

**HOW PREVIOUS TRAINING IMPACTS SUCCESSFUL COMPLETION
OF THE TUCSON FIRE DEPARTMENT RECRUIT ACADEMY**

BASIC FIREFIGHTER TRAINING – A STUDY ON PREREQUISITES

Strategic Management of Change

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ABSTRACT

The problem the Tucson Fire Department faced is the increasing cost of basic training and the question of mandating training prerequisites as a condition of hire.

The purpose of this applied research project was to determine if having Firefighter I&II and/or Emergency Medical Technician certifications is beneficial to the success of a Tucson Fire Department firefighter recruit.

Historical and evaluative research methods were employed to determine the number of new firefighter hires who had FF I&II and or EMT certifications, prior to hire, and if having these certifications assisted them in the areas of grade average, class standing, and future promotions compared to recruits without this training.

City and fire department officials were interviewed to determine the goal of the Tucson Fire Department in the area of hiring firefighters. Data was collected and analyzed on all the candidates who were interviewed, selected and/or successfully graduated from the Tucson Fire Department recruit training program over the past eight years to determine if persons with FF I&II and/or EMT certifications were more successful. Research revealed that there was very little difference in the success of the firefighter recruits, relative to previous training.

Recommendations generated from this research were for the Tucson Fire Department to continue providing basic firefighter training but to work more closely with the local community college, assisting them in developing basic firefighter training that meets the needs of the multiple fire service organizations in our area. A further recommendation was to consider prerequisites of hire that can only be acquired through colleges, but are necessary for the future growth of the department and the firefighters. These prerequisites include classes such as math, science, computer training, and education in cultural diversity and social and global awareness.

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INTRODUCTION

Over the last thirty years and more the Tucson Fire Department has conducted extensive recruit-training programs for all newly hired members. This has provided significant advantages in the department's ability to select candidates from diverse backgrounds and ethnic origins without regard to specific fire training prerequisites. The problem the Tucson Fire Department faces, along with most other fire service organizations across the county, is the increasing cost of basic training and the question of mandating training prerequisites as a condition of selection.

The purpose of this applied research project was to determine if having Firefighter I&II and/or Emergency Medical Technician certifications, are indicators of a candidate's potential for successful completion of the Tucson Fire Department recruit training academy and a measurement of his/her potential for future promotional growth.

Historical and evaluative research methods were employed to answer the following questions to determine if, over the past eight years, candidates with FF I&II and/or EMT certifications have been more successful in graduating from the academy and advancing within the ranks than those without:

1. What percentage of those selected into the Tucson Fire Department training academy, over the past eight years, had FF I&II and/or EMT certifications?
2. Did Tucson Fire Department candidates, with FF I&II and/or EMT certifications have a higher grade average than those without?
3. How did the overall class standing of Tucson Fire Department recruits, with FF I&II and/or EMT certifications compare to those without?
4. Did Tucson Fire Department candidates, with FF I&II and/or EMT certifications have a higher percentage of promotions than those without?

BACKGROUND AND SIGNIFICANCE

The Tucson Fire Department does not require prerequisite training, in the firefighting field, when applying for the position of firefighter. The Tucson Fire Department also does not hire new uniformed employees for positions other than recruit firefighter. The only exception to this has been national searches for the Fire Chief's position, and the selection of personnel for civilian positions.

Selection for the position of firefighter, for the Tucson Fire Department, is a competitive process including a written exam, an oral board and a pass/fail physical assessment. Once this has been completed, the candidates are placed on an eligibility list that is ranked by test score.

When it is determined that a new class of recruits will be hired, the number of positions is determined and a list of candidates, which is double the number of new positions, is certified by the Human Resources Department and forwarded to the Fire Department. Candidates who receive preference points for military service and Native American backgrounds may enlarge the list (J. Redavid, personal communication, April 25, 2001).

The Tucson Fire Department convenes a pre-hire interview process. All candidates are interviewed with their rank order on the certified list, and any previous training and experience used only as tiebreakers when selecting candidates. It has been the position of the Tucson Fire Department to hire for attitude and to train for knowledge and skills (D. Newburn, personal communication, April 20, 2001).

A 22-week training program is provided to train the candidates. Successful completion of the academy will provide the candidates with FF I&II certification, EMT certification, Haz-Mat First Responder, basic Wildland Firefighter certification, and a total of thirty-two community

college credits. The academy is followed by a one-year probationary period that includes continuing education and mid-probation and final probation written exams and skills tests.

The Tucson Fire Department, like most fire service organizations across the county, is charged with providing a well-trained firefighting force to protect the lives and property of our citizens. Like most other organizations, we are also charged with delivering these services in the most cost-effective method possible. As Dave Pleasants (1996) states in his applied research project, “ It is the job of the Fire Department in close cooperation with the Department of Human Resources to provide the city with fully qualified and trained firefighters at the best cost available to the taxpayer” (p.2).

Lewis Treadwell, (1999) in an EFO applied research paper writes, “With the significant investment it takes to train entry level firefighters many departments are starting to make firefighter certification a condition of employment” (p.12). The cost of selecting, equipping and training a single firefighter, utilizing the current Tucson Fire Department selection and training process, is in excess of \$26,000.00 (N. Singleton, personal communication, April 20, 2001).

Providing well-qualified firefighters, in the most cost-effective manner as possible, is a major concern, but there are other issues that must be considered. “Any selection process that adversely effects the challenges of developing a diverse workforce or that reduces opportunities for protected or minority classes of people must also be considered” (J. Redavid, personal communication, April 25, 2001).

The process of recruitment, selection and training of new firefighters into the Tucson Fire Department work force has proven very effective. Since 1993 this author, as the Training Director for the Tucson Fire Department, has compiled data on nine recruit selection processes and training programs. Included in this data is the previous training each candidate selected had

prior to hire, the grades they received on each skill evaluation and written exam, successful graduation from the academy, their comparative position within the class at graduation, successful completion of a one year probationary period and a comparative list of promotions gained by candidates since graduation.

In an effort to determine an appropriate course of action regarding the subject of prerequisites for hire to the entry level firefighter position, this author will use the analysis techniques taught in the change management model of the EFO Strategic Management of Change course. The results of this research project will be used to assist in determining if the Tucson Fire Department should alter its selection process and require FF I&II and EMT certifications as prerequisites for hire.

