CORE COMPOTENCIES AND THE KANSAS CITY, MISSOURI FIRE DEPARTMENT: ARE WE DOING ENOUGH?

Executive Development

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Abstract

The cadets of today's fire department are required to hold a multitude of certifications in a wide range of specialties. Along with being proficient in basic skills, today's firefighters are certified in emergency medical, hazardous materials, aircraft firefighting and other specialty certifications along with their regular structural training.

The problem addressed in this Applied Research Project is that the Kansas City, Missouri Fire Department does not have a systematic training program; the effects of which are skill degradation and injuries.

The purpose of this research paper is to identify key components of the Kansas City, Missouri Fire Department's skills training program, examine our current processes for evaluating the acquisition and maintenance of core skills and competencies, compare our processes to those of other similarly situated fire service agencies, and identify any departmental processes, either formal or informal, that may impact the successful implementation of the strategic initiatives related to defining and maintaining core competencies and skills. The research also sought to recommend specific objectives towards the implementation of a skills training program in accordance with NFPA 1001.

This study uses the descriptive and evaluative research methodologies the research questions are as follows:

1. How are competency skills evaluated within the Kansas City, Missouri Fire Department as it relates to selection, training, certification, apprenticeship, continuing education/inservice training, skill maintenance, and performance appraisal?
2. How are other departments evaluating firefighters skills after leaving the academy?

3. What are the Kansas City, Missouri Fire Department companies currently training on, and what is their willingness to standardize this training?
4. How would the organization move toward specifying, measuring and maintaining fundamental skill and competencies?

A literature review was conducted utilizing publications from the Learning Resource Center (LRC) at the National Emergency Training Center (NETC). Additional literature review was conducted using educational material from the Kansas City, Missouri Fire Department Training Academy, relevant texts and publications in human resources and management, and a number of Internet and web-based resources.

The results of this study show that the Kansas City, Missouri Fire Department must implement a systematic training program. Several departmental surveys were distributed across the country to similar situated fire departments, an internal survey utilizing the computer network and personal interviews were conducted with key leaders of the department. The findings from the literature review and these three data collection techniques were used to develop a recommendation to the departments Labor/Management Steering Committee.

Table of Contents

List of Tables

Introduction

Knowledge, skills and abilities (KSA's) make up any job in the context of the application of a specific action in a situation or circumstance. It is no different in the fire service, with the ever-growing list of skills a firefighter has to learn from the classroom to the street. The initial training of cadets and the continuing education of the seasoned veteran are two reasons firefighters have kept up to date on the newest medical technological life saving devices and techniques. The Kansas City, Missouri Fire Department (KCFD) along with many other leading fire department organizations, are advocating training as one of the ways to decrease firefighter injuries (cf. Grote, 2005; IAFC, 2005).

As late as the 1970's the Department of Labor (DoL) defined firefighting principally as "unskilled labor" based on the nature of its KSA's and the level of supervision provided in their execution (www.dol.gov). That definition could not be used for today's firefighter with the wide variety of jobs and special skills today's firefighter has to undertake to be certified as a Firefighter II (FF II) (standards for this certification, issued by state authorities designated by the International Fire Service Accreditation Congress, are linked directly to NFPA 1001). (IFSAC) The cadets of today's fire service are required to hold a multitude of certifications in a wide range of specialties. Along with being proficient in basic skills, today's firefighters are certified in emergency medical, hazardous materials, aircraft firefighting and other specialty certifications along with their regular structural training.

Firefighters cross-trained as paramedics, present in an increasing number of fire service agencies, are required not only to pass written and skill proficiency examinations at the time of licensure, but must repeatedly receive continuing education instruction in stringently specified

core areas and demonstrate continued proficiency on a regular basis (see standards for EMTs and paramedics at http://www.NREMT.org).

Firefighters cross-trained as Emergency Medical Technicians (EMTs), (as are all KCFD suppression personnel) must also adhere to strictly specified proficiency and continuing education standards. A KCFD EMT must complete 100 CEU credit hours across each 5 year licensing period, recertify in CPR annually, and are subject to care review audits at the discretion of the Director of Health and the Emergency Physicians Advisory Board which may result in additional mandates for training and skill demonstration and/or licensure action.

A KCFD cadet receives fire suppression instruction in accordance to the Missouri State Department of Fire Safety's required minimum of 236 hours of instruction and demonstration before graduation. During 16 weeks of instruction and subsequent 12 weeks of On-The-Job training (OJT) in the field, a KCFD cadet will have accumulated a total 640 hours of training. Cadets must pass both written and practical examinations from the State Fire Marshal to earn International Fire Service Accreditation Congress (IFSAC) designated certification at the Firefighter II level as a condition of continued employment. After that, however, there are no standardized requirements respecting continuing education, skills proficiency, or recertification for core suppression skills.

How these skills are defined, taught, exercised, tested and maintained becomes a central and critical management issue. Training is widely recognized as critical for skill development and skill enhancement. The fire-service "talks the talk", but how do we "walk the walk"? We speak of "training everyday", but how we decide what we'll train for, how we'll approach or how we'll distribute our efforts, or what objective we'll set is unclear.

Coleman (2004) states, "We also need to consider whether that training is real or pencil whipped. Pencil whipping is when you spend 15 minutes doing something and take credit for two hours. Because many training systems have no built-in mechanism for performance measurements, it's really easy for people to do exactly that."

More importantly, how do we determine how effectively we've accomplished our skill training objectives? Absent a detailed, measurable plan for skill development and maintenance, training may be little more than exercise. A detailed training schedule with clearly specified knowledge and skill objectives, checked and monitored by written tests and demonstrations of proficiency, is the most logical way the organization could measure its efforts.

Skill maintenance is an issue oddly addressed in fire service literature. It is something every fire department strives to achieve, where companies would be able to reliably execute core evolutions without flaw. To the untrained eye, a working fire scene may appear as an enterprise of enormous confusion in which the end product somehow ends up being what was expected. But it is well known in the industry that all fires eventually go out and all bleeding eventually stops. The trained eye appreciates that it is how we achieve that result that really matters--not accomplishing a critical task could spell disaster; failure to properly execute an ordered evolution could delay the outcome, instigate other problems, compromise safety, or even injure or kill a coworker. The importance of maintaining core skills at a level that ensures the capacity to perform them competently upon demand is the foundation for turning unsafe acts into safe ones.

