with obtaining the minimum requirements for consideration. Traditional benchmarks include:

- years of service (seniority),
- time in grade,
- training certifications,
- formal education, and
- work history or personnel records.

When a candidate reaches the minimum requirements for promotional testing, the organization applies the necessary testing procedures to identify the candidates who are ready for promotion. Just as important, those who are not ready for promotion are also identified. In each case, the organization must ensure credibility is maintained throughout the testing process to reduce acrimony among future candidates.[145]

2. Mentoring

Fire department hiring and promotional systems are built with the intention of bringing in and developing the best firefighters and officers.[146] However, standardized tests and evaluation techniques do not measure an individual's performance in real time or instill the knowledge that comes with time on the job.[147] This point in a young firefighter's career is when formal and informal mentoring can accelerate preparation for testing and knowledge transfer from older firefighters to younger ones.

An early peer-to-peer relationship through informal mentoring is the most common approach used in the fire service.[148] Probationary firefighters will be well served by a robust development program that accelerates professional growth.

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[145] Rubin, "What Is the Best Promotional System?"

[146] Kenneth Morgan, "Mentoring Advances the Quality of Future Fire Service Leaders," My Firefighter Nation, April 12, 2011, http://my.firefighternation.com/profiles/blogs/mentoring-advances-the-quality?q=profiles/blogs/mentoring-advances-the-quality.

[147] Ibid.

[148] Ibid.

Organizations that persistently use mentoring for firefighters in the first years of employment create valuable memory markers by allowing controlled failure followed by corrective action.[149] Failure for a new employee is going to occur whether mentors are involved or not. The difference is that the positive influence fostered by a seasoned employee allows for failure to be controlled and recoverable, not career-ending.

[149] Morgan, "Mentoring."

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IV. DATA COMPILATION AND ANALYSIS

The collection of sources used to examine millennials and fire service attraction, hiring, and retention produced virtually no usable data for comparing and contrasting the two topics. The fire service neither gathers nor publishes any consistent information on its ability to employ millennials. In order to collect significant and impactful data for this thesis, the data collection process began with the construction of a customized survey. This data is critical to answering the research question; it validates the size and scope of attraction, and hiring and retention challenges in the fires service, if a problem in these categories exists. The survey produced both qualitative and quantitative data from the respondents, which were fire departments that encompass three to ten fire stations serving between 25,000 and 100,000 residents within the response district.

A. SURVEY DISSEMINATION

Establishing the total pool of survey candidates began with reaching out to points of contact within a warm-call environment. The first pool of survey candidates came from the Naval Postgraduate School (NPS) alumni and current master's program list. This list provided a set of people familiar with graduate thesis research to begin data collection rather than relying on a sterile blanket email connected to an online survey. The intent of this method was to personalize the survey to each respondent in order to gather more accurate data. A search of the NPS list produced 21 fire departments comprising three to ten fire stations within established populations of 25,000 to 100,000. The second pool of survey candidates came from snowball sampling as requested of the first group. All 21 survey candidates from the first pool were asked to provide responses to the survey directly and send them to colleagues or neighboring departments within the scope. The third pool of survey candidates comprised personal colleagues in the fire service in Michigan, Arizona, and Massachusetts. The fourth pool of survey candidates consisted of contacts through Fire Chief Jake Rhoades and his affiliation with Columbia Southern University, the Center for Fire Accreditation International, and various chief officer organizations throughout the United States.

The random probability sampling used for this survey was designed to gather data from a large demographic of the United States. Although not every state could be surveyed within the 50 samples, four major subsections are represented, with the intent of even distribution from each. The quadrants illustrated by the NFPA map (northeast, midwest, south, and west) were used as a benchmark of equal coverage through the survey responses (see Figure 3).

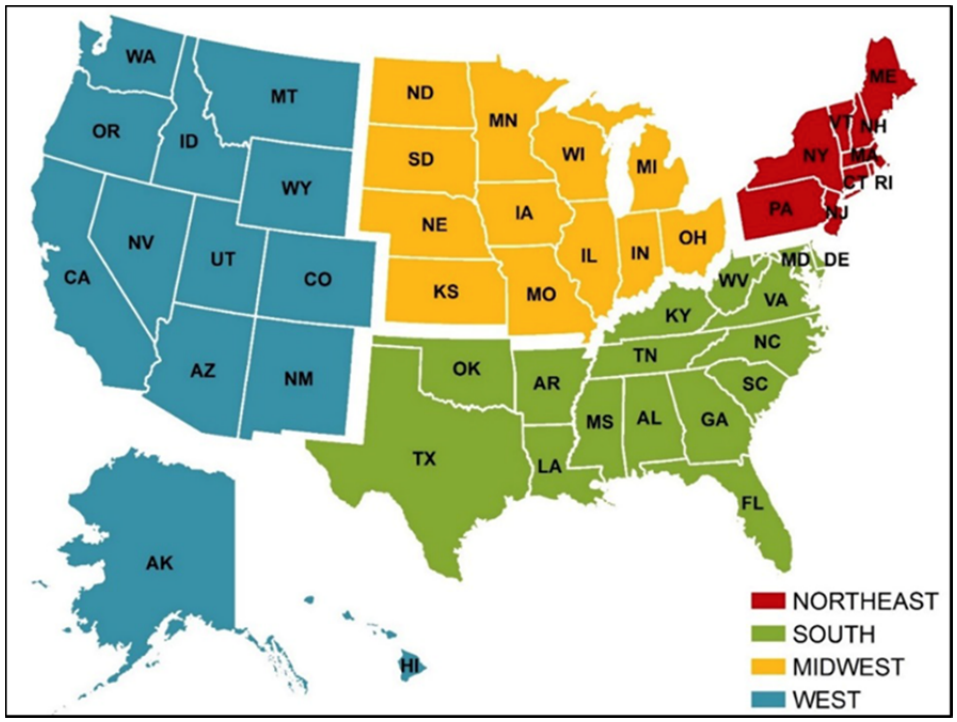

Figure 3. NFPA Map

During the probability collection phase, some of the collected surveys came from fire departments outside the scope of the desired size. These surveys were not used in the final analysis. However, the responses were compared to survey data within the defined scope to establish tangible correlations. These outliers are addressed in Section B.

