The higher education factor: The role of higher education in the hiring and promotion practices in the fire service.

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This paper represents work done by a UNC-Chapel Hill Master of Public Administration student. It is not a formal report of the School of Government, nor is it the work of School of Government faculty

Executive Summary:

Increasing higher education for firefighters is one strategy to respond to new demands and challenges as requirements for working in today’s fire service become more complex. This research examines the use of higher education in the hiring and promotion practices of midsized North Carolina fire departments and fire chiefs’ perceived value of higher education. Findings indicate a gap exists between the use of higher education in hiring and promotion practices and fire chiefs’ perception of educational needs. This research concludes with recommendations to assist with closing this perceived gap, including adjusting current hiring and promoting practices to reflect the higher level of perceived need from the chiefs and the development of new recruitment strategies to attract candidates that already hold higher education degrees.
INTRODUCTION

The US fire service is continuing to evolve. Firefighting is no longer confined to putting out fires and minimizing the amount of damage they caused. The demands and responsibilities of fire departments continue to grow.\(^1\) Each added characteristic also adds another level of complexity to the job. For example, hazardous materials units require special training for the control, prevention, and cleanup of hazardous materials, such as oil spills or accidents involving the transport of chemicals.\(^2\) Additionally, the use of modern technology continues to impact fire departments. The days of turning a few knobs and watching gauges are coming to an end.\(^3\) Computers and technology are now incorporated into most modern fire apparatus. The continuing advancement of technology in the fire service requires firefighters and administration to quickly adapt to changes in order to mitigate property damage and prevent the loss of life.

Success as a practitioner of fire and emergency services administration requires that the person fully understand their role and responsibilities within the fire department. The nature of these roles changes as one makes the transition from entry-level position (firefighter) to an officer within the administrative ranks. Once firefighters reach a certain rank within a department their focus shifts from performance on the fire grounds, to a focus on administration and the daily operations of the firehouse. Areas such as personnel management, budgeting, legal liability, performance management and quality management become of foremost importance to administration.\(^4\) With the realization that the fire service is becoming more complex and that management knowledge is essential to maximizing performance of fire departments, more emphasis on the attainment of a formal higher education is one strategy to keep firefighters up to date with the changes they are facing within the modern fire service.

This research attempts to answer the question: To what extent do fire departments require or use higher education in hiring and promotion decisions and how does this compare to the chief’s perception of the educational need? This research paper begins with a literature review, provides an overview of the research methodology, presents the results of the research with some discussion and concludes with recommendations.

LITERATURE REVIEW

Higher education in the fire service has been explored numerous times by many members of the fire service fulfilling the research requirement for their Executive Fire Officer (EFO) credentials offered by the National Fire Academy (NFA), as well as academics dedicated to researching the fire service. Previous research indicates that the widespread use of sprinkler systems has changed the fire service, leading to new responsibilities being added that require brain not brawn and because of this fire service may need to reinvent itself focusing more on education.\(^5\)

Higher education also has been mentioned in discussions for professionalizing the fire service.\(^6\) The public at large continues to become more educated. Requiring expanded higher education in the field could improve the public’s perception of the fire service as well as help push for the professionalization of the fire service.\(^7\) This idea of increased educational requirements for each position in the organizational hierarchy is supported by the National Fire Academy (NFA) in its development of the national professional development model. Developed in 2004, the model which is described as the ivory towers of higher education, supports the premise that firefighters and fire administration, armed with the knowledge and a college degree, can reduce the human and economic impact of fires in their communities.\(^8\)
This research is partially a replicated study of research conducted by the South Carolina State Firemen’s Association (SCSFA) in 1997 and replicated in 2004. The SCSFA’s higher education committee initiated and funded research to evaluate the state of education in South Carolina’s fire service and report perceptions about the role that higher education plays in the firefighting field.9

METHODOLOGY

This research focused on North Carolina municipalities that fit two criteria: 1) have a population between 5,000 and 25,000 and 2) their jurisdiction is serviced by a professional fire department.10 This resulted in a population of 70 municipalities. This study used questions directly from the SCSFA survey used in 1997 and 2004, supplemented with additional questions in order to develop an electronic survey instrument (appendix 2).

The survey instrument was designed to evaluate how institutionalized or formalized the higher education requirements are within the current hiring and promotion practices, seeks to understand fire chiefs’ personal views of the value of higher education to the fire service, and asks the fire chiefs whether or not they see any difference between the firefighters they supervise with and without higher education. An internet based survey was administered in December 2011. The results were anonymous.11 The survey produced a sample of 26 responses for a response rate of 37 percent.12 The survey results were analyzed to determine whether or not leadership’s views of higher education align with current hiring and promotional practices.