The traditional mindset of the training accomplished in the field was by the junior firefighter latching onto the Captain and learning the ropes through his/her experiences and through executing competencies through actual fire ground experience. With the current level of seniority on KCFD, the Captain may only have a few years of experience over the junior

firefighter and that seniority may well have come from the same low response district they are currently assigned. In this sort of working environment, increasingly common in most every fire department, it is not only important to ensure that skills taught at a basic level are refined and enhanced in planned ways that one's assignment may no longer afford, but also to ensure that those core skills taught and tested when the cadet left the academy remain proficient and ready after months and years of possible limited application.

Skills degrade when underutilized or unaddressed, what could be called, "booster shots" are required to keep skills up to date. Many of the skills needed in firefighting, fall into what Gordon Graham (2002, see Figure 1) termed the "red zone": events that happen with low frequency but present high risk when they occur. When a situation presents its self infrequently, it puts the firefighter at higher risk because it isn't familiar to them. Consequentially, when the situation presents itself more frequently the risks fall because the response is practiced and almost routine. Training for many situations as possible offsets the risks of infrequency. In other words, more training reduces the likelihood of encountering an unfamiliar situation thus lowering the risk of being injured and failure of the operation.

Figure 1

	Low Risk	High Risk
High Frequency		
Low Frequency		

The foundation for maintaining skill proficiency stems from establishing some set of core skills that are essential to safe and successful fire suppression. Core skills are used in all

situations—high rise fires and kitchen fires require the same basic skills differing only in the scale of the effort.

Even the best incident management approach depends, at its most basic level, on the capacity of line suppression personnel to execute the tactics ordered. That, on its own, assumes that those fundamental suppression skills are ready to be utilized in a different and demanding set of circumstances. If the fundamental skills falter, the whole incident management strategy is compromised.

Specific measures are needed to ensure that these skills remain proficient despite frequency of skill use. Skill maintenance programs need to address skill degradation in a planned fashion that includes standards, review and performance completion. Even as training looks at the variety of situations in which these skills may be demanded, a predictable outcome remains the foundation of safe and effective suppression.

The Kansas City, Missouri Fire Department has emerged as one of the nations leading departments with respect to detailed and fundamental strategic planning. The Department operates from a five-year strategic plan built by its Labor Management Partnership to provide a detailed map for how it intends to achieve its goals in each major aspect of its operation. Six major areas are addressed (emergency operations, customer service, human resources, technical services, professional development, and health, wellness, and safety) and detailed objectives are spelled out for each. The implementation of the plan is monitored by a series of labor management committees, with integration overseen by a steering committee. It is in the context of the strategic plan and the Labor Management Partnership that programs are developed and decisions made regarding the department's methods of doing its business.

Substantial advances have taken place in professional development selection, training, certification and apprenticeship; these have included major overhauls in areas such as training, testing, and certification. Included as an initiative under professional development has been construction of "core competencies" to be defined, reviewed regularly, and demonstrated.

The purpose of this research paper is to identify key components of the Kansas City, Missouri Fire Department's skills training program, examine our current processes for evaluating the acquisition and maintenance of core skills and competencies, compare our processes to those of other similarly situated fire service agencies, and identify any departmental processes, either formal or informal, that may impact the successful implementation of the strategic initiatives related to defining and maintaining core competencies and skills. The research also sought to recommend specific objectives towards the implementation of a skills training program in accordance with NFPA 1001.

This study uses the descriptive and evaluative research methodologies the research questions are as follows:

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Background and Significance

The City of Kansas City, Missouri was incorporated in 1821. The city has been since its inception a center for commerce and transportation, growing into a complex and expansive metropolitan area with an extensive system of highways, railroads, air transportation, and river traffic. The City of Kansas City itself incorporates 317 square miles in parts of four counties, and is home to more than 443,000 persons.

Kansas City, Missouri has a Council/City Manager form of government and is divided into six council districts. The city employs over 6,000 full time employees. The public safety departments of the city are comprised of fire and police departments, and a public utility model ambulance service.

The Kansas City, Missouri Fire Department currently has over 970 emergency and administrative employees. The department staff's 34 fire stations housing 33 engines, 3 rescues and 12 aerial apparatus. In the year 2004, the fire department responded to over 50,000 emergency and non-emergency calls. Inspections, public education efforts, and other community service endeavors generated more than 400,000 additional citizen contact episodes, yielding a total contact number commensurate with the city's total population. The Fire Department has consistently led all city services in the City Auditor's annual surveys of citizen satisfaction, with more than 70% of those surveyed reporting highly favorable impressions from their contacts.

In the last five years the department has hired over 400 new firefighters, and more than two thirds of its firefighters now have less than ten years service. The department has also lost a significant number of senior firefighters to retirement, accelerated by retirement incentive options offered at the end of the last decade.

The Department has recognized that periods of significant growth require systematized approaches to managing change and its implications. The Department and the two labor organizations representing its employees (Local 42 of the International Association of firefighters, representing line staff, and Local 3808, IAFF, representing battalion chiefs and supervisors) entered into a formal Labor Management Partnership in 2001 to bring a philosophy and practice of shared governance to all its operations. That partnership created a five-year Strategic Plan to plot its course toward change with a vision of setting standards for a "world class" fire service of the 21st Century. The process began with the Leadership Group, consisting of members of the Labor/Management Steering Committee and the co-chairs of the six standing committees, creating the organizational mission, vision, values, goals, and strategic initiatives. The standing committees, building on these elements crafted objectives, identified critical tasks required to achieve the objectives, established timelines for completion of each objective, and identified those responsible for their accomplishment.