Non-probability sampling was the second method used to collect surveys. More specifically, purposive sampling—within the non-probability process—was used to seek

out a predefined group.[150] Snowball sampling—a form of non-probability sampling—was also used in the data collection to reach parts of the United States that were otherwise inaccessible through the original survey dissemination methods. Asking one member of the target group to pass the survey to another known member of the target group is an example of snowball sampling.[151] This type of sample selection was executed through discussion with personal contacts collected over a 25-year career and with alumni of the Naval Postgraduate School currently in the fire service. The discussion focuses directly on the survey questions and the thesis topic.

The use of a customized survey instrument required a significant initial time investment to construct and disseminate. Thoughtful consideration for the type of questions asked with prediction of the quality of response for each question factored into the design of the final survey instrument. Once completed, the survey responses were sorted by question and response type for analysis. Separating qualitative and quantitative data in the absence of a direct conversation with the respondent is a subjective process during which an educated guess must be applied to the intent of a response. Each question in the survey was isolated and analyzed based on the compilation of data provided by the 27 respondents. From this information, trends in the methods used to attract, test, and retain newly hired fire fighters began to take shape.

B. DATA COLLECTION AND LIMITING FACTORS

The total number of surveys sent or the percentage of surveys received is undetermined. The methods used to disseminate the surveys included direct (one degree of separation) contact with colleagues, NPS alumni, and personal contacts; referrals from those contacted directly (two degrees of separation); and permission to those directly contacted to send out emails to large groups of fire chiefs and other primary decision makers in the fire service (three or more degrees of separation). This method of survey dissemination does not allow for persistent tracking of the volume of potential respondents. However, the total number of surveys disseminated is estimated between

[150] Social Research Methods, "Probability Sampling."

[151] Ibid.

500 and 1,000 based on direct conversation with respondents and email correspondence with colleagues. Surveys were sent out June 15, 2017, with all respondent surveys due August 14 by email. The total number of respondents received through this method was 27 out of desired 50.[152] The 27 respondents represented the following demographics:

- Northeast (4)
- Midwest (8)
- South (7)
- West (8)

There is no single indicator that provides an answer to the failure to reach the desired number of 50 respondents. The choice of mode—a simple fillable Word document—affected who could be interviewed, how contact was made, and the type of person that responded to the survey.[153] In this data-collection process, a singular mode of outreach was used. However, more dual-mode surveys are in use today for the purpose of increasing response rates.[154] A decline in survey response rates is not unique to this survey; a number of factors could be attributed to the low response rate experienced in this data collection process, including:

- fire chiefs faced with increasing demands on their time,
- the single mode of contact,
- possible respondents who are uninterested in the topic, and
- possible respondents who are unable to respond by the August 14 due date.

Although only 27 of the 50 surveys targeted for data collection were returned, the data produced trends that have significance to the research question. Each of the 10 questions elicited information that served as the basis for this chapter. At first glance, the receipt of just more than 50 percent of the desired respondents would seem to be a failure

[152] Using Yamane's formula for sample size calculation, data from 50 fire departments will have a confidence interval (margin of error) in the range of +/- 13 percent with a confidence level of 95 percent.

[153] "Collecting Survey Data," Pew Research Center, accessed October 21, 2017, http://www.pewresearch.org/methodology/u-s-survey-research/collecting-survey-data/.

[154] Ibid.

of the survey instrument or the dissemination methods. But looking at the results, there are reasons to believe the opposite is true. In this small sample size there are trends that support the research question. As a career firefighter for more than 25 years, I made predictions that held merit in the survey. For example, the basic methods used to attract talent are stale and lack creativity. The survey results show that a high percentage of respondents mainly use newspaper advertisements and department websites as the main attraction tools—predictable responses prior to the culmination of data; the data illustrating lack of marketing creativity reinforces the idea that this small sample size is a healthy indicator of validity. These types of trends carry out through many of the survey questions.

With just 27 responses out of the desired 50, there are problems that arise in the quality of the data. First, using Yamane's Formula, the margin of error in the data changes from approximately +/- 13 percent to +/- 19 percent with a confidence level of 95 percent. This change does call into question the validity of the data when compared to the initial desired standard of quality. Second, the low volume of responses makes it difficult to track certain desired trends. For example, when asked how many candidates pass or fail the written test, only seven of the 27 respondents gave an answer other than "unknown."

This exploratory thesis is the first known attempt at a comprehensive examination of the challenges that face the fire service when recruiting millennials. In essence, the football is being moved from the goal line to the five-yard line with this research. Significant research is open for continuation relating to the trends found within the areas of recruitment, testing, and retention. Also, the diversity in respondents is particularly notable. All four quadrants of the United States are represented, without significant disparity. There does not seem to be a geographic bias of data and the evenly distributed responses would indicate an equitable representation among the 1,850 fire departments within the initial scope.[155]

[155] Haynes and Stein, *U.S. Fire Department Profile—2014*, 21.

C. SURVEY CONSTRUCTION

The survey used for data collection was designed to examine four main components of fire department attraction, testing, and retention:

- marketing methods,
- testing methods,
- attrition rates, and
- change agents.

Each question was designed to examine current fire department practices without directly interviewing human subjects. The written answers to each question were documented as numerical values and categorized within an Excel spreadsheet to visually represent patterns within the four categories on a national level.

(1) Question #1: What are the departments' hiring needs?

This question was designed to take a current snapshot of acute hiring needs and compare them to attrition rates found discovered later in the survey. This question was also designed to illuminate regional needs within the four quadrants identified by the NFPA map.