RESULTS

The results are presented in 4 sections: 1) display of the educational requirements for the current hiring and promotion practices 2) examination of fire chiefs’ views of the value of higher education to the fire service 3) higher education’s perceived impact on a firefighters work performance and concludes with 4) fire chiefs’ opinion of the minimal educational requirements to be successful for each position within a fire department.

Education in the hiring and promotion process: Figure 1 displays the minimum education requirements for each of the five different job classifications for fire departments.

The graph shows that a high school education is the predominant educational requirement for all positions up until the fire chief. Higher education, a bachelor’s degree, is first required at the chief officer level, but only required by 1 department, and increases as a requirement for subsequent positions. It should be noted that a master’s degree is not required for any position. Additionally, 13 of 23 respondents (57 percent)
indicate that the educational requirements for their department have increased during their tenure as chief.

**Chiefs’ view of the value of higher education to the fire service:** The respondents were asked to state their level of agreement (strongly disagree, disagree, neither agree nor disagree, agree or strongly agree) with the statement that “higher education is important to a firefighter’s success in the fire service.” None of the respondents disagreed with the statement, with an overwhelming percentage (91 percent) indicating that they agree or strongly agree, while the other 9 percent opted to answer neither agree nor disagree.

Educational incentives were used as a proxy to determining the organizational commitment of the chief and the department to assist firefighters in obtaining higher education. Table 1 shows which incentives the departments have offered for firefighters pursuing higher education degrees.

<table>
<thead>
<tr>
<th>Table 1. Educational Incentives (N=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full tuition reimbursement</td>
</tr>
<tr>
<td>Partial tuition reimbursement</td>
</tr>
<tr>
<td>Time off (no make-up requirement)</td>
</tr>
<tr>
<td>Time off (make-up requirement)</td>
</tr>
<tr>
<td>Nothing offered</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

*Percentages add up to be over 100 percent

The table shows that departments most commonly offer partial tuition reimbursement, followed by allowing firefighters to take time off to attend classes with no make-up requirement, as incentives for firefighters to pursue higher education degrees. The 4 percent in the “other” category stated that travel, food, books and hotel costs are sometimes paid. It should be noted that the total percentage adds up to be over 100 percent because the respondents were allowed to choose all options that have applied for their department. The commitment to provide incentives for higher education is about as strong as the chief’s view of the importance of education to a firefighter’s success, with 88 percent of the respondent’s departments offering some type of incentive to firefighters pursuing a higher education degree. It should be noted the recession of the past few years may have affected what incentives were offered and how prevalent they were. However, forty-eight percent of the departments did not provide a salary bump for firefighter’s who obtained a higher education degree. Of the departments that said pay is adjusted for a firefighter obtaining a college degree, only 13 percent reported that the salary increase always happens.

**Higher Education’s perceived impact on firefighter’s work performance:** The respondents were asked to identify to what extent a firefighter having a college degree positively impacts 9 work factors (identified in the SCFA research). The perceived impact of a college education is reported to have a positive impact on all 9 of the work factors (figure 2). While a majority of the respondents agree that college education has a positive impact on all of the identified work factors, the degree of the perceived impact varies from some impact to high impact. See Appendix 1 to view respondents’ level of agreement on higher education’s perceived positive impact on the identified work factors. Creativity, problem
solving skills, motivation, communication skills, and work quality were all factors that 90-95 percent of the respondents reported to be positively impacted by a college education. Eighty-five percent of the respondents indicated that a college education had a positive impact on the strength of promotional potential for a firefighter.

**Fire Chiefs opinion of educational requirements:** The chief’s opinion of the minimal level of education to be successful at each of the 5 positions (Figure 3) indicates the need for additional education as a firefighter progresses up the organizational hierarchy. A high school education was sufficient for success only at the entry level firefighting position, quickly increasing to an associate’s degree at the next rung of the organizational ladder, chief officer position. Higher education, a bachelor’s degree, is first reported as necessary at the chief officer position, and the need increases for the two remaining positions higher in the organization. Additionally, a master’s degree was indicated as being necessary for success at both the Assistant/Deputy Chief and Fire Chief positions.

**DISCUSSION**

The results of this research indicate that higher education is an essential component, in the opinion of the fire chiefs, to the success of a firefighter’s career. The respondents noticed a distinct positive impact that higher education has on all 9 of the work factors identified in this research. The importance of higher education appears to be recognized by the fire departments in this research because of the high percentage of departments that offer incentives for firefighters to obtain higher education degrees. However, the formal use of higher education in the current hiring and promotion practices fails to stress the importance higher education in the fire service.