A number of major initiatives has been undertaken and accomplished based on the strategic plan. The processes for selection and promotion of fire suppression personnel have been extensively overhauled, beginning with detailed job analysis and culminating in new procedures for testing and evaluating knowledge and skills essential for performance. Curriculum for training recruits has also been extensively overhauled to directly reflect NFPA standards, and is taught along IFSTA established competencies; recruits must now pass independent certification testing by the Missouri Department of Public Safety (State Fire Marshal), the IFSAC designated certifying agent for Firefighter I/II, as a condition of continued employment. An apprenticeship period consisting of 12 weeks structured on the job training has been added following academy graduation to ensure a successful and balanced transition to work

in the field. All personnel have been instructed in the National Incident Management System (NIMS) and its routine utilization is mandated and monitored. All personnel have also completed EMT training and a system for compliance with continuing education requirements for EMT licensure has been developed and implemented.

Continuing education and maintenance of core skills are recognized elements of professional standing for an increasing number of regulated professions. Most all health care professions include documented continuing education as an element of maintaining licensure or certification; reflecting the realization that new knowledge emerges and basic information must be revisited to maintain proficiency. Professions, in which critical skills are essential, such as airline pilots and railroad engineers, often demand regular performance-based demonstrations of currency and competency in the application of those skills in real or simulated situations. Firefighters must meet these demands in relationship to their EMS functions, but such standards for fire suppression are less commonly found.

The question of core competencies in fire suppression receives attention in the Strategic Plan as an element of goals related to health and safety, professional development, and emergency operations. Initiatives under Goal 6 (Professional Development) indicate that the department shall "provide comprehensive training and professional development to ensure personnel are fully prepared to efficiently perform their duties and responsibilities" (Kansas City Missouri Fire Department, 2001, pg. 59), and a specific set of objectives (6-B through 6-D) reflects the intention to establish core competencies for companies, specialized divisions, and out of class assignments. These objectives also suggest that demonstration of these competencies will be formalized and ongoing. As of this writing, however, the last formal assessment of competencies is conducted prior to completion of academy training.

This paper was prepared to meet the requirements of the Executive Development course. It is intended to establish the role of competency evaluation in maintaining competence and countering skill degradation, examine both the Kansas City, Missouri Fire Department's efforts in that respect and those of comparable agencies, compare these to perceptions of current practice, and consider avenues for implementing change.

This paper was also prepared to meet one of the operational objectives of the United States Fire Administration. The importance of a commitment from the organization is paramount in the success of any skills training program, and this effort will help ensure that commitment. The third operational objective of the United States Fire Administration is to reduce the loss of life of firefighters. The implementation and evaluation of skills training program will help ensure uniform training, enhance the safety and efficiency of fire suppression personnel, and provide the citizens with enhanced services, the link between this project and the United States Fire Administration is clear.

Literature Review

A literature review was conducted utilizing publications from the Learning Resource Center (LRC) at the National Emergency Training Center (NETC). Additional literature review was conducted using educational material from the Kansas City, Missouri Fire training academy, relevant texts and publications in human resources and management, and a number of Internet and web-based resources.

What it takes to do a particular job is a complex question that can be approached from a number of angles (See Cascio, 2003, Chapter 5). Many of these approaches are derived from analysis of the critical tasks involved in the execution of the job and, in more depth, from

assessment of the knowledge, skills, abilities, and other characteristics inherent in the performance of those critical tasks (Cascio, 2003, p. 166). This approach to job analysis is particularly pertinent to the development of selection procedures for testing and/or promotion (see EEOC, 1978), and to the teaching and training of job related competencies needed to directly perform critical occupational tasks (IFSTA, 1999, p. 104). Most methods of performance appraisal also rest upon job and task analysis (Cascio, 2003, Chapter 9), with increasing attention being placed on behaviorally anchored approaches that evaluate both quantitatively and qualitatively the actual performance of critical job tasks (Cascio, 2003, p. 344). Ideally, there should be a clear thread running through all these uses of job and task analysis, such that there is clear continuity from selection, through training, and into regular performance appraisal. Nonetheless, these aspects are often developed in relative independence, being created or revised at different times by different staff, consultants, or committees without direct and deliberate coordination.

One critical aspect of strategic organizational planning is to work toward ensuring that all processes that should interact are indeed systematically interconnected and do so in planned, meaningful, and useful ways (Wallace, 1998). Strategic planning is a major factor in effective human resource development and workforce quality improvement (Cascio, 2003). Among the major strategic needs of any developing organization is to ensure that the selection, training, and maintenance of its members ensure that the quality of its products and services remain consistent and meet or exceed customer expectations even as the dynamics of the organization and its environment change. Fire departments in particular are experiencing a heightened need for effective strategic planning as both technologies and standards evolve and public expectations increase; delivering service that can satisfy evolving industry standards, meet citizen and

governmental expectations, and do so in safe and effective fashions is among the greatest challenges the industry faces (Wallace, 1998).

Citizen expectations of a fire department may be growing, but they are rarely clearly defined or established. Kansas City's City Auditor conducts an annual citizen satisfaction survey by sampling over 4,000 citizens regarding their perceptions of the quality of various City services. The Fire Department routinely scores highest in customer satisfaction of all departments (City Auditor, 2005). That by itself might seem to indicate that the Kansas City, Missouri Fire Department is "walking the walk" to its citizen's full satisfaction, but what does the survey tell us? In truth, it tells us only that the fire department took care of business and the citizens recognize this; whether we did it as well, as efficiently, as safely, or as effectively as we could or maybe should have done is unlikely to be apparent to most citizen consumers.

KCFD's Labor Management Partnership made an early and firm commitment to developing and working toward a detailed strategic plan to realize its vision of setting standards for the fire department of the 21st Century. A detailed process, dubbed "Customer Centered Strategic Planning Process," was selected as the approach and Emergency Services Consulting (ESCi) of Wilsonville, Oregon was contracted as the facilitation agents for the process. Over nine months of work by six subcommittees, led by a Leadership Group comprised of principals and committee co-chairs from the Labor Management Partnership, went into the development of a plan (including standards of coverage and deployment analysis) described by ESCi as the most detailed strategic plan of any major U.S. fire agency. Issues related to recruitment, selection, training, continuing education, and the like are all addressed in various strategic initiatives, objectives, and task compilations; progress on each objective is monitored and reported annually.