Results

A majority of the respondents indicated limited acute hiring needs. Just more than 53 percent of respondents reported the total anticipated vacancies to be between one and five in the next hiring cycle and 85 percent of the respondents anticipated needing ten personnel or fewer (see Table 3). The question's wording was deliberately vague to elicit more detail in the response. The results convey that most departments surveyed are not in a 25- to 30-year retirement hiring cycle within the next application period. It is typical to see 15- to 25-percent turnover rates in a given year when a fire department is within its major hiring cycle.

In addition to the empirical number each department provided for the volume of firefighters needed in the next testing process, most departments provided additional narrative detail relating to hiring needs. For example, several respondents described

changes in applicant credentialing, to include paramedic certification, wild land firefighting certification, and/or requirements to take written tests through a third party prior to application. These additional requirements may have been included as cost-saving measures for the fire municipality or district, but could have an adverse effect on recruitment.

Table 3. Hiring Needs

Q1-Hiring Needs	FRQ
1 to 5	15
5 to 10	8
11 or more	4
Total Respondents	**27**

(2) Question #2: Which departmental hiring practice results in the highest number of disqualifications?

Fire department testing models vary greatly from district to municipality and from state to state. The inconsistency of the testing process creates a measure of uncertainty for candidates during the test-preparation phase of application. This question was designed to discover a correlation between the type of testing process used and attrition rates during single or multiple components of the process itself.

Results

Disqualifications during the testing process directly correlate to the reliability and quality of the employee pool.[156] The survey results did not identify a single key indicator of new-hire failures in the testing or application process (see Table 4). Based on frequency alone, the written test produced the highest number of disqualifications among those surveyed but the respondents rarely listed only one component. Only 25 percent of the respondents listed a single mode of testing as a primary disqualification component.

[156] Lisa Guerin, "Workplace Testing: What Your Employer May Require," *NOLO*, accessed October 21, 2017, http://www.nolo.com/legal-encyclopedia/workplace-testing-employer-requirements-29496.html.

The remaining 75 percent provided two or more notable failure points in the testing process. An equal number of responses (eight each) indicated physical agility testing, oral communication skills, and background checks as contributing factors to candidate disqualification. Because each of these tests are vastly different indicators of candidate pool talent or viability, this data would require a hypothesis comparing multiple points of testing failure to the millennial generational traits to draw a realistic conclusion.

Table 4. Hiring Practice Disqualifications

Q2-Hiring Practice Disqualifications	FRQ
(Choose all that apply)	
Written	11
Oral interview	8
CPAT or other physical	8
Psychological test	3
Background	8
Practical skills test	4
Application process	2
Total disqualifications	44
Total Respondents	**27**

(3) Question #3: How does your organization market or publicize the new hire testing process?

Fire department marketing can come from a vast array of media types, such as:

- department websites,
- social media.
- print media,
- word of mouth,
- direct recruitment,
- state postings, and
- TV or radio.

Though comprehensive, this list does not include all types of marketing available to the fire service. The method used to attract new hires may differ based on a fire department's business model. Municipal fire departments and fire districts both use internal decision makers, including human resources, the fire chief, and other command staff, to determine the best methods for maximum outreach to the potential candidate pool.

Results

Marketing is a key element of any successful business and those who have a clear marketing strategy separate themselves from their competition for market share of the industry talent pool.[157] The fire service is a business within the public-service sector but operates in many ways just like a private business. One main comparison in this respect is the need to attract talent. Unlike many successful private businesses, however, the fire service tends to get caught up in day-to-day emergency response and operations, which takes time away from formulating market strategies for future needs. When assembling a marketing strategy, it is important for an organization to consider

- the defining characteristics of the organization,
- the competitors for talent pool market share, and
- the unique benefit the organization offers.[158]

Every survey respondent indicated using multiple types of marketing channels—averaging 3.8 marketing selections per respondent—in an attempt to reach the largest possible candidate pool (see Table 5); the survey did not identify the various combinations' effectiveness. Many departments indicating using Internet marketing through social media and department-sponsored websites. Out of 103 total responses, 50 were related to websites and Internet-based marketing. It is notable to point out that, although the use of social media as a marketing tool would increase outreach to millennials, more than 50 percent of the respondents reported a decrease in the volume of applicants compared to 15–20 years ago (see Question #5). This data indicates that social

[157] Greg Head, "5 Keys to a Great Small Business Marketing Strategy," *Small Business Trends*, September 10, 2014, https://smallbiztrends.com/2014/09/5-keys-great-small-business-marketing-strategy.html.

[158] Ibid.

media as a method of outreach may be no more effective than newspapers were before the inception of the Internet. Direct contact only showed up in eight out of 27 responses. This number indicates that the fire service is reluctant to invest time in personal recruitment. In collegiate athletics, the best talent is often recruited through one-on-one meetings in high school settings; the best high school athletes do not find their way to collegiate athletic programs using websites. The fire service can similarly invest research or direct contact into their local high schools to scout potential candidates who have the mental and physical tools to succeed.

Table 5. Marketing of the Testing Process

Q3-Marketing of Testing Process	FRQ
(Choose all that apply)	
Newspaper	18
State Posting	11
Direct contact	8
Social Media	16
FD website	22
Word of mouth	13
Other websites	12
NTN (National Testing Network)	3
Total Respondents	**27**

(4) Question #4: Describe the testing process for new hires.

This question was designed to elicit responses about nontraditional testing procedures; if nontraditional approaches are shown to be successful, using creative testing models could be a change agent to consider for archaic or ineffective testing practices.

Results

Testing for new applicants in the fire service is not standardized. There are trends that hold true for many departments—such as rating core competencies—but each department can also include customized testing beyond the core competencies.