LITERATURE REVIEW

Firefighter recruit training is a subject of concern for most fire service organizations. There have been several EFO papers written on this topic with the primary focus of removing recruit training from the individual department training sections and placing the burden of basic training on the individual through local community colleges. The primary basis for this position is the high cost of delivering training and the time it takes to provide quality basic training programs. Fire Departments, with the cooperation of the Human Resources Department, have an obligation to provide the taxpayer with the best trained firefighters possible, in the most fiscally responsible manner possible (Pleasants, 1996). In an applied research project by Anthony Calagna (1990), he states, "It is time for the fire service to come to the realization that, like other professions, the financial responsibility for education should be the individual's and not the organization's responsibility" (p. 8). Lewis Treadwell (1999) writes in his EFO paper that "With the significant investment it takes to train entry level firefighters many departments are starting to make

firefighter certification a condition of employment” (p12). Gary Wilson, in an article for Fire Chief, (1996) writes that the fire service is slowly starting to require pre-employment training as a condition of employment.

Another concern shared by many departments is the impact training recruits has on continuing education for veteran personnel. Treadwell (1999) adds in his EFO paper that while entry level training is underway all other training is severely impacted or postponed until after completion of the recruit academy, and that while training entry level firefighters is a very important part of the training academy’s function, the time used to accomplish this causes veteran personnel training to suffer (pp. 8&9).

Calagna (1990) adds in he applied research paper that the resources a department can save from not having to train entry level firefighters can be used for in-service training of veteran personnel (p.9).

According to some authors, requiring training and education as a prerequisite to hire will help to professionalize the fire service. David Pleasants (1996), in his EFO paper states, “How many other professions will hire a person and then train him or her? No one would get a job as a doctor without an M.D. or be hired as an electrical engineer without a degree. Yet in firefighting, we hire and *then* train our professionals (p. 19)!” Pleasants (1996) goes on to state, “in comparing specifications of 35 jobs of similar pay to those of entry level Firefighter, only Firefighter did not require post-high school education, having previous job experience, or being a promotional job within the civil service system” (p. 8).” Frank Oberg (1990), in an article for Speaking of Fire, found an advantage to requiring prerequisites of training was that firefighters could be hired and immediately assigned to suppression duty (p. 8).

Research has not revealed that requiring training before hire has provided exactly what each organization needs or expects. This author was unable to find any research that has indicated that there have been quantifiable measurements on the overall success of firefighters hired with training compared to those who are trained by the hiring fire department. Calagna, (1990) states in his EFO paper that after the Houston Fire Department changed their hiring practices in 1987, requiring any new firefighter hires to receive their training through the Houston Community College prior to employment, that the results where not what he expected. He further states that after one hundred thirty-three new employees were hired, utilizing the new policy, a questionnaire completed by officers indicated that the training did not address procedures unique to the Houston Fire Department. Another concern revealed in the questionnaire was that the new firefighters lacked the discipline that was a part of a department run academy (p.ii). It was also noted by Calagna (1990), that “Job knowledge at entrance level is a little below firefighters trained by the department” (p. 5).

Morrill, (2000) in an applied research paper for the EFO program explains that for the past fifteen years the Longview Fire Department hired only personnel who already held basic certifications in firefighting and EMT. He explains that it was always assumed that the certifications represented the basic knowledge skills and abilities required of a firefighter. Morrill (2000) states, “This assumption was never challenged”(p. 7). Morrill further states, “No objective measurements were ever made of the knowledge or skill level of members until they voluntarily participated in promotional processes, which was at least two years into their career” (pp. 7&8).

Wade Warling (2000), in his applied research paper writes concerning the hiring of entry-level personnel for the El Paso Fire department. In determining the viability of requiring

firefighter certification as a prerequisite to hire, Warling stated one of the conditions is that sufficient candidates must be available to meet the needs of his department (p.11).

In the fall of 1999 Pima Community College, the only community college that provides a fire science program to the Tucson and Pima County area, opened their first basic firefighter program by which students can become Arizona State certified firefighters. Since that time they have graduated approximately 80 certified firefighters. This was accomplished through a partnership with the Tucson Public Safety Academy, which provides the equipment and resources necessary to meet State training requirements. Pima Community college is working to respond to the employment needs of over 20 fire service organizations in Southern Arizona” (Dr. B. Ganz, personal communication, April 25, 2001).

The number of graduates of this program cannot begin to meet the needs of the Tucson Fire department alone and, yet, provide the smaller departments, who do not have the ability to conduct recruit-training programs, with the number of new firefighters needed.

The research conducted by this author confirms that many fire service organization, like the Tucson Fire Department, are concerned with the ever-increasing cost of providing entry level training for firefighters. The key message encountered in the research was the one provided by Dave Pleasants (1996), concerning providing a fully qualified and trained firefighting force at the most reasonable cost to the taxpayer. The question remains whether providing fully qualified and trained firefighters, at the best cost available, can be achieved through requiring prerequisite firefighter and EMT certifications. As this author was unable to find research done that measures success rates and overall performance of candidates with or without these certifications, this research project was undertaken to examine that information.

PROCEDURES

With the national trend to move from department funded recruit training programs to setting prerequisites of firefighter and EMT certifications before hire, it was the desire of this author to research the impacts this method of hiring would have on the Tucson Fire Department. The first step of this research paper was to determine what questions must be asked, and answered, to identify the priorities our City and Department place on the hiring of new firefighters. This was accomplished through personal interviews with the Tucson Fire Department Fire Chief, Dan Newburn, the Director of Human Resources for the City of Tucson, Jack Redavid, and the budget officer for the Tucson Fire Department, Nicki Singleton. While fiscal responsibility was a concern of all interviewees, the predominate concern was placing the best-trained firefighters possible on the street. The basis of these concerns was the delivery of quality service to our citizens and the concern for the health and well being of the firefighters themselves.

A literature search was conducted in an attempt to review current information on this subject. A significant amount of written material was found on recruit training and a moderate amount was located on departments moving from department funded training to hiring firefighters who had acquired certification through other means. This author was unable to locate any research done on the overall performance and success of firefighters trained at department funded training programs compared to those who receive their training through colleges or other institutions.