Review of KCFD Strategic Plan (KCFD, 2003) indicates that elements related to knowledge, skills, and competencies involved in the structural firefighting component of KCFD mission are addressed in several distinct areas:

Job Analysis and Job Descriptions:

Objective 4-C: Develop clear and comprehensive job descriptions for all positions.

Recruitment and Selection:

Objective 6-N: Develop a performance based promotional process (includes entrant cadet selection).

Entry Level Cadet Training:

Objective 6-I: Develop a systematic review process to ensure that cadet training is continually reviewed and revised to ensure effective delivery of current core competencies, professional standards, and technical skills required for safe and effective performance as an entry-level firefighter.

On the Job Training/Apprenticeship:

Strategic Initiatives/Goal 6: Develop a Department of Labor approved apprenticeship and post-apprenticeship standards and competencies program.

Objective 1-C: Implement staffing plan. (Post-cadet staffing: Ensure on the job training assignment following academy completion occurs at the busiest urban core companies; identify companies based on responses, frequency of calls, and availability of space to accommodate OJT for six 8-hour assignments).

Continuing Education/Inservice Training:

Objective 3-R: Provide continuing education and training necessary to ensure knowledge, skills, and competencies are maintained at a high level.

Quality Assurance/Quality Improvement:

Objective 6-B: Establish a standard set of core competencies necessary to successfully perform at the company level for each configuration or assignment.

Objective 6-C: Establish a standard set of core competencies necessary to successfully work out of class (WOC) for each job classification.

Objective 6-D: Establish a standard set of core competencies necessary to successfully perform in the specialized divisions including ARFF, HazMat, Communications, Training, Fire Prevention, and Fire Investigation.

Objective 6-E: Develop a set of standardized evolutions to be utilized at the company level to demonstrate and document proficiency of required competency.

Objective 6-F: Develop a centralized database to ensure that current competencies and training history are consistently available at the individual, company, or district level.

Performance Appraisal:

Objective 4-D: Develop a consistent and effective personnel performance evaluation system.

Determine the purpose of personnel performance evaluation.

Review current system.

Review current evaluation guidelines.

Review current job descriptions with information gathered from Strategic Planning Initiative.

Define standards for each job classifications (Firefighter, FAO, Captains).

Review current job descriptions from HR.

Write GAG/GOG.

Present evaluation guidelines and evaluation form to LMSC.

There are other objectives (e.g., Objective 2-J concerning utilization of personal protective equipment, Objective 3-D concerning customer feedback procedures, Objective 6-G concerning live fire training, or 6-H regarding technical rescue specialties) that arguably touch on specific competencies or competency areas, but these are less directly tied to the issues at hand. These strategic plan elements clearly indicate that the competency-based approaches have been considered in each key area impacting human resource management within KCFD, but the interconnection and progression of the standards and competencies involved is not directly addressed.

Successfully connecting these strategic initiatives and their component objectives into an integrated pattern of recruitment, selection, training, job performance, continuing education, proficiency assessment, and performance appraisal requires a much broader appreciation of principles related to the cognitive psychology of skill acquisition and skill retention. Particularly interesting is the application of those principles to training and performance issues in environments where low frequency/high risk situations are predictable and their resolution dependent on competent execution of critical tasks and skills. While the fire service has generated only a very limited literature base regarding these issues, significant attention has been applied in military circles, much of which may be useful for the fire service to consider.

Stothard and Nicholson (2001) provided an extensive review of this information in a commissioned report to the Australian Department of Defence. The report specifically supports a model of skill maintenance and monitoring in which skill proficiency is regularly assessed and evaluated so that decreases in proficiency below a pre-established minimum required proficiency level (MRP) automatically triggers retraining. They note that many models of skill degradation

assume a certain deterioration of proficiency, but argue based on various studies and reports that the deterioration curve is more likely to be an exponential function, with the power function for skill loss looking much like the inverse of commonly seen power functions for skill acquisition. This would suggest that proficiencies learned in entry level training decay quickly if not reinforced or retrained, and that rehearsal and retraining should begin earlier and be repeated more frequently than most fire service proposals have seemingly envisioned.

Stothard and Nicholson's (2001) review of literature summarizes skill proficiency into three phases: *Cognitive learning* (thinking) in which the information underlying a skill and establishing when and how it should be employed is acquired; *associative learning* (linking) in which errors in initial understanding are gradually detected as the knowledge is associated with actions and behaviors needed to put it into play and performance capability is enhanced; and the *autonomous phase* (doing) where the performance of the skill becomes increasingly rapid and automatic. The latter stage is associated with *expertise* more than with acquisition, a status they argue to represent a qualitatively different pattern of organizing and retaining information and behaviors.

Expertise, however, does not of itself imply permanent mastery. Stothard and Nicholson (2001) offered a detailed review of skill retention issues as well, noting that most training literature focuses only on acquisition. The issue of continued capability to perform at a proficient level has received less attention, but several key issues are outlined:

Task issues relate to the complexity of the task; the impact of the order in which component evolutions must be performed; the nature of the steps involved (particularly the mix of cognitive and behavioral factors needed to perform it successfully); feedback given regarding

successful or incorrect performance; and the presence of memory aids in the context of performing the skill.

Training factors concentrate on features of how training is accomplished and continued. *Overtraining*, in particular, is discussed with respect to the need to achieve a much higher level of proficiency in initial training than may ultimately be required in order to ensure that skill deterioration will not lead to loss of minimum proficiency when the skill is actually required in the field. The importance of *retraining* is also emphasized, in that the cognitive and behavioral dynamics of retraining have been shown to be qualitatively different from those involved in initial acquisition.

Retention interval factors concern the length of time between training and performance, between training and retraining, or between training and assessment. Training is best retained where practice is distributed over time rather than clumped into tightly spaced intervals, and where the opportunity to practice in a feedback rich environment is frequently provided and utilized.

Individual factors such as ability level and motivation are also critical, meaning that additional effort must be allocated to ensure that those of less "natural ability" on particular skills receive instruction as required, and that the motivation to learn and perform is nurtured and, wherever possible, systematically enhanced.