The current hiring and promotion educational requirements fail to mirror the fire chiefs’ perspective of the educational need. The current educational requirements in these practices have a high school diploma minimum requirement that can be seen all the way through the hiring and promotional processes. Compare this finding to how the vast majority of fire chiefs’ indicate that a high school education is only sufficient for entry level firefighters. This point leads to the conclusion that there is a disconnect between the current practices and the chiefs’ view of educational need. Additionally, fire chiefs indicate the importance of higher education to a firefighter’s success is much more significant than the current practices reflect and indicate the importance of a master’s degree to be successful at the Assistant/Deputy Chief and Fire Chief positions. Even though the current practices do not reflect the importance of higher
education to the fire service nor align with the chief’s perspective of the educational need, both the current practices and chiefs’ perspectives indicate the chief officer position as the position at which higher education becomes necessary for successful fulfillment of a firefighter’s duties.

The gap between current practices and the chief’s perspective of the educational need is a large one that needs the attention of North Carolina fire departments, firefighters, fire administration and scholars. Failure to address this gap means that our fire service could be missing out on vital work factors that are important components of a firefighter’s success. During this time of doing less with less, higher education could be essential to operating a fire department as efficiently and effectively as possible and help firefighters attain a successful career in the North Carolina fire service.

RECOMMENDATIONS AND CONCLUSIONS

This research concludes with two recommendations to close this perceived gap between the use of higher education in hiring and promotional practices and fire chiefs’ perception of educational needs, if/when the North Carolina fire service chooses to address this issue. First, results of this research indicate that fire chiefs’ place more importance on higher education in the fire service than do the current educational requirements. Fire chiefs can use their leadership abilities to incorporate their perception of educational needs into new hiring and promotion practices that raise the minimal educational requirements. This task cannot be adequately addressed by fire chiefs alone and would require collaboration between senior fire administration, fire chiefs, and fire human resource departments, for example, to reclassify the necessary skills, certifications and education for each position within the fire department.

Second, North Carolina fire departments need to develop new recruitment strategies to attract candidates that already hold higher education degrees. Fire departments are paramilitary organizations. The typical progression is from entry level positions (firefighter) to company officer to chief officers with the understanding that knowledge and experience gained in each position within the department is essential in adequately preparing an individual for promotion within the hierarchy. It should be noted that there are times fire and EMS organizations recruit external candidates for senior administrative positions rather than promoting from within.¹³ This paramilitary structure makes addressing the importance of higher education more difficult. Hiring entry level candidates possessing a degree emphasizes the perceived benefits of higher education and allows them to instead focus on gaining the experience, expertise, and certifications, required to move their way up through the organization. An additional benefit may be having more viable internal candidates available for promotion to senior fire administration/fire chief positions, saving individuals the time of getting used to new political and departmental cultures and norms.

Current educational requirements do not match up with the fire chiefs’ opinion of the minimal education needed to be successful at each position within the fire hierarchy. Additionally, higher education is perceived to have a positive impact on all 9 identified work factors. Incorporating higher education requirements into the North Carolina fire service will take the guidance and leadership of fire chiefs. Institutionalizing the importance of higher education into the hiring and promotion requirements for North Carolina fire departments may not be an easy thing to accomplish, but the benefits of making this transition appear to be many. In order to realize these perceived benefits the North Carolina fire service should rely on the leadership and vision of its fire chiefs’ and take on the challenge of closing this perceived gap.
ENDNOTES


4 Fleming, Robert. Effective Fire and Emergency Services Administration.


7 Poulin, Thomas. "Increased education requirements and universal performance standards can improve the public's perception of the fire service." Fire Chief.


9 Kassekert, Anthony. "South Carolina fire chiefs' perceptions of higher education for firefighters 2004."

10 These municipalities were selected based on statistics in The Directory of North Carolina Municipal Officials and Buyers’ Guide, published and released by The North Carolina League of Municipalities in 2010. Once these municipalities were identified, the name and e-mail address for the fire chiefs were compiled into a database.

11 After the development of the survey instrument, it was pretest by 3 fire chiefs, not included in the sample, to verify that the survey instrument was capturing what this research intended and to modify the survey to clarify any problems or questions the pretest respondents reported.

12 The North Carolina Association of Fire Chiefs was provided a copy of the survey instrument and cover letters and agreed to endorse this research. The original survey and cover letter were sent out in December, with a two additional follow ups/reminders being sent out 1 and 2 weeks later.