Information on the curriculum that is recognized by the Arizona State Fire Marshal Office was needed to determine that the Tucson Fire Department recruit training program meets or exceeds State standards. This was accomplished by a study of the AZ State Firefighter Training Manual and an interview with the AZ State Director of Training, Bob Costello. To determine the

availability of State certified Firefighters and EMTs, through the local community college an interview was conducted with Dr. Barbara Ganz, Dean of the Pima Community College Public Safety and Emergency Services Institute.

In an effort to determine if firefighters, hired with training received prior to becoming members of the Tucson Fire Department, demonstrated skills or knowledge at a higher level than those who are hired with no previous training, this author identified four questions to be considered. The questions are as follows:

1. What percentage of those selected into the Tucson Fire Department training academy, over the past eight years, had FF I&II and/or EMT certifications prior to hire?
2. Did Tucson Fire Department recruit candidates, with FF I&II and/or EMT certifications, prior to hire, have a higher percentage of successful graduation than those without?
3. How did the overall class standing of Tucson Fire Department recruits, with FF I&II and/or EMT certifications, prior to hire, compare to those without?
4. Did Tucson Fire Department recruit candidates, with FF I&II and/or EMT certifications, prior to hire, have a higher percentage of promotions than those without?

To answer these questions this author researched this information in the records of 574 persons interviewed and/or selected for hire by the Tucson Fire Department since 1993.

A comparative analysis was conducted of the information collected in the applications for employment, and the pre-hire questionnaires completed by the 574 candidates prior to the selection interview, to determine the number of applicants who had previous certifications in EMT and/or FF I&II. The information gathered was also analyzed to determine the number of the 272 candidates, selected for recruit training, who already had previous certifications in EMT and/or FF I&II. The scores of the approximate 45 written examinations and the approximate 23

practical skill exams as well as the comprehensive final exam, taken by the selected recruits, was examined and compared between recruits who had previous training and those who did not. Data was compiled on the numbers of students, with previous training and those without, who successfully completed the recruit-training program. The overall placement of the recruits at graduation, which was calculated by applying a value of 30% for written tests, 20% for practical skill tests and 50% for the final exam was compared between recruits who had previous training and those who did not.

A comparative analysis was conducted of all promotions, achieved by the graduating recruits, and compared between recruits who had previous training and those who did not. A promotion constituted the successful attainment of one or more higher ranks, including Fire Engineer, Fire Inspector, Paramedic or Fire Captain through one or more of the Tucson Fire Department competitive processes. To promote to the rank of Fire Captain an employee must first promote to one of the other three mentioned ranks.

A final analysis of all the data was conducted to determine if, within the total 574 candidates interviewed, there was an adequate number of applicants, who had EMT or Firefighter I&II certification, to fill the 272 positions needed since 1993.

Assumptions and Limitations

An assumption made by this author is that those persons who had the advantage of already achieving certification for meeting minimum firefighter standards, and/or who already were certified in EMT, would score higher during the Tucson Fire Department recruit training program than those who had no previous training. This was based on the fact that those persons would have previously demonstrated the minimum knowledge, skills and abilities necessary to

be awarded certificates for this training. It was also assumed that as the Tucson Fire Department utilizes the NFPA approved Essentials of Firefighting, which is the curriculum recognized by the Arizona Fire Marshal's Office as the foundation of its training program and the EMT curriculum is accepted by the Arizona Department of Health Services and meets National EMT standards, the information would be consistent with what those having previous certification were familiar with. It was also assumed that those persons with previous training and experience would ultimately have the advanced knowledge, skills and experience that would assist them in any promotional processes.

A limitation to this research was that while the majority of persons who did not successfully complete the Tucson Fire Department recruit training program had their employment terminated due to lack of academic or skill ability, a percentage did not graduate due to resignations, injuries or nonconformity to rules and regulations. A second limitation of this research was that the study did not include the actual fire service work experience of those candidates who had Firefighter I&II, and/or EMT, certification prior to being hired by the Tucson Fire department.

RESULTS

An evaluation of the interview and training records of all candidates and recruits interviewed and/or selected, beginning with a recruit class in 1993, revealed that eight selection processes, with a total of 574 interviews, were conducted to select 272 recruits to participate in nine recruit classes. Of those 272 recruits who began the recruit classes, 217 graduated from the Tucson Fire Department training programs. This information is represented in Table 1.

Table 1. Candidates Interviewed and Selected

	Interviews	Selected	Classes	Graduated
Interviews and Classes in 1993	60	25	1	20
Interviews and Classes in 1994	43	22	1	21
Interviews and Classes in 1995	50	29	1	22
Interviews and Classes in 1996	50	35	2	25
Interviews and Classes in 1997	72	30	1	22
Interviews and Classes in 1998	98	41	1	34
Interviews and Classes in 1999	91	40	1	32
Interviews and Classes in 2000	110	50	1	41
Totals	574	272	9	217

The data on the candidates who were selected, trained, and graduated from the Tucson Fire Academy were divided into eight categories for comparative purposes. The eight categories are:

Persons who had EMT prior to hire

Persons who did not have EMT prior to hire

Persons who had FF I&II Certification prior to hire

Persons who did not have FF I&II Certification prior to hire

Persons who had EMT and FF I&II Certification prior to hire

Persons who did not have EMT or FF I&II Certification prior to hire

Persons who had EMT but not FF I&II Certification prior to hire

Persons who had FF I&II Certification, but not EMT, prior to hire

Of the 574 interviewed, 413 had EMT certification while 161 did not. One hundred eighty seven, of the 574 candidates interviewed for selection, had FF I&II certification while 387 did not. Of the 574 people interviewed, 179 had EMT and FF I&II certification; 153 did not have EMT or FF I&II certification; 234 had EMT but did not have FF I&II certification, while only eight had FF I&II certification but did not have EMT certification. This information is represented in Table 2.