Such matters are not unknown in most skilled occupations. Medical specialists from paramedics to brain surgeons are accustomed to "skills labs" where critical skill evolutions are demonstrated as feedback and retraining are provided; airline pilots and railroad engineers "retrain" frequently in simulators where rare but critical events are presented and performance assessed and critiqued. Respecting task proficiency in the fire service Vincent (1978) reported in

his Pepperdine University dissertation that research completed in Washington State documented that after two months of no practice, the time to complete a manipulative task could be expected to increase by 150%, and at the end of four months this time was found to have increased by 200%. Yet we find surprisingly little integration of retraining, retesting, or related matters of skill retention following the fire recruit from the academy to the field.

Nonetheless, it does appear that some such connections exist in KCFD's strategic planning efforts. KCFD's selection program, including its recruitment and testing of applicants for entry-level firefighter positions, has been completely overhauled. Morris & McDaniel, a selection development firm with extensive experience in public safety programs, was retained in 2001 to create new job analyses, develop valid selection procedures conforming to EEOC *Uniform Guidelines for Employee Selection Procedures* (EEOC, 1978) and anchored to that job analysis, and conduct studies and reviews to ensure the validity and performance of the procedures employed. All selection procedures in the suppression service were sequentially re-evaluated as prescribed in the Strategic Plan, beginning with the entry-level position.

Job analysis here tied selection to the training standards of KCFD entrant cadet academy. These, too, had been reviewed and overhauled in accordance with strategic planning objectives. The academy now teaches its suppression components through objectives specifically anchored to the competencies established for Firefighter I and Firefighter II under NFPA 1001. Cadet performance relative to these competencies, in turn, are independently tested by certification examiners from the Missouri Department of Public Safety, accredited and designated by IFSAC as the state's certifying agency, including written examinations respecting knowledge elements and practical examinations regarding skill acquisition and performance. Accordingly, there should be a reasonably clear connection between industry standards as expressed in NFPA 1001,

training objectives, and competencies measured through certification testing. But can that continuity be verified, and does it continue through the other elements of the plan related to personnel development and performance?

KCFD apprenticeship program has evolved from an 8-hour OJT assignment to a rotation of newly graduated cadets, now designated apprentices, through assignments in engine, truck, and rescue operations over a 12 weeks period. While assigned to specific companies and not subject to detail assignments (reassignment for minimum staffing purposes), they remain attached to the academy during this period and are subject to evaluation by the Chief of Training and academy staff. Successful completion of the apprenticeship rotation is required for job retention, but the basis of that assessment is not necessarily linked to the same performance dimensions and competencies prescribed in the selection, instruction, and certification elements. Locations are selected to ensure that apprentices are *likely* to encounter situations requiring them to employ skills taught in training, but it is unclear whether such exposure and demonstration are systematically observed, assessed, and documented.

Structured inservice and continuing education activities for KCFD have been dominated by EMS subjects, driven by strict regulations respecting content, frequency, and documentation of EMS continuing education that are required for maintenance and renewal of licenses—which are, in turn, required by statute in order to practice in this domain. An entire delivery, documentation, record keeping, and reporting system has been developed to ensure that these requirements are met, and both the State Bureau of EMS and the Medical Director's office regularly audit performance. Several staff members in the training division are assigned specifically to these functions.

No parallel structure or assignments, however, exist for suppression and no requirements are prescribed by statute or regulation regarding certification. Even though, KCFD's participation in the IFSAC certification process is entirely voluntary and represents, in fact, a rather recent change on the department's part. While certification examinations must be passed for continued employment under KCFD regulations, there is no state requirement. No standards are prescribed for maintenance or renewal of the certifications. It is probably not surprising, then, that less attention has been given to this area.

Quality Assurance (QA) activities in EMS are also formally structured with dedicated staff assigned to monitor performance, document reviews, and maintain records and reports. All applications of defibrillators are thoroughly reviewed by EMS QA staff, and those reviews are reported to the Medical Director and an Emergency Physicians Advisory Board. Any deviations are subject to independent audit. Regular skill demonstrations are required in critical performance areas such as CPR and AED usage, and skill demonstrations are frequently included in CEU presentations. Again, however, there is no formal QA/QI structure for fire suppression.

The Strategic Plan does, however, provide detailed consideration of the development and utilization of a set of core competencies related to the suppression mission (KCFD, 2003, Objectives 6-B through 6-F). These objectives envision the use of a core competency system to drive a number of initiatives geared toward systematizing the performance of certain core evolutions and ensuring that they will be performed consistently and competently whenever called for in the field. Progress toward this end, however, needs to be assessed and the relationship of these competencies to those taught and tested in initial training needs particular examination.

Performance appraisal in KCFD is, like most civil service systems, an annual process that is theoretically tied to compensation and advancement. Yet the performance appraisal system currently in use is older than many of the graduating cadets who will be subject to its application, and nowhere does it reflect direct assessments of the employee's performance of critical tasks or demonstration of core competencies. The Strategic Plan calls specifically for its reconstruction, but progress in this domain also demands review.

In conformance with Stothard and Nicholson (2001), the ideally integrated system would follow a consistent, clearly defined and articulated set of skills and competencies through each aspect of professional development, resulting in:

Selection based on abilities needed to learn and develop the identified core skills and competencies;

Entry level training that trains and evaluates recruit performance of the identified core skills and competencies;

Certification standards that independently affirm competent acquisition of core skills and competencies;

Apprenticeship (or structured on the job experience following entrant training) that reinforces and further evaluates learning of core skills and competencies in the actual working environment;