The survey results illustrate that the fire service gravitates toward decades-old testing methods: 92 percent of respondents reported using a written test, 85 percent an oral board, and 70 percent a CPAT or physical agility test (see Table 6). Identifying the most-qualified candidates is an inexact science. Each department determines the desired candidate and skillset and constructs testing accordingly. Standard civil-service written testing can be administered in an open, public arena, with any number of candidates testing simultaneously. Access to information regarding the testing process, its content, and individual performance is public record.[159] This access allows a candidate to prepare for the basic written exam more comprehensively than for private-sector opportunities. However, this information is only relevant to the specific testing process of the district or municipality providing the information. The validation strategy for the fire service—or any public-service agency—is to use a content-oriented test so that candidates are tested for immediate job readiness.[160] The fire service requires a high degree of content knowledge and application of skill that makes test validation a necessity. Because entry-level testing in the public sector is administered with limited resources (personnel) in many instances, it is difficult to conduct focused research on additional types of test

[159] "Using Tests Effectively in the Public Sector," Society for Industrial and Organizational Psychology, accessed October 21, 2017, http://www.siop.org/workplace/employment%20testing/using_tests_effectively_in_the_p.aspx.

[160] Ibid.

validation.[161] The ambiguity surrounding how each individual test identifies desired talent within the hiring pool may contribute to the survey results. Respondents' gravitation toward written testing, oral examinations, and physical agility testing as the main evaluators in the hiring process may be more for convenience and familiarity than for identifying the best talent in the hiring pool.

Table 6. Type of Testing Process

Q4-Type of Testing Process	FRQ
(List all that apply)	
Written	25
Oral interview	23
CPAT or other physical	19
Chief interview	8
Background	7
Practical skills	9
Psychological	6
Total Respondents	**27**

(5) Question #5: In the last five testing cycles, what is the average number of applicants? Is this average less or greater than the number from 15–20 years prior?

Hypothesis #1: Fewer millennials are attracted to the fire service compared to previous generations due to misalignment of generational traits and the fire department business model.

In order to validate the hypothesis that the fire service is struggling to find millennial talent, a comparison must be made between hiring pools today versus those of 20 years ago (approximately one generational period). It is important to note that this question did not address three potential contributing factors in the change of applicant pools. First, credentialing prior to application has changed in the past twenty years from

[161] Society for Industrial and Organizational Psychology, "Using Tests Effectively."

high school diploma and a basic emergency medical technician (EMT-B) license to firefighter I and II certification. Second, educational requirements may require college courses near or at associates degree levels in applied fire science or related studies. This education can also be an elective component and add points to the total scoring matrix in the hiring process. Finally, some departments have increased minimum scoring from 70 percent to 75 percent or higher to reduce the number of applicants moving on to more expensive components of the testing process. However, as an exploratory thesis, this question simply compares quantities of applicants between generations. Future theses can investigate causal factors in more detail.

Results

For the fire service to continue providing a high level of response to the communities it serves, bringing in the best talent pool possible is critical. This talent pool starts with a quantity of applicants that facilitates intense competition in the testing process to produce a hiring pool with skills needed to deliver a high level of service over a 25-year career. As the fire service continues to evolve and transition into hiring millennial talent, a shift from evaluating competency-based skillsets to identifying those who have potential to learn new skills is an emerging trend.[162] Several examples of the desired expanded skillset include curiosity, insight, and determination.[163] Large hiring pools provide more opportunities for attracting the talent base needed to restock firefighters after attrition losses.

The results to this survey question illustrate a disturbing trend that started as one of the focal points of this thesis: fire service applicants have diminished in number in the past one or two decades. Even more alarming is the fact that 52 percent of the survey respondents stated that the average number of applicants has diminished in the past five years (see Table 7). Just as notable is the actual number of applicants per fire department found in the responses. As a point of reference, in 1991 I tested against approximately

[162] Dinah Wisenberg Brin, "Why You Should Hire For Potential, Not Experience," Fast Company, September 22, 2014, https://www.fastcompany.com/3035990/why-you-should-hire-for-potential-not-experience.

[163] Ibid.

1,000 applicants. In this survey, 60 percent of the respondents produced fewer than 50 applicants. The specific reasons for the downward trend in applicants cannot be extrapolated from the survey data; however, marketing and applicant testing methods found in other parts of the survey cannot be ruled out as contributing factors.

Table 7. Average Number of Applicants

Q5-Average Number of Applicants <5yrs vs. 20 years ago	FRQ
Greater than	2
Less than	14
Same	5
Unknown	6
1 to 10	3
11 to 20	4
21 to 49	9
50 or over	11
Total Respondents	**27**

(6) Question #6: In the last five testing cycles, what is the average percentage of applicants who passed the written test? Is this average less or greater than the number from 15–20 years prior?

Hypothesis #2: High failure rates within fire service–specific or general civil-service written exams are a contributing factor to lower numbers of millennial applicants.

The written test for application to the fire service or any civil-service position is virtually a universal standard (based on the 92 percent of respondents who indicated they use this testing method). This question was designed to correlate past and current candidate success rates for this type of testing. If written tests prove a potential threat to future applicant pools, they are a potential focal point for changes in the testing process.

Results

Issuing standard civil-service tests is a common practice for fire department entry-level examinations, but these tests can also include fire service–related questions. In essence, there is no absolute method for administering a written test. Testing can be conducted onsite or in a neutral third-party location. Applicants must individually prepare for each testing process based on the organization for which they are testing. This question produced a high percentage of uncertain responses, with 74 percent of respondents stating they do not know the historical data on written testing (see Table 8). This data indicated that most administrative chiefs or human resource specialists are either not provided the testing results through their third-party administrator or are apathetic to in-house testing data. In both cases, written test data—or lack thereof—is not responsible for data-driven decision making for future testing. In a previous survey question, 25 out of 27 respondents indicated they use written testing as a component of the hiring process, yet only seven respondents understood the related historical context.

Table 8. Percentage of Applicants Who Pass the Written Test

Q6-Percentage of Applicants Who Pass the Written Test <5yrs	FRQ
Greater than	3
Less than	2
Same	2
Unknown	20
Total Respondents	**27**

(7) Question #7: Has the testing process changed in the past five years? If yes, from what type to what type?

Although the fire service is known for resistance to change, not all fire department hiring models remain perpetually static. Proactive change does occur when needed to test new methods in anticipation of future needs. Reactive change may be a result of chronic

or acute needs from previous testing processes. Although this survey was not designed to separate the two types of change, understanding the percentage of respondents that have successfully changed their testing process in the past five years may inform a strategy for other organizations to consider.