Table 2. Training Experience of Interviewed Candidates

	Number
Interviewees with EMT	413
Interviewees without EMT	<u>161</u>
Total	574
Interviewees with FF I&II	187
Interviewees without FF I&II	<u>387</u>
Total	574
Interviewees with FF I&II & EMT	179
Interviewees without FF I&II or EMT	153
Interviewees with EMT but without FF I&II	234
Interviewees with FF I&II but without EMT	<u>8</u>
Total	574

Of the 574 candidates interviewed, 272 were selected for the Tucson Fire Department recruit training program. Of the 272 selected, 208 had EMT certification while 64 did not. Ninety, of the 272 candidates selected, had FF I&II certification while 182 did not. Of the 272 people selected, 89 had EMT and FF I&II certification; 63 did not have EMT or FF I&II certification; 119 had EMT but did not have FF I&II certification, while only one had FF I&II certification but did not have EMT certification. This information is represented in Table 3.

Table 3. Training Experience of Selected Candidates

	Number
Selected with EMT	208
Selected without EMT	<u>64</u>
Total	272
Selected with FF I&II	90
Selected without FF I&II	<u>182</u>
Total	272
Selected with FF I&II & EMT	89
Selected without FF I&II or EMT	63
Selected with EMT but without FF I&II	119
Selected with FF I&II but without EMT	<u>1</u>
Total	272

Of the 272 candidates selected for the Tucson Fire Department recruit training program, 217 graduated and were placed in firefighter positions. Of the 208 that had EMT certification, prior

to hire, 166 (79.81%) graduated. Of the 64 who were hired without EMT certification, prior to hire, 51 (79.69%) graduated. Ninety persons, with FF I&II certification prior to hire, were selected with 75 (83.34%) graduating. Of the 182 recruits that were selected without FF I&II certification prior to hire, 142 (78.03%) successfully completed the academy and graduated. Eighty-nine persons, who had EMT and Firefighter I&II certification prior to hire, were selected with 74 (83.34%) graduating the academy. There were 63 persons selected who did not have EMT or FF I&II certification prior to hire. Of those people, 50 (79.37%) graduated the academy. Of the 119 selected candidates who had EMT but not FF I&II certification, prior to hire, 92 (77.31%) completed the academy and graduated. There was only one person who had FF I&II certification but not EMT, prior to hire. This person graduated. Of the entire 272 persons who were selected 217 (79.78%) successfully completed the academy and graduated. This information is represented in Table 4.

Table 4. Training Experience of Graduates Prior to Hire

	Number	% Graduated
Graduated with EMT Prior to Hire	166	79.81%
Graduated without EMT Prior to Hire	<u>51</u>	79.69%
Total	217	
Graduated with FF I&II Prior to Hire	75	83.34%
Graduated without FF I&II Prior to Hire	<u>142</u>	78.03%
Total	217	
Graduated with FF I&II & EMT Prior to Hire	74	83.15%
Graduated without FF I&II or EMT Prior to Hire	50	79.37%
Graduated with EMT but without FF I&II Prior to Hire	92	77.31%
Graduated with FF I&II but without EMT Prior to Hire	<u>1</u>	100%
Total	217	79.78%

Each of the 217 recruits that graduated the Tucson Fire Department recruit training program were required to successfully pass, with a minimum score of 80%, approximately 45 written examinations on materials taught during the 22 week training program. If a recruit failed a written exam they were given one opportunity to take a second exam on the same materials. The

maximum score of 80% was given for a second exam. Failure to pass a second exam resulted in the recruit's employment being terminated. The recruits were also given three opportunities to successfully pass approximately 23 practical skill exams. A score of 100% was given to persons who passed it on the first attempt. A score of 90% was given for passing on the second attempt. A maximum score of 80% was given to candidates who passed the practical skill tests on the third attempt. Failure to pass the skill, by the third attempt, resulted in the recruit's employment being terminated. Each recruit was also given a comprehensive final written exam covering all materials given throughout the academy. If a recruit failed the final written exam, they would be given a second exam, which could only receive a maximum score of 80%. Like other written exams, a failure of the second exam would result in the recruit's employment being terminated.

The average score achieved by all 217 recruits on the written exams was 95.80%. The median score was 95.82 %, with the highest score achieved being 99.74% and the lowest score being 89.97%. The average score achieved by all 217 recruits, on the practical skill exams, was 98.26%. The median score was 98.70 %, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 217 recruits, on the final written exams, was 92.17%. The median score was 92.21 %, with the highest score achieved being 99.55% and the lowest score being 84.02%.

At the conclusion of the recruit training program the total scores of all exams were tabulated to determine the overall placement of each recruit within their class. This was accomplished by calculating the written exams at 30% of the total score; the practical skill exams were calculated at 20% of the total score and the final exam was calculated at 50% of the total score. The person graduating with the highest overall score was the first to be awarded a firefighting assignment. The average score achieved by all 217 recruits, on the compilation of all exams, was 94.47%.

The median score was 94.52 %, with the highest score achieved being 98.30% and the lowest score being 88.49%. This information is represented in Table 5.

Table 5. Grades of all 217 recruits

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.80%	95.82 %	99.74%	89.97%
Practical Skill Exams	98.26%	98.70 %	100%	93.91%
Final Exam	92.17%	92.21 %	99.55%	84.02%
Combined scores	94.47%	94.52 %	98.30%	88.49%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 166 had EMT certification prior to hire. The average score achieved by all 166 of these recruits on the written exams was 95.88%. The median score was 95.92 %, with the highest score achieved being 99.74% and the lowest score being 89.97%. The average score achieved by all 166 of these recruits, on the practical skill exams, was 98.32%. The median score was 98.70 %, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 166 of these recruits, on the final written exams, was 92.19%. The median score was 92.24 %, with the highest score achieved being 98.17% and the lowest score being 84.02%. The average score achieved by all 166 of these recruits, on the compilation of all exams, was 94.47%. The median score was 94.52 %, with the highest score achieved being 98.30% and the lowest score being 88.49%. This information is represented in Table 6.

Table 6. Grades of Recruits with EMT Prior to Hire

	Average	Median	Highest	Lowest
Written exams	95.88%	95.92%	99.74%	89.97%
Practical Skill Exams	98.32%	98.70%	100.00%	93.91%
Final Exam	92.19%	92.24%	98.17%	84.02%
Combined scores	94.47%	94.52%	98.30%	88.49%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 51 did not have EMT certification prior to hire. The average score achieved by all 51 of these recruits on the written exams was 95.53%. The median score was 95.47 %, with the highest score achieved being 98.59% and the lowest score being 90.86%. The average score achieved by all 51 of these recruits, on the practical skill exams, was 98.04%. The median score was 98.26%, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 51 of these recruits, on the final written exams, was 92.09%. The median score was 91.85%, with the highest score achieved being 99.55% and the lowest score being 86.97%. The average score achieved by all 51 of these recruits, on the compilation of all exams, was 94.31%. The median score was 94.16 %, with the highest score achieved being 97.89% and the lowest score being 90.71%. This information is represented in Table 7.