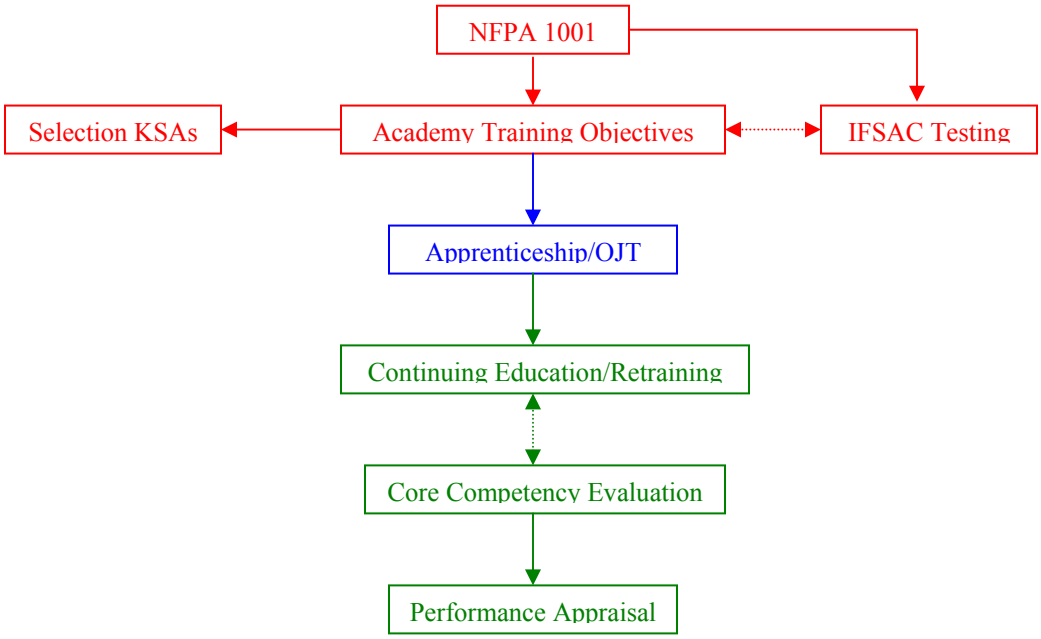
Continuing education/inservice training programs that systematically review, reinforce, and refine mastery of core skills and competencies in the actual working environment;

Proficiency reviews/assessments to regularly verify continued competency and indicate any needs for retraining; and

Performance appraisal that includes demonstrated proficiency in core skills and competencies.

The ideal system would be able to link each element to a master set of competencies, derived from an accepted industry-wide standard. Given that in fire suppression, this standard is accepted to be NFPA 1001, the ideal; system would be diagrammed as presented in Figure 2.

Figure 2



In this system, NFPA 1001 would directly establish academy training objectives and testing dimensions for certification; although functionally independent to protect the quality assurance goals of certification testing, there would be an obvious element of interplay between the two sets of objectives. Selection KSAs would be derived from academy objectives, selecting candidates capable of mastering that content. Apprenticeship (OJT) objectives would look to provide demonstration and assessment of the capacity to apply the established competencies in

field settings. Continuing education and inservice training would, in a systematic fashion, revisit core competencies to continue their reinforcement and refinement, while structure "skills drills" would allow direct assessment and verification that competency execution remained adequate over time; the levels of retention and performance would then be able to inform future CE and inservice objectives. Continued capability in executing core competencies would also be an element of annual performance review.

Accordingly, this project seeks to examine certain questions raised in the review of literature regarding competency assessment and KCFD's progress toward its effective application across our strategic personnel initiatives. The first issues center on review of current applications of competency based assessment in selection, cadet training, apprenticeship training, continuing and inservice education, quality assurance, and performance appraisal. The objective of this examination is to establish the extent to which there is a consistent and systematic thread of assessment and development along a specified set of suppression-related competencies, from recruitment to retirement. KCFD's utilization will also be compared to that of a set of comparable fire departments to compare our progress to the prevailing standards of the industry. Perceptions of KCFD suppression personnel regarding the importance of these ideas will also be surveyed to determine whether those executing its core suppression mission share the value assigned by the organization in its strategic planning. Finally, the input from leadership in Fire Administration and each of the labor groups participating in KCFD Labor Management Partnership will be sought and considered to recommend how the department can best approach integrating its various objectives related to competency based training and assessment, skill maintenance, and continuing quality improvement.

Procedures

Both descriptive and evaluative approaches were employed to address the research questions established for this project. Evaluation of archival documents, telephone survey, structured questionnaires, and key informant interviews were utilized to gather data regarding four distinct questions:

1. How are competency skills evaluated within the Kansas City Fire Department as it relates to selection, training, certification, apprenticeship, continuing education/inservice training, skill maintenance, and performance appraisal? This question was addressed through archival review of reports, documents, curricula, and materials related to each aspect of professional development reflected in the question. Job analysis reports for selection instruments, academy curricula, testing standards of the State Fire Marshal, OJT instruction and evaluation memoranda, current performance appraisal standards for fire suppression classifications, and relevant sections of KCFD *Strategic Plan* were reviewed, as were pertinent minutes, memoranda, directives, and General Administrative Guidelines (GAGs). Documents were reviewed to identify specific skill and competency sets referenced, determine sources or citations for those skills and competencies, and contrast those applied in each component with those applied in others.

2. How are other departments evaluating firefighters skills after leaving the academy? A telephone survey was conducted of ten similarly situated fire service agencies, followed by a mailed survey. All ten agencies responded. Seven questions were posed regarding the structure of the training program, standards used for training, whether training continues after academy graduation, to what extent such training is tracked, and whether formal evaluation is employed. The complete survey is presented in Appendix A.

3. How do KCFD suppression personnel describe current training practices and what is their willingness to standardize this training? A 13-item questionnaire was administered to fire suppression personnel in KCFD regarding their training experiences, their perceptions of current readiness with respect to core skills, their interest in repeated training, and the value of repeated assessment of skills. Demographic data were also collected respecting assignment, battalion (district), and time on the job. The questionnaire was approved by the Labor Management Steering Committee and distributed electronically to all stations; 130 responses were received (15.5% of emergency response personnel). Responses were received from six of the seven response districts as well as from the Hazardous Materials division. This questionnaire is presented in Appendix B.

4. How would the organization move toward specifying, measuring and maintaining fundamental skill and competencies? Personal interviews were conducted with key members of the Labor Management committees to determine their viewpoints on post academy training. The individuals interviewed were: the current Fire/Chief (Richard Dyer) the current president of each labor union (Pat Dujakovich & Louie Wright), the assistant to the Fire Chief (Dr. Richard Gist), the current Deputy Chief of Professional Development (Paul Berardi).