Results

Hidden within the face value of this survey question is the notion that all organizations should strive for continuous improvement in their testing processes to include data-driven changes that identify the best talent in the applicant pool. Of the respondents, 52 percent stated that tangible changes have been made in their testing processes within the past five years (see Table 9). The majority of the narrative responses spoke to changes in the written test (eight of 14 respondents). Significant change in written testing was accomplished by either administering the test through a third party—the National Testing Network (NTN)—or by bringing the written test back from NTN to an internal process. These responses give the appearance that there are mixed results in both arenas without repeatable success.

New testing approaches have stemmed from a desire to align current technology with traditional ethics.[164] Among the ideas for improvement are providing equal access to study material and the development of a better individual test.[165] Focusing on the second recommendation of test development, each organization must ask itself what the desired outcomes are and rethink the process backward. Understanding the essential traits that need to be examined requires key decision makers (fire chiefs or human resource specialists) to meet and confer at least annually. The following key questions could be asked:

- Are multiple-choice tests the best way to assess key qualities?
- What other ways could key qualities be gained?
- How can candidates be kept from gaming the system?

[164] Linda Willing, "Is There a Better Approach for Fire Department Testing?" FireRescue1, May 3, 2017, https://www.firerescue1.com/firefighter-training/articles/241096018-Is-there-a-better-approach-for-fire-department-testing/.

[165] Willing, "A Better Approach."

- Does the order of testing have an impact on outcomes?
- How often should the testing process be evaluated?[166]

Maintaining an effective and current testing process is difficult in the digital age. There is a constant struggle to ensure technology and department values do not misalign—that convenience is not traded for a quality product. Focusing on data-driven continuous improvement within the testing process starts with the recognition that a candidate pool problem exists. In this section of the survey, more than 50 percent of the respondents acknowledged that their testing processes do not fulfill the needs of the department.

Table 9. Change in Department Testing Process over the Past Five Years

Q7-Change in Testing Process Past Five Years? (Y or N)	FRQ
Yes	14
No	13
Total Respondents	**27**

(8) Question #8: What is the attrition rate during the probationary period of new hires? Is the attrition rate less or greater than the attrition rate from 15–20 years prior?

Probation can last up to 12 months for newly hired firefighters. If this period is producing higher levels of attrition today than it was 20 years ago, challenges exist between the traditional probationary practices and millennial retention. Every probationary period includes a slightly different set of practices and standards. However, it is a common "rite of passage" for young firefighters to experience the most difficult aspects of the profession during this time. This area of the fire department business model has remained static for decades. Much like testing during the hiring process, traditional

[166] Willing, "A Better Approach."

probationary practices are worth examining to explore the idea that attrition during probation could be leading to challenges in retaining the best talent.

Results

For the first 12 months of their career, firefighters learn the skillset needed for emergency operations specific to the department that hired them, but, just as important, they learn how to co-exist 24–48 hours at a time with their fire company. During the probationary period, any number of challenges can lead to voluntary or departmental dismissal.

Of the survey respondents, 33 percent indicated they are experiencing higher rates of attrition now than they were 20 years ago (see Table 10). This data illustrates the need to examine if the probationary period effectively evaluates the millennial skillset in the first year of employment. If this trend continues, the current problem of attracting applicants for initial testing (Question #5) could be exacerbated by increasingly higher rates of probationary attrition. In the tech age, the type of treatment experienced during probation is easily shared among current and future candidates.

Table 10. Attrition Rate during Probation

During Probation	
Q8-Attrition Rate Today vs. 20 Years Ago	**FRQ**
Greater than	9
Less than	2
Same	14
Unknown	2
Total Respondents	**27**

(9) Question #9: After successfully passing probation, what is the average number of firefighters lost through voluntary resignation? Is there a difference in the rate of loss compared to 15–20 years ago?

This question examined the loss of post-probation firefighters. Survey data from this question was compared to Question #8 to determine whether probation or factors that occur after probation are more significant to firefighter attrition.

Results

After they pass probation, firefighters officially begin the next 24+ years of service leading to retirement, provided the firefighter chooses to stay in the profession. Full acceptance by the organization, peers, and individual fire company personnel unofficially begins once probation is completed. It is at this time that firefighters begin to concentrate on honing their skillset and even looking toward the requirements for promotion.

Voluntary resignation during a new hire's post-probation period is uncommon but occurring increasingly. Approximately 37 percent of the respondents stated their departments have seen voluntary resignation once a firefighter passes probation (see Table 11). Comparing this data to Question #8's, high attrition rates are trending upward for post-probation firefighters, which aligns with the results shown for attrition during probation. The causes of firefighter attrition were not directly sought in the survey, but nine of the ten respondents in the "greater than" category cited loss to larger surrounding departments as the key factor. Only one respondent cited loss to an outside form of employment, but the outside employment was still in the healthcare industry. This data supports the scope of the surveyed fire department representatives—departments of three to ten fire stations in size—as the focal point of the research question. Larger urban areas do not appear to be losing hiring pool candidates at the levels seen in smaller departments.

In 2014, a national survey conducted by FireRescue1 asked the question: "What would make you quit firefighting?"[167] The idea for this survey came shortly after a published article on the resignation of seven firefighters from Washington Park, Illinois. The top 13 responses were sorted and published to illustrate the most common breaking points for firefighters who choose to resign after probation.[168] Some notable responses centered around hazing and acceptance into the in-group. When a firefighter no longer enjoys being in the profession, resignation or substandard work can be the result.

Table 11. Post-probation Attrition Rates

Post-probation	
Q9-Attrition Rate Today vs. 20 Years Ago	**FRQ**
Greater than	10
Less than	3
Same	13
Unknown	1
Total Respondents	**27**

(10) Question #10: Does your organization plan to change any part of the marketing, hiring, or retention process in the next one or two years? If yes, what are the type of changes being considered?