Table 7. Grades of Recruits without EMT Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.53%	95.47 %	98.59%	90.86%
Practical Skill Exams	98.04%	98.26 %	100%	93.91%
Final Exam	92.09%	91.85 %	99.55%	86.87%
Combined scores	94.31%	94.16 %	97.89%	90.71%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 75 had FF I&II certification prior to hire. The average score achieved by all 75 of these recruits on the written exams was 95.85%. The median score was 95.78 %, with the highest score achieved being 99.74% and the lowest score being 89.97%. The average score achieved by all 75 of these recruits, on the practical skill exams, was 98.30%. The median score was 98.70%, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 75 of these recruits, on the final written exams, was 92.42%. The median score was 91.30%, with the highest score achieved being 97.27% and the lowest score being 84.47%.

The average score achieved by all 75 of these recruits, on the compilation of all exams, was 94.60%. The median score was 94.62%, with the highest score achieved being 98.02% and the lowest score being 88.49%. This information is represented in Table 8.

Table 8. Grades of Recruits with FF I&II Certification Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.85%	95.78 %	99.74%	89.97%
Practical Skill Exams	98.30%	98.70 %	100%	93.91%
Final Exam	92.42%	92.30 %	97.27%	84.47%
Combined scores	94.60%	94.62 %	98.02%	88.49%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 142 did not have FF I&II certification prior to hire. The average score achieved by all 142 of these recruits on the written exams was 95.77%. The median score was 95.86 %, with the highest score achieved being 98.66% and the lowest score being 90.86%. The average score achieved by all 142 of these recruits, on the practical skill exams, was 98.23%. The median score was 98.33%, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 142 of these recruits, on the final written exams, was 92.04%. The median score was 91.82%, with the highest score achieved being 98.30% and the lowest score being 84.02%. The average score achieved by all 142 of these recruits, on the compilation of all exams, was 94.40%. The median score was 94.45%, with the highest score achieved being 98.30% and the lowest score being 88.52%. This information is represented in Table 9.

Table 9. Grades of Recruits without FF I&II Certification Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.77%	95.86 %	98.66%	90.86%
Practical Skill Exams	98.23%	98.33 %	100%	93.91%
Final Exam	92.04%	91.82 %	99.55%	84.02%
Combined scores	94.40%	94.45 %	98.30%	88.52%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 74 had EMT and FF I&II certification prior to hire. The average score achieved by all 74 of these recruits on the written exams was 95.81%. The median score was 95.78 %, with the highest score achieved being 99.74% and the lowest score being 89.97%. The average score achieved by all 74 of these recruits, on the practical skill exams, was 98.29%. The median score was 98.70%, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 74 of these recruits, on the final written exams, was 92.44%. The median score was 92.50%, with the highest score achieved being 97.27% and the lowest score being 84.47%. The average score achieved by all 74 of these recruits, on the compilation of all exams, was 94.60%. The median score was 94.66%, with the highest score achieved being 98.02% and the lowest score being 88.49%. This information is represented in Table 10.

Table 10. Grades of Recruits with EMT and FF I&II Certification Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.81%	95.78 %	99.74%	89.97%
Practical Skill Exams	98.29%	98.70 %	100%	93.91%
Final Exam	92.44%	92.50 %	97.27%	84.47%
Combined scores	94.60%	94.66 %	98.02%	88.49%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 50 did not have EMT or FF I&II certification prior to hire. The average score achieved by all 50 of these recruits on the written exams was 95.47%. The median score was 95.47 %, with the highest score achieved being 98.59% and the lowest score being 90.86%. The average score achieved by all 50 of these recruits, on the practical skill exams, was 98.02%. The median score was 98.26%, with the highest score achieved being 100% and the lowest score being 93.91%. The average score achieved by all 50 of these recruits, on the final written exams, was 92.13%.

The median score was 92.05%, with the highest score achieved being 99.55% and the lowest score being 86.87%. The average score achieved by all 50 of these recruits, on the compilation of all exams, was 94.31%. The median score was 94.15%, with the highest score achieved being 97.89% and the lowest score being 90.71%. This information is represented in Table 11.

Table 11. Grades of Recruits without EMT or FF I&II Certification Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.47%	95.47 %	98.59%	90.86%
Practical Skill Exams	98.02%	98.26 %	100%	93.91%
Final Exam	92.13%	92.05 %	99.55%	86.87%
Combined scores	94.31%	94.15 %	97.89%	90.71%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, 92 had EMT but did not have FF I&II certification prior to hire. The average score achieved by all 92 of these recruits on the written exams was 95.93%. The median score was 96.07 %, with the highest score achieved being 98.66% and the lowest score being 91.28%. The average score achieved by all 92 of these recruits, on the practical skill exams, was 98.35%. The median score was 98.70%, with the highest score achieved being 100% and the lowest score being 94.35%. The average score achieved by all 92 of these recruits, on the final written exams, was 91.99%. The median score was 91.80%, with the highest score achieved being 98.17% and the lowest score being 84.02%. The average score achieved by all 92 of these recruits, on the compilation of all exams, was 94.45%. The median score was 94.51%, with the highest score achieved being 98.30% and the lowest score being 88.52%. This information is represented in Table 12.

Table 12. Grades of Recruits with EMT but without FF I&II Certification Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	95.93%	96.07%	98.66%	91.28%
Practical Skill Exams	98.35%	98.70%	100%	94.35%
Final Exam	91.99%	91.80%	98.17%	84.02%
Combined scores	94.45%	94.51 %	98.30%	88.52%

Of the 217 recruits graduating from the Tucson Fire Department recruit training program, one had FF I&II certification but did not have EMT prior to hire. The score achieved by this person on the written exams was 98.50%. The score achieved by this person, on the practical skill exams, was 99.13%. The score achieved by this person, on the final written exam, was 90.49%. The score achieved by this person, on the compilation of all exams, was 94.62%. This information is represented in Table 13.