Fire Chief Richard Dyer represents the fire department as a key leader with both the citizens and the city government. He is a past president of the International Association of Fire Chiefs. Deputy Chief Paul Berardi has the responsibility of research, training, and development within the department. He has held that position for over 5 years. Dr. Richard Gist is known for his research throughout the fire service. Battalion Chief Pat Dujakovich is the current president of Local 3808 and holds an important role as the formal leader in the field. Captain Louie Wright

has the role of president of the International Association of Firefighters Local 42 and is an attorney of law. The protocol for these interviews is contained in Appendix C.

Limitations:

Several limitations were encountered during the process of conducting this ARP. A phone survey (Appendix A) was conducted by querying 10 similarly situated cities across the country, yielding 100% participation among that sample. An electronic version of the survey was subsequently sent to the responding cities to verify the information; only 8 of the 10 responded electronically. The study data are based on the surveys returned electronically.

Collecting a large sample of the surveys from KCFD personnel also presented some limitations. Approval was granted by the Labor Management Steering Committee to place the survey on the computer "desktop" for each of the 838 members, with assistance from the Information Technologies Department. Despite consistent progress toward utilization of electronic communication as the principal dissemination vehicle in KCFD, not all members log onto the computer system regularly. Accordingly, not all encountered the invitation to respond or completed the survey and some chose not to take part.

Literature documenting skill retention or degradation in the fire service was difficult to find. A number of documents were found in other areas of study, such as the military and medical fields. While often informative, the differences in nature of work, structure of organizations, and accepted channels for communication and learning between these fields and the fire service often limit the extent to which findings and recommendations could be generalized. The researcher would like to acknowledge his own bias by being a member of the KCFD for over 20 years and experiencing departmental training first hand.

Definitions:

Apprentice: Following graduation from the formal academy setting the cadet is placed into *OJT* for 12 additional weeks of training in the busiest districts within the cities core. The cadet is now designated an apprentice.

GAG: General Administrative Guideline; the administrative policy and procedure statements for KCFD.

GOG: General Operational Guideline; the operational policy statements for KCFD (cf. *Standard Operating Procedures*).

KCFD: Service mark identity for Kansas City, Missouri Fire Department.

KSA: Knowledge, skill, or ability defined as critical for performance of a job or set of tasks.

OJT: On the Job Training; the last phase of training where the apprentice will be rotated from a pumper, truck and rescue to use their newly acquired skills before being assigned to a company or district.

Results

Research Question 1: How are competencies and skills evaluated within the Kansas City Fire Department as it relates to selection, training, certification, apprenticeship, continuing education/inservice training, skill maintenance, and performance appraisal?

The principal set of competencies and skills for fire suppression activity is generally agreed to be NFPA 1001, *Standard for Firefighter Professional Qualifications.* These form the basis for Academy curriculum and for certification testing by the State Fire Marshal; since capability to learn the academy curriculum is the driving factor in selection testing, these competencies are

also directly and systematically related to selections. Curriculum objectives and certification testing protocols both directly reference NFPA 1001 competencies and map those competencies point-by-point to lesson plans in the curriculum and to both written test items and practical skill testing in the certification program. This component of the "skill acquisition" portion is therefore well documented and precisely mapped. That mapping, however, weakens as employees transition from the skill acquisition to skill retention.

The ideal system, conforming to Stothard and Nicholson (2001) and outlined above (pp. 20-21), was described as one that would carry the same set of basic competencies and skills systematically through all steps of the acquisition and retention process, providing a clear and specific mapping at each step or phase (see Figure 2). Each of these elements, as reflected in current and developing KCFD internal systems, was evaluated to determine the extent to which it satisfied the parameters of the ideal system described.

Table 1 summarizes for each component of the current KCFD system its connection to NFPA 1001 (the principal industry standard), how that connection is documented, how it is observed and evaluated, how those evaluations are reported, and the impact of that reporting. While certain elements are well documented and established, others have clear weaknesses as revealed in Table 1 below.

Table 1

KCFD Connection to NFPA 1001

Component	Connection	Documentation	Observation/Evaluation	Reporting	Impact
Selection	KSA's necessary to master academy curriculum (based on NFPA 1001)	Job analysis report establishing KSA's and linkage	Quizzes and interviews thoroughly documented; detailed validation reports	Scores used to establish eligibility lists	Hire/No Hire
Academy	NFPA 1001 competencies used as basis for curriculum objectives	Each chapter or segment states NFPA 1001 competencies covered	Quizzes and protocols directly check mastery of competency-linked objectives	Unit and overall performance scores	Pass/Fail Academy

Testing	NFPA competencies used as basis for written and practical testing domains	Testing manual documents competencies linked to each set of items or practical	Test scores and practical assessments based on direct observation of graded performance	Pass/Fail	Failure of certification yields discharge
Apprenticeship OJT	Narrative descriptions suggest linkages, but not clearly addressed	No direct documentation of link to NFPA 1001 competencies or to competency linked academy objectives	Only very basic "checklists" notes on experiences	Limited (Academy receives)	No clear standard/consequence for failure
Continuing Education	No currently codified CE system for suppression	Activity sheets only	Company level only; not formally assessed	Limited	Limited
Competencies	Newly evolving; not yet systematized	Newly evolving; not yet systematized	Newly evolving; not yet systematized	Newly evolving; not yet systematized	Newly evolving; not yet systematized
Performance Appraisal	Not currently connected in dimensions used	Not currently connected in dimensions used	Not currently connected in dimensions used	Not currently connected in dimensions used	Not currently connected in dimensions used

Selection: The selection system used to establish eligibility lists for KCFD recruit hiring are based on an extensive selection program built specifically for KCFD by Morris & McDaniel of Alexandria, Virginia (a selection consulting firm specializing in public safety occupations). Extensive job analysis was conducted to establish KSAs directly linked to success in mastery of the Academy curriculum (driven by NFPA 1001; see below). These connections are documented in extensive validation reports; scores from tests and interviews determine who is hired and when.

Academy training: Academy training is driven by objectives linked directly to NFPA 1001 and specifically documented for each segment or chapter covered. Quizzes and practical tests check these objectives by scored observation; scores determine passing or failure of training which, in turn, determines whether the cadet will continue to full employment.