13 Fleming, Robert. Effective Fire and Emergency Services Administration.


### Appendix 1

**Table 2. Work Factors (N= 23)**

<table>
<thead>
<tr>
<th>Factors</th>
<th>No impact</th>
<th>Some impact</th>
<th>Moderate impact</th>
<th>High impact</th>
<th>No Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of promotion potential</td>
<td>5%</td>
<td>5%</td>
<td>35%</td>
<td>45%</td>
<td>10%</td>
</tr>
<tr>
<td>Creativity</td>
<td>0%</td>
<td>15%</td>
<td>35%</td>
<td>35%</td>
<td>10%</td>
</tr>
<tr>
<td>Problem solving skills</td>
<td>0%</td>
<td>20%</td>
<td>35%</td>
<td>40%</td>
<td>5%</td>
</tr>
<tr>
<td>Motivation</td>
<td>5%</td>
<td>35%</td>
<td>35%</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>Communication skills</td>
<td>0%</td>
<td>10%</td>
<td>35%</td>
<td>50%</td>
<td>5%</td>
</tr>
<tr>
<td>Emergency response performance</td>
<td>30%</td>
<td>35%</td>
<td>30%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Work attitude</td>
<td>25%</td>
<td>5%</td>
<td>55%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Reliability</td>
<td>20%</td>
<td>25%</td>
<td>35%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>Work quality</td>
<td>5%</td>
<td>15%</td>
<td>45%</td>
<td>30%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Appendix 2

North Carolina Fire Chief Survey

Section 1: This section will ask you questions about whether or not higher education is required in the current hiring and promotion practices for your department. Additional questions will be asked to help better understand how your department uses higher education in these practices. All answers you submit for this survey are anonymous.

In the hiring process we require or indicate as a preference the following:

<table>
<thead>
<tr>
<th></th>
<th>Entry (Firefighter)</th>
<th>Company Officer (Lieutenant-Captain)</th>
<th>Chief Officer (Battalion Chief-District Chief)</th>
<th>Assistant Chief/Deputy Chief</th>
<th>Chief of the Department</th>
</tr>
</thead>
</table>
During your time as Chief of the department have the educational requirements changed?

- Yes
- No
- I don't know

During your time as Chief of the department how have the educational requirements changed?

- Increased
- Decreased

Is education considered in establishing salary level for firefighters?

- Yes
- No
- I don't know

Over the past few years has your department provided any of the following incentives for firefighters pursuing higher education? (check all that apply)

- Full tuition reimbursement
- Partial tuition reimbursement
- Time off (no make-up requirement)
- Time off (make-up requirement)
- Nothing offered
- Other ____________________

How often is additional pay provided for higher education degrees (Bachelor's degree or higher) obtained while in service?

- Never
- Rarely
- Sometimes
- Always
Do you supervise college graduates (Bachelors degree and above)? If yes, how many?

☐ Yes ____________________
☐ No ____________________

Section 2: This section will ask you questions about your opinion of the impact of higher education in the fire service. Additionally, this section will ask your opinion about what you believe the educational requirements should be for your department.

From your experience to what extent does a firefighter having a college degree positively impact that employee:

<table>
<thead>
<tr>
<th></th>
<th>No impact</th>
<th>Some impact</th>
<th>Moderate impact</th>
<th>High impact</th>
<th>No Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of promotion potential</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Creativity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Problem solving skills</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Motivation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Communication skills</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Emergency response performance</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Work attitude</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Reliability</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Work quality</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

If your department DOES NOT currently have firefighters with a bachelor’s degree or higher, is this something your department seeks?

☐ Yes
☐ No
☐ I don't know
Are there obstacles you feel your department faces when trying to attract college educated candidates?

- Yes
- No
- I don't know

What obstacles do you feel your department faces when trying to attract college educated candidates?

Please indicate your level of agreement with the following statement:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher education is important to a firefighter's success in the fire service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In your opinion, what is the minimal level of education an employee would need to be successful in the following positions?

<table>
<thead>
<tr>
<th></th>
<th>High School (G.E.D.)</th>
<th>Associates Degree</th>
<th>Bachelors Degree</th>
<th>Masters Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company Officer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chief Officer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Chief/Deputy Chief</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chief of the Department</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In your opinion, what would be the optimal level of education for an employee in the following positions?

<table>
<thead>
<tr>
<th>Position</th>
<th>High School (G.E.D.)</th>
<th>Associates Degree</th>
<th>Bachelors Degree</th>
<th>Masters Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Level</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Company Officer</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Chief Officer</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Assistant Chief/Deputy Chief</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Chief of the Department</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Section 3: This section will ask you questions about your background.

What is the highest level of education you have completed?

- GED
- High School
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Doctorate

How many years of service do you have at this fire department?

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-10 years
- 11 or more years
How long have you been chief of this fire department?

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-10 years
- 11 or more years

If your department had additional funding available for education and training where would you allocate the majority of these additional resources?

- Higher education
- Training and certifications

Section 4: This section will ask you questions about characteristics of your department.

How many full time firefighters does your department currently employ?

- 5-10
- 11-15
- 16-20
- 21-25
- 26-30
- 31-35
- 36-40
- more than 40

Which North Carolina State Firefighter's Association does your department geographical identify with?

- Western
- Piedmont
- Eastern