Table 13. Grades of Recruits with FF I&II Certification but without EMT Prior to Hire

	Average Score	Median Score	Highest Score	Lowest Score
Written exams	98.50%	98.50%	98.50%	98.50%
Practical Skill Exams	99.13%	99.13%	99.13%	99.13%
Final Exam	90.49%	90.49%	90.49%	90.49%
Combined scores	94.62%	94.62%	94.62%	94.62%

An examination of the data on the 217 persons who graduated from the fire academy revealed that 48 promoted to the rank of Paramedic. Fourteen promoted to the rank of Engineer while six promoted to the rank of Inspector. The six persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. One hundred forty-three have not promoted. This information is represented in Table 14.

Table 14. Promotions of Recruit Graduates

	Number
Paramedics	48
Engineers	14
Inspectors	6
Captains (requires two promotions)	6
Non-Promoted	143
Total number of persons	217
Total Promotions	80

An examination of the data on the 166 persons, who had EMT prior to hire, and who graduated from the fire academy revealed that 41 promoted to the rank of Paramedic. Thirteen promoted to the rank of Engineer while two promoted to the rank of Inspector. The four persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. One hundred and six have not promoted. This information is represented in Table 15.

Table 15. Promotions of Recruit Graduates with EMT Prior to Hire

	Number
Paramedics	41
Engineers	13
Inspectors	2
Captains (requires two promotions)	4
Non-Promoted	106
Total number of persons	166
Total Promotions	64

An examination of the data on the 51 persons, who did not have EMT prior to hire, and who graduated from the fire academy revealed that 7 promoted to the rank of Paramedic. One promoted to the rank of Engineer while four promoted to the rank of Inspector. The two persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. Thirty-seven have not promoted. This information is represented in Table 16.

Table 16. Promotions of Recruit Graduates without EMT Prior to Hire

	Number
Paramedics	7
Engineers	1
Inspectors	4
Captains (requires two promotions)	2
Non-Promoted	37
Total number of persons	51
Total Promoted	16

An examination of the data on the 75 persons, who had FF I&II certification prior to hire, and who graduated from the fire academy revealed that 18 promoted to the rank of Paramedic. Five promoted to the rank of Engineer while one promoted to the rank of Inspector. The three persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. Forty-eight have not promoted. This information is represented in Table 17.

Table 17. Promotions of Recruit Graduates with FF I&II Certification Prior to Hire

	Number
Paramedics	18
Engineers	5
Inspectors	1
Captains (requires two promotions)	3
Non-Promoted	48
Total number of persons	75
Total Promotions	30

An examination of the data on the 142 persons who did not have FF I&II certification, prior to hire, and who graduated from the fire academy revealed that 30 promoted to the rank of Paramedic. Nine promoted to the rank of Engineer while five promoted to the rank of Inspector. The three persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. Ninety-eight have not promoted. This information is represented in Table 18.

Table 18. Promotions of Recruit Graduates without FF I&II Certification Prior to Hire

	Number
Paramedics	30
Engineers	9
Inspectors	5
Captains (requires two promotions)	3
Non-Promoted	98
Total number of persons	142
Total Promotions	50

An examination of the data on the 74 persons, who had EMT and FF I&II certification, prior to hire, and who graduated from the fire academy revealed that 18 promoted to the rank of Paramedic. Five promoted to the rank of Engineer while one promoted to the rank of Inspector. The three persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. Forty-eight have not promoted. This information is represented in Table 19.

Table 19. Promotions of Recruit Graduates with EMT and FF I&II Certification Prior to Hire

	Number
Paramedics	18
Engineers	5
Inspectors	1
Captains (requires two promotions)	3
Non-Promoted	47
Total number of persons	74
Total Promotions	30

An examination of the data on the 74 persons who did not have EMT or FF I&II certification, prior to hire, and who graduated from the fire academy revealed that 7 promoted to the rank of Paramedic. One promoted to the rank of Engineer while four promoted to the rank of Inspector. The two persons who promoted to the rank of Captain were first required to promote to one of the three ranks prior to being eligible to promote to Captain. Forty-eight have not promoted. This information is represented in Table 20.

Table 20. Promotions of Recruit Graduates without EMT or FF I&II Certification Prior to Hire

	Number
Paramedics	7
Engineers	1
Inspectors	4
Captains (requires two promotions)	2
Non-Promoted	36
Total number of persons	50
Total Promotions	16

An examination of the data on the 92 persons who had EMT but did not have FF I&II certification, prior to hire, and who graduated from the fire academy revealed that 23 promoted to the rank of Paramedic. Eight promoted to the rank of Engineer while one promoted to the rank of Inspector. The one person who promoted to the rank of Captain was first required to promote to one of the three ranks prior to being eligible to promote to Captain. Fifty-nine have not promoted. This information is represented in Table 21.

Table 21. Promotions of Recruit Graduates with EMT but without FF I&II Certification Prior to Hire

	Number
Paramedics	7
Engineers	8
Inspectors	1
Captains (requires two promotions)	1
Non-Promoted	59
Total number of persons	92
Total Promotions	18

In comparing the data on the categories evaluated, each category had between 50 and 166 persons with the exception of the category of persons with FF I&II Certification but not EMT prior to hire. That category had only one person. The scores associated with that group are not representative of a body of people so were not considered when determining if a particular group demonstrated higher success than the other groups in scores or promotions.

The group that had the highest overall score in approximate 45 written exams administered throughout the academy, and the highest score on the approximate 23 practical skill exams was the group who had EMT but not FF I&II certification prior to hire. The score spread from the highest score to the lowest on the written exams was 0.46%. The score spread from the highest score to the lowest on the practical skill exams was 0.33%. The group that had EMT and FF I&II certification prior to hire had the highest scores on the final exam and tied with the group

that had FF I&II certification prior to hire for the highest score on the compilation all the scores.

. The score spread from the highest score to the lowest on the final exams was 0.45%, while the

score spread from the highest score to the lowest on the compilation all the scores was 0.29%.

This information is represented in Table 22.