Acknowledgement of higher-than-normal attrition rates and diminished hiring pools are indicators for necessary change in attraction and testing methods. This question examined if a trend exists in organizational changes triggered by reduced success in the attraction and retention of millennials.

[167] "What Would Make You Quit Firefighting?" FireRescue1, November 10, 2014, https://www.firerescue1.com/fire-department-management/articles/2019845-What-would-make-you-quit-firefighting/.

[168] Ibid.

Results

The fire service—as a profession—is resistant to change.[169] It has been called an organization with "100 years of tradition unimpeded by progress."[170] But change is an unavoidable, necessary part of continuous improvement. Each respondent was simply asked whether change in the testing process is planned in the next 12 months; 59 percent indicated "yes" (see Table 12). Factoring in a cultural resistance to change, this high percentage may provide insight into a changing culture within the administrative and human resource discussion groups. This data shows fire service decision makers are exhibiting signs of prioritizing talent acquisition by making changes to the testing process.

Firefighting is based on calculated risk: high risk/high reward, low risk/low reward, and no risk/no reward.[171] This concept generally applies to life safety but can also inform changes to written, physical agility, and oral board testing. Once an organization builds the conceptual makeup of the perfect firefighter candidate, the testing process should then be constructed around that ideology; doing so involves understanding calculated risks and knowing upfront that the desired results may not be produced, despite increased expenses. However, reluctance to attempt change in hiring and testing processes may be more costly in the long run. Complacency or apathy in one organization opens the door for the best talent to gravitate toward other organizations or, even worse, other professions.

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[169] Jason Zigmont, "The Traditions That Hold Us Back," FireRescue1, January 4, 2010, https://www.firerescue1.com/volunteer/articles/737135-The-Traditions-That-Hold-Us-Back/.

[170] Ibid.

[171] Christopher Naum, "Risk," Fire Engineering, February 9, 2009, http://community.fire engineering.com/forum/topic/show?groupUrl=commandsafety&id=1219672%3ATopic%3A121740.

Table 12. Plans to Change the Testing Process

Q10-Plan to Change Testing Process (Y or N)	FRQ
Yes	16
No	10
Unknown	1
Total Respondents	**27**

D. SURVEY SUMMARY

Sorting and compiling the raw data from all 27 survey responses provided key indicators of proactive or reactive change for this exploratory look at attraction and retention of millennials in the fire service. First, based on the generational traits of millennials, there is a need for employers to determine who the best candidates are within the talent pool when testing for open positions. Traditional methods would generally include using only empirical data to select the top performers. However, the survey could reveal flaws in the testing processes of individual or collective fire departments by showing trends that lead to successful outcomes or failures within the testing processes themselves. Because the survey results contain an equal representation of respondents from all four geographic regions of the United States, there is a lower probability of regional bias. Additionally, changes in the marketing or testing process that lead to a larger candidate pool could be used to establish new attraction and hiring processes in fire departments that are experiencing low candidate turnout. This data, in raw form, provides a vehicle for internal discussions among key decision makers in fire departments throughout the United States.

A question was asked of survey respondents when gathering data for this thesis: "In the last five testing cycles, what is the average number of applicants? Is this average less or greater than the number from 15–20 years ago?" The majority—51 percent--provided a response supporting hypothesis #1, that the current applicant pool is smaller

than it was 15 to 20 years ago. Some respondents stated they had a drop in applicants as high as 90 percent compared to 20 years prior. Only two out of 27 respondents stated their applicant pool was larger when compared to 20 years prior. The causation of this downward trend could be considered a regional problem, but the data collected is from a fairly equal cross-section of respondents in the United States. Each quadrant of the United States represented in the survey shows signs of decreased millennial applicants.

The construction of this qualitative and quantitative survey to support the research question is both a condition of need through lack of open-source data and a focus on predicted variables within fire service attraction, hiring, and retention of millennials. This data simply does not exist in once place through any other source. Attraction methods are, at best, standardized among the respondents, with newsprint and organizational websites cited most frequently. Creativity and outreach beyond normal boundaries are choke points in most respondents' marketing programs. A majority of organizational hiring processes include three major components of testing: a written exam, a physical agility test, and oral boards. Focusing on the written test, changes in the way written tests are administered vacillate between internal offerings and state or national testing agencies. Neither option produces a significant advantage over the other. A correlation between written test results and varied candidate success after initial hiring could be drawn. This data calls into question the validity of testing when identifying the best candidates for long-term success. Proactive changes in the testing process are needed and already in place for 59 percent of the respondents. Retention of new firefighters is declining during probation and post-probation periods. Testing methods must remain a focus for organizations looking to align millennial traits with organizational needs to reverse the negative trends found within the survey data.

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V. CONCLUSIONS

The research in this thesis produced three main conclusions. First, the fire service—within the defined scope of the survey—is not attracting the number and quality of applicants that it did 20 years ago. Second, the generational traits of millennials do not fully align with the traditional business model of the modern fire service. Parents direct their children toward the college education many of them did not get themselves. This is a competing interest with trade-based professions like the fire service. The five forces of influence that shaped millennials during their childhood are rendering recruitment methods ineffective in maintaining a stable workforce. Finally, the fire service testing process does not necessarily identify the most-desired traits in a candidate. The traditional written exam, physical agility test, and oral board schematic have remained unchanged for decades. Using a systematic evaluation process—like that found in continuous quality improvement—is an important step in making fundamental changes to fire service testing. Although a high percentage of survey respondents are proactively changing their testing model, additional adjustments on a wider scale are necessary.

A. HIRING NEEDS VERSUS MILLENNIAL APPLICANTS

The hiring needs of the fire service are arguably at an all-time high as call volumes increase on a national level, almost doubling since 2001.[172] Staffing challenges are most significant within the volunteer, paid-on-call, and smaller suburban fire department models.[173] Although staffing shortages are a national problem in the fire service, there may not be a more glaring example of the critical need for firefighters than in Washington County, Maryland. Staffing for the 26 fire departments and emergency medical service companies in Washington County is now the number one priority as failed responses to 9-1-1 calls increase.[174] Staffing shortages are a grave concern for not

[172] "Fire Department Calls," NFPA, last updated June 2017, http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/the-fire-service/fire-department-calls/fire-department-calls.

[173] Julie E. Greene, "Emergency Services Staffing a Top Concern," *Herald-Mail*, July 16, 2017, Front Page, 2.

[174] Ibid., 1.

only the 26 fire departments affected, but also for the surrounding mutual-aid partners that are called into service more often to fill in response voids.

Retirements and medical concerns combine to create a majority of fire service vacancies; however, competition from other public-service career paths is drawing viable candidates to other opportunities. EMS providers—supplements to non-transporting fire departments—bring competitive wage and benefit packages into the public-service arena.[175] As the fire service continues to struggle to attract the best talent for an all-hazards response model, individual organizations must balance attrition rates with the costs of hiring new employees. The fire departments surveyed consistently reported the need for an average of two or three new firefighters per year. As the last of the baby boomers retire and Generation X promotes into positions of leadership, the number of vacancies per department in the fire service will persist. Regardless of the number of firefighters needed in any individual department, there is a growing trend of need outnumbering supply. The question that remains from the results of this thesis is whether the fire service will recognize the need to change major components of attraction, hiring, and retention methods to counteract the lower volume of applicants gravitating toward the profession.

B. RECRUITMENT OF MILLENNIALS

Millennials are drawn to professions that give them a meaning or purpose.[176] Whether it is a fire service, military, or a private-sector career path, millennials desire employment opportunities that transcend attractive pay and benefits. Understanding this fact will have significance for recruitment and marketing strategies.

Five forces have shaped the millennial generation: technology, media, parental influence, the economy, and education (see Figure 4).[177] These forces are "interrelated,

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[175] Greene, "Emergency Services Staffing a Top Concern," 2.

[176] James P. Drago, "Generational Theory: Implications for Recruiting the Millennials" (research project, U.S. Army War College, 2006), 12.

[177] Andrew G. Wilcox, "Recruiting the Next Generation: A Study of Attitudes, Values, and Beliefs" (master's thesis, Naval Postgraduate School, 2001), 49.

complementary, and synergistic."[178] Take, for example, the relationship between parental influence and education. Many parents view anything other than a college education in their child's post–high school years as unacceptable. As shown in a 2008 statistic, a record number of millennials took the SAT—more than 1.5 million—a number that is up 30 percent from 1998.[179] This thought process has produced a generation of people who believe the only route to a solid career and high economic return is through a four-year degree.[180] The fire service is essentially a skilled trade and does not require a college degree. Therefore, parents of millennials may view the fire service as an afterthought while raising their children. Understanding the five forces of influence is crucial for grasping how deeply rooted the millennial generation is to its environment.

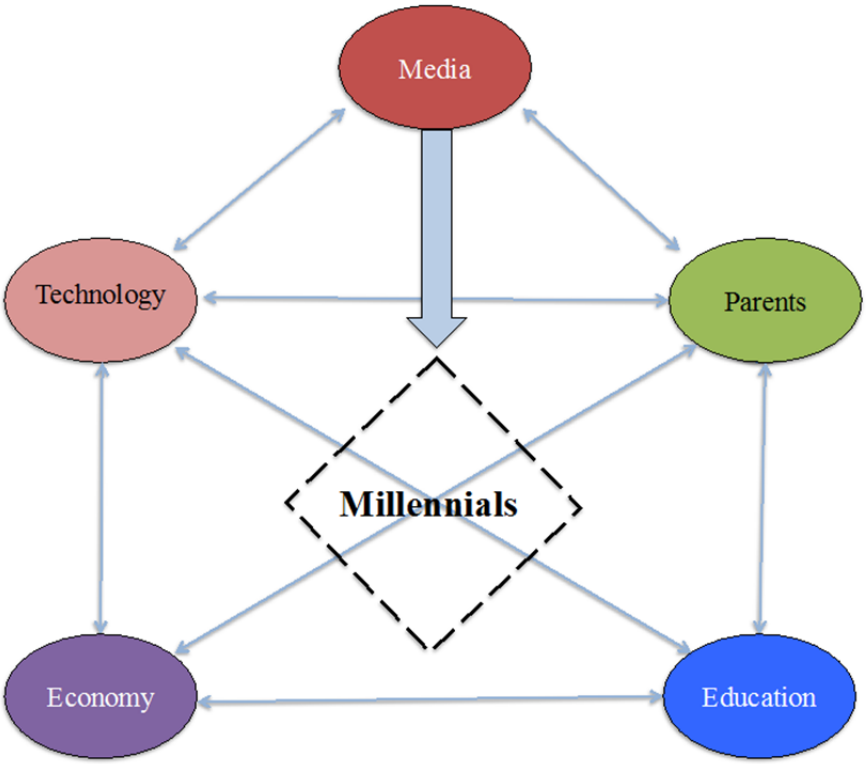

Figure 4. Five Forces of Influence[181]

[178] Wilcox, "Recruiting the Next Generation," 49.

[179] Hershatter and Epstein, "Millennials and the World of Work," 215.

[180] Wilcox, "Recruiting the Next Generation," 50.

[181] Adapted from Wilcox, "Recruiting the Next Generation," 49.