Table 22. Comparative Grades of all Graduates

	Written	Practical	Final	Combined
With EMT Prior to Hire	95.88%	98.32%	92.19%	94.47%
Without EMT Prior to Hire	95.53%	98.04%	92.09%	94.31%
With FF I&II Prior to Hire	95.85%	98.30%	92.42%	94.60%
Without FF I&II Prior to Hire	95.77%	98.23%	92.04%	94.40%
With FF I&II & EMT Prior to Hire	95.81%	98.29%	92.44%	94.60%
Without FF I&II or EMT Prior to Hire	95.47%	98.02%	92.13%	94.31%
With EMT but without FF I&II Prior to Hire	95.93%	98.35%	91.99%	94.45%

(*Bold Number indicates highest score*)

A comparative analysis of all the promotions, within each of the groups and relative to the number of persons within each group, revealed that the persons who had FF I&II certification, prior to hire, had the highest percentage of promotions with a percentage of 46.66%. The group who had both EMT and FF I&II certification placed second with 40.50%. The third placing group, with percentage of 38.55%, was the group who had EMT prior to hire. The fourth placing group was the group who did not have FF I&II certification, prior to hire, with a percentage of 35.21%. The fifth placing group was the group who did not have either EMT or FF I&II certification, prior to hire, with a percentage of 32.00%. The second to lowest scoring group, with a score of 31.37%, was the group who did not have EMT prior to hire. The lowest scoring group was the group who had EMT but did not have FF I&II, prior to hire, with a score of 19.56%. This information is represented in Table 23.

Table 23. Comparative Promotions of all Graduates

	PM	Eng.	Insp.	Capt.	% Promoted
With EMT Prior to Hire	41	13	2	4	38.55%
Without EMT Prior to Hire	7	1	4	2	31.37%
With FF I&II Prior to Hire	18	5	1	3	46.66%
Without FF I&II Prior to Hire	30	9	5	3	35.21%
With FF I&II & EMT Prior to Hire	18	5	1	3	40.50%
Without FF I&II or EMT Prior to Hire	7	1	4	2	32.00%
With EMT but without FF I&II Prior to Hire	7	8	1	1	19.56%

(*Bold Number indicates highest score*)

Compiling the data on all testing and percentage of promotions revealed the that the persons with FF I&II certification, prior to hire, had the highest overall percentage of success with 94.60% on the combined test scores and 46.66% on promotions. Persons with FF I&II certification and EMT, prior to hire, are ranked second overall with a 92.44% on the final written exam and 94.60% on the combined test scores. The persons with EMT, prior to hire, ranked third overall with no highest scores in any category. The persons without FF I&II certification, prior to hire, ranked fourth overall with no highest scores in any category. The persons without FF I&II certification or EMT, prior to hire, ranked fifth overall with no highest score in any category. The persons without EMT, prior to hire, ranked sixth overall with no highest scores in any category. The persons with the lowest overall ranking had the highest scores in both the individual written exams and the practical skill tests. This information is represented in Table 24.

Table 24. Comparative Grades of all Graduates

Ranking	Group	Written	Practical	Final	Combined	% Promoted	Overall Score
1	With FF I&II Prior to Hire	95.85%	98.30%	92.42%	94.60%	46.66%	85.57%
2	With FF I&II & EMT Prior to Hire	95.81%	98.29%	92.44%	94.60%	40.50%	84.33%
3	With EMT Prior to Hire	95.88%	98.32%	92.19%	94.47%	38.55%	83.88%
4	Without FF I&II Prior to Hire	95.77%	98.23%	92.04%	94.40%	35.21%	83.13%
5	Without FF I&II or EMT Prior to Hire	95.47%	98.02%	92.13%	94.31%	32.00%	82.39%
6	Without EMT Prior to Hire	95.53%	98.04%	92.09%	94.31%	31.37%	82.27%
7	With EMT but without FF I&II Prior to Hire	95.93%	98.35%	91.99%	94.45%	19.56%	80.06%

(*Bold Number indicates highest score*)

DISCUSSION/IMPLICATIONS

Examination of the data collected on the 217 recruits who were selected, and successfully completed the Tucson Fire Department recruit training academy, revealed that while persons who were hired with EMT and FF I&II certifications scored slightly higher than those without, on the final exam and the combined scores, there was a very small difference in their scores as compared to the scores of the persons who did not have prior training. The point spread, from highest to lowest on the final written exam was only .045% and the point spread, from highest to lowest on the combined scores was only .029%.

According to Dave Pleasants (1996), it is the job of the Fire Department and the Department of Human resources to provide the city with fully qualified and trained firefighters at the best cost available (p.2). Anthony Calagna (1990), comments that it is time for the fire service, like other professional organizations, to place the cost of education on the individuals and not the departments (p. 8). Gary Wilson, (1996) claims that the fire service is starting to require pre-employment training as a condition of employment. While these statements may have merit, and it should be the goal of each department to provide trained firefighters with the most effective

use of available funding, there were no objective measurements offered on what a fully qualified and trained firefighter means. This author can only assume that the statement concerning qualified and fully trained means meeting some sort of state certification but this does not address the department specific training that is typically required for any organization.

Treadwell (1999) writes that the veteran firefighter's training suffers while recruit training is underway. (pp. 8&9). Calagna (1990) believes that the resources a department can save by not training entry-level firefighters can be used for in-service training of veteran personnel (p.9).

It is the position of this author that basic firefighter training is the foundation on which veteran firefighter training is built. It is imperative to ensure that all newly hired recruits receive the best training possible while veteran firefighters receive continuing education. One should not be at the expense of the other.

Frank Oberg (1990), in an article for *Speaking of Fire*, found an advantage to requiring prerequisites of training was that firefighters could be hired and immediately assigned to suppression duty (p. 8) while Morrill, (2000) with the Longview Fire Department explains that it was always assumed that the certifications represented the basic knowledge skills and abilities required of a firefighter. Morrill goes on to say "This assumption was never challenged." and "No objective measurements were ever made of the knowledge or skill level of members until they voluntarily participated in promotional processes, which was at least two years into their career" (pp. 7&8). Calagna, (1990) states that after the Houston Fire Department changed their hiring practices in 1987, requiring any new firefighter hires to receive their training through the Houston Community College prior to employment, that the results where not what he expected. Calagna states that after 133 new employees were hired, questionnaires completed by officers indicated that the training did not address procedures unique to the Houston Fire Department;

that the new firefighters lacked the discipline that was a part of a department run academy and that job knowledge was a little below firefighters trained by the department (p. 5). These statements indicate there is a contradiction between hiring the best qualified firefighters possible and taking the steps necessary to ensure training is comprehensive and that the new firefighter is fully prepared to take on a suppression assignment. The results of this research revealed that while the percentage of persons who had EMT and or FF I&II certifications, and who failed to successfully complete the Tucson Fire Department's recruit academy, was less than those who did not have prior training, the percentage was very high. Of the persons hired with FF I&II certification, prior to hire, 16.66% failed to complete an academy that was based on the same materials they had already been certified as successfully completing. This indicates that even using basic minimum standards as a measurement, 16 out of every 100 persons who have completed a FF I&II certification do not have the skills or abilities to successfully complete what should be refresher training, much less be placed in a suppression position.