In order for the fire service to maintain the current level of recruitment without losing ground to other professions, especially ones that attract the college-educated workforce, it must commit or re-commit to branding. There are very few—if any—successful businesses that maintain long-term sustainability without a commitment to marketing the brand. In applying branding to the five forces of influence, an emphasis must be placed on the technology and parental influence components. Reaching out to millennials through these two mediums can be a key link to potential new hires. For example, instead of creating a department Facebook page, marketing on other Facebook pages through commercial advertisements may yield more clicks than trying to lead unsolicited members of the community to a departmental website. Engaging parents—in addition to students—through direct contact at school career days or after-school programs will help enlist the support of a significant influential force. Most parents may not be aware that entering the fire service does not require a college degree. Like many other trades, the fire service requires pre-hire professional certifications for application. Marketing the educational requirements—in the same manner as prerequisites for entry into college—by targeting high school juniors, seniors, and their parents is an area of necessity. Fire service recruitment should improve when the target market understands the requirements for entry are similar to those of colleges and universities. Education—as part of the five forces of influence—is a major component for attracting millennials. This is a result of putting pressure on themselves, through their parents, to excel in high school and ultimately in higher education. Using this information as a basis, the fire service has an opportunity to fundamentally change the testing process to incorporate more standardized questions. Changing the written test in this way will allow for a more comprehensive and complete preparation process for millennials, much in same way the ACT and SAT are known platforms. If the fire service can capture the same educational awareness found in the college entry process, it will align with the parental emphasis continually placed on higher education.

C. CHANGING THE ENTRY-LEVEL TESTING MODEL

Continuous quality improvement (CQI) is a strategy used to facilitate organizational change. Systematically examining an internal process and developing methods to increase effectiveness and flexibility within that process are best practices for businesses dedicated to excellence.[182] Using CQI as a change-management model for the purpose of incremental problem solving is one option for the improvement of fire service testing. There are four stages in the CQI model for change implementation: plan, do, check, act.[183] The written test is the most frequently used component of the entry-level testing model in the fire service and is the focus of this CQI example.

(1) Plan

In the planning stages, objectives are established and steps are put in place to achieve them.[184] The written test is one part of the fire service testing model that lacks historical data. The first objective is to create a system that gathers useful data. The use of outside agencies for testing—such as NTN—does not provide the data needed from applicants during the written testing process. Primary decision makers in an organization must meet and confer about the importance of understanding the data collected and enacting measures to ensure it is collected in perpetuity.

(2) Do

Moving the plan from a concept to a practice can be the most difficult part of the process. This step takes dedication by the organization to identify a champion of the cause or even assign a project manager to help facilitate the new plan. This type of duty can fall under the purview of the deputy or assistant chief of operations, as hiring and staffing responsibilities are generally within the job description. Those who are tasked with this assignment need to have the training and necessary equipment or budget to

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[182] Warren Rutherford, "What W. Edwards Deming Knew about Continuous Quality Improvement That You Still Don't," *Tweak Your BIZ*, August 24, 2012, http://tweakyourbiz.com/management/2012/08/24/what-w-edwards-deming-knew-about-continuous-quality-improvement-that-you-still-dont/.

[183] "Deming Cycle," Change-Management-Consultant, accessed October 21, 2017, http://www.change-management-consultant.com/deming-cycle.html.

[184] Ibid.

carry out the plan.[185] It is incumbent on the organization to commit these resources to the plan through the project manager; otherwise, failure rates increase. Dissecting the written test—question by question—is an important initial step in identifying shortcomings of the test itself. This new testing instrument should be a tool that clearly defines the traits desired by the organization and should be customized from agency to agency. There may be multiple attempts necessary for the end product to be viable. Initial failures should not be a primary measurement of the overall success of the CQI process.

(3) Check

By analyzing key performance indicators, decision makers can drive change within the written testing document.[186] For example, the test may change from multiple choice, measuring comprehension of basic facts, to essay, measuring technical command of the subject matter. If the more refined and experienced candidates excel in the testing process and those are the desired traits, the test is aligned with the objective. Evaluation of desired outcomes compared to the original objectives is the main deliverable from the "check" stage of CQI. It may take years of data collection to understand identifiable patterns in types of candidates who pass the written test under the new model. A project manager or chief officer assigned to the CQI must keep accurate records of the data that can be passed on to the organization.

(4) Act

Continuous quality improvement is a system, not a project. CQI is a cycle that starts with planning and ends with analyzing data related to the changes made to the process; and then the cycle starts anew for reevaluation.[187] If success is realized in the written testing process, an organization standardizes it and monitors the progress. If success is not realized, organizations learn from the trials and make the necessary adjustments before starting the CQI process over again. Repeating the cycle with the benefit of new information perpetuates improvement.

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[185] Change-Management-Consultant, "Deming Cycle."

[186] Ibid.

[187] Ibid.

(5) Limiting Factors

The CQI process was initially developed for manufacturing improvements, but can be applied to any business model.[188] When using CQI for any application, it is important to understand its limitations. Resistance to change is a natural human condition. The fire service is resistant to change; assigning a project manager who supports a progressive mindset provides stability to new systems or processes within testing cycles. Communication between the project manager and the fire chief/human resource specialist is necessary to ensure the original mission and objectives are always aligned with the changes made to written testing. Unless CQI becomes institutional and not just a passing fad from one generation to the next, sustainability will be finite and long-term success limited.

D. FINAL THOUGHTS

The recruitment, hiring, and retention of millennials are endeavors that many organizations—public and private alike—struggle to refine and perfect. There may not be a profession more disconnected with the millennial generation than the fire service. This exploratory thesis provides insight into the misalignment of the fire service business model and the desired characteristics sought by the best millennial talent. Without acknowledgement that a problem exists, the fire service will continue to lag behind in the best marketing and attraction methods with which it competes.

Understanding the problems that plague recruitment is followed closely in importance by creating change agents to correct them. Traditional recruitment and testing remains ineffective for the fire departments examined in this thesis. Key employees—the fire chief, operations chief, and human resource specialists—are the main link between an organization struggling for talent and the necessary changes needed to adapt to the millennial talent pool. Using CQI for managing evolutionary change in written testing and applying the five forces of influence to marketing a career path in the fire service are both steps in the direction of progress. Unlike businesses that fail to adapt in the private sector, the fire service is not threatened with extinction. However, the fire service cannot

[188] Change-Management-Consultant, "Deming Cycle."

remain a profession held in high esteem by the public if the best millennial talent chooses to find employment elsewhere. The strongest business models are not the ones that have the most intelligence, but the ones that respond best to change.

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