Research has not revealed that requiring training before hire provides exactly what each organization needs or expects. In a personal interview, Dr. Barbara Ganz, Dean of the Pima Community College Public Safety and Emergency Services Institute, explained that a community college is not able to provide department specific training to students who will be applying for hire to multiple organizations (Dr. B. Ganz, personal communication, April 25, 2001).

This author was unable to find any research that has indicated that there have been quantifiable measurements on the overall success of firefighters hired with training compared to those who are trained by the hiring fire department.

Wade Warling (2000) writes concerning the hiring of entry-level personnel for the El Paso Fire department. He explains that for their organization to require firefighter certification, as a prerequisite to hire, there must be sufficient candidates available to meet the needs of his department (p.11). It was determined, through the research that this author conducted, that there were an insufficient number of candidates, who scored high enough on the entrance exams and who have the recommended prerequisites, to fill the vacancies within the Tucson Fire Department. One option available, if the Tucson Fire Department elected to make EMT and FF I&II certifications a pre-requisite to hire, would be to lower the entrance exam standards. It is also unknown if lowering the entrance exam standards would increase the pool of candidates who have the prerequisites. It is this author's opinion that lowering any standards would be in contradiction to the goal of the Chief of the Tucson Fire Department, which is to hire the best candidates possible. A second option is for the fire departments to work more closely with the local community colleges in the development and delivery of firefighter training. While community colleges make great efforts to provide the training necessary to prepare their students to enter the workforce, it is the fire service professionals who have the best understanding of what is necessary to be a fully trained and qualified firefighter.

Through the study of the results of this research project this author found that pre-hire training demonstrated little impact on the overall success of the candidates in the Tucson Fire Department recruit-training program. It was noted that while there were insufficient candidates with FF I&II certification to fill the needs of the department, there were adequate numbers of candidates with EMT certification. It was also noted in this research that persons with previous training promoted at a higher rate than those who had no previous training. The reasons for this

can only be assumed but the topic would be worthy of further examination in another research project.

The implications of this research, on the Tucson Fire Department, are that the department will need to continue to provide basic recruit training, to fill the needed positions, if standards for success are to remain the same. To increase the number of candidates with the discussed prerequisites, the standards for selection would need to be lowered. This research also indicates that, based on the number of persons with previous training who fail to successfully complete the Tucson Fire Department training program, it would not be safe to assume that possession of the FF I&II certification insures a person is prepared to take on the duties of a firefighter without a program to measure skills and abilities. The Tucson Fire Department, if it chooses to apply prerequisites to the hiring process, needs to take an active role in assisting the local community college with developing and delivering training programs that prepare students for employment as firefighters.

RECOMMENDATIONS

It is the recommendation of this author that the Tucson Fire Department reevaluate the recruit selection and training process. The fire service is changing with both its internal and external customers needing services that require fire service professionals to strategically plan for the future. Many fire service organizations are faced with the need for better trained and hire educated firefighters to serve our constituents. They are also faced with problems in the recruitment, hiring and retention of firefighters that meet these requirements. The first step is to accurately distinguish between training and education. While many departments do not have the ability to train firefighters in the basic skills, and requiring prerequisites of certain certifications

meets their needs, the Tucson Fire Department is in the best position to provide the basic firefighter training that our community deserves and expects. As public service becomes more and more complex, and as the need to develop future fire service leaders becomes more prevalent, the Tucson Fire Department needs to look far beyond basic firefighter training. Today's and tomorrow's firefighters must not only have excellent firefighting and emergency medical skills, they must be prepared to function in a much more technically advanced and culturally challenging environment. The Tucson Fire Department can best prepare for these new challenges by requiring prerequisites for hire that do not necessarily include basic firefighter skills but are more directed towards education that can be acquired through community colleges and universities. Writing and computer skills, math and sciences, social and behavioral sciences education are all necessary now, and will be even more in the future. The Tucson Fire Department, in selecting and training personnel, should place more emphasis on the types of education that will assist new firefighters in providing the services our communities need and in becoming the fire service leaders of the future.

The key to retaining the best firefighters is to ensure they have the knowledge, skills, and abilities to have a fulfilling and successful career in the fire service. Interpersonal skills and global awareness are all necessary components of a successful fire service career. To be successful in the fire service, firefighters must live together with other firefighters of different races and cultural backgrounds. They must be prepared to deliver services to a wide variety of citizens with varying backgrounds and cultural differences. While many larger fire departments may have the ability to train recruits in firefighting skills, most do not have the resources needed to provide the education that will enable the firefighter to be successful in the future.

The goal of the Tucson Fire Department, as well as some of the goals indicated by other departments identified in the literature review, is to place the best qualified and trained firefighters in positions to serve and protect our community. This author believes that this research clearly indicates that in order to accomplish this goal the Tucson Fire Department must continue to provide this training until such time that the local community college, through an interactive partnership with the fire service organizations in our area, have the ability to provide the level of firefighter training the Tucson Fire Department requires. It is also recommended that the Tucson Fire Department work very closely with the local community college in developing training and educational programs that will assist people in preparing for fire service careers. While consideration should be given to persons with certifications during the selection and hiring process, additional consideration should be given to people who have the education in areas the Tucson Fire Department does not have the ability to deliver.

The research revealed that persons with prior training clearly promoted more quickly within the organization. The research conducted by this author does not reveal the reasons for this, but it is recommended that this information be researched in future papers.

It is also a recommendation of this author that future readers of this research paper research methods of measuring the skills and abilities, using objective measurements, of persons hired with previous training prior to placing them in field positions.

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