Certification testing: The standards employed by the State Fire Marshal's office and accredited by IFSAC also directly reference specific NFPA 1001 competencies for written item

groups and for each practical testing scenario. Grading is systematic and linked to levels of performance. Scores are reported to cadets and the agency; passing and securing certification is necessary for continued employment.

Apprenticeship: This is an evolving area, growing out of initial "rode out" assignments in academy training to now represent a systematic rotation through high volume assignments prior to entering the "bid" system for permanent assignment. Discussions and understandings center on apprentices receiving on the job experience and training, but the linkage to field application of the competencies on which they were trained and tested is not clearly codified. Captains complete a simple, single page checklist of what the apprentice has experienced, but formal assessment of performance level is not yet included. These checklists return to the academy, but there are not clear standards for what level of performance is required or clearly specified consequences for substandard performance. No apprentice has yet been terminated based on performance related to core competencies in the OJT/apprenticeship period.

Continuing Education/Inservice: Codified standards for continuing education currently exist only in the medical portion of the system. No such systematic continuing education performance standards exist on the suppression side KCFD. Only sporadic training is conducted and no level of performance is measured; no clear standards are established to recognize substandard performance.

Competencies: This is an area that is still in its infancy. Objectives were written in KCFD Strategic Plan for the specification of core competencies for various assignments (see Literature Review above), with a clear expectation that these would be formally evaluated of a periodic basis. A first step in that direction has been started. A SCBA drill, termed the "entanglement" drill, has been completed by over 90% of the field personnel, built to test several

competencies in the context of a "live action" scenario. The drill has no time limit or a standard to measure the participant; the only requirement is that all personnel attend and complete it. No results are recorded or reported.

Performance Appraisal: The current system was built to prescribe ratings on behaviorally anchored benchmarks that centered mostly on measures of attendance, tardiness, and other forms of procedural compliance. This can inadvertently create an atmosphere in which the requirements of consequence (to say, those that are tracked, recorded, and have a bearing on evaluated job performance) seemingly contradict a notion that an employee must only report for duty, and that there is no difference in outcome based on skill or consistency in the performance of core functions. The current instrument is seen by many as indicating only that the position was occupied, not as differentiating complete, correct, safely, and competence performance in that position.

The first elements of a completely integrated system have been well established, with clear linkages of selection procedures, academy curriculum, and independent certification testing all mapped to NFPA 1001. The apprenticeship (OJT) element has been substantially refined, but still lacks direct mapping to carry the NFPA 1001 competencies through to the field application context. The envisioned and evolving "core competency" exercises could indeed be used link continuing education and demonstrated skill retention to the currency and refinement of the competencies developed in training and carried forward to the field, while reflection in a revised performance appraisal system (also an objective in KCFD Strategic Plan) could "close the loop" and yield relevance to employee in a more concrete manner. At present, though, the string that would bind all of the elements taught to cadets, reinforced for apprentices, and monitored and

maintained in the field is broken in that there is not currently consistent use of standardized systems to evaluate performance that carry through all levels of application.

Research Question 2: How are other departments evaluating firefighters skills after leaving the academy? Ten similarly situated fire departments were surveyed by telephone and e-mail to determine current efforts to track and evaluate skills and performance after personnel complete academy training and are assigned to field duties. Essentially all departments (90%) reported a dedicated training function with assigned full time staff; the number of full-time equivalent (FTE) staff assigned ranged from two to thirteen instructors (see Figure 3 below).

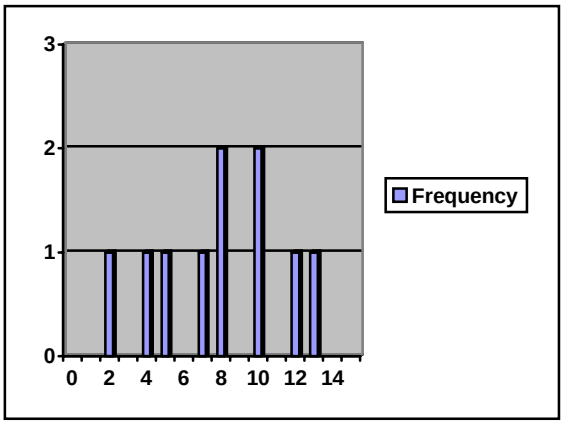


Figure 3. Number of FTE Instructors

Six of the ten departments reported training recruits to the Firefighter II level of certification. Seven of the ten (70%) evaluate the skills taught following academy training; 70% track also training done in the field. Nine of the ten departments (90%) said they evaluate skills in field personnel; 40% replied that they utilized NFPA 1001 or 1410 competencies in those evaluations (or some combination of NFPA competencies and departmental standards). Half the

agencies stated they conduct annual evaluations; 30% reported evaluations on a more frequent basis (one each semiannually, quarterly, and monthly).

These responses make clear that the norm for similar agencies includes systematic training in suppression skills following academy completion, and that nearly all conduct some type of systematic evaluation. Fewer than half, however, tie those evaluations directly to the standards utilized for academy training. The greatest majority reports evaluation at least annually.

Research Question 3: How do KCFD suppression personnel describe current training practices and what is their willingness to standardize this training? Incumbent KCFD suppression personnel were queried through an electronic survey containing 13 items designed to investigate in what training they currently participated, what importance they attached to such training, and how willing they would be to engage in structured training regarding core fire suppression competencies. Responses were received from 130 personnel (15.5% of suppression force, representing six of the seven battalions (districts). Distribution by rank was reasonably reflective of the overall suppression deployment, netting 2% Battalion Chiefs, 25% captains; 15% fire apparatus operators, and 58% firefighters. Seniority of respondents ranged from 2-29 years of service, with a mean of nine years and an overall median of six years; the modal experience level, however, was two years, representing the extent of recent hiring in KCFD, where 60% of firefighters have been hired within the past five to six years due to a combination of expansion, retirement incentives, and increased staffing for NFPA 1710 compliance.

Subjects were asked whether they had participated in KCFD sponsored training during the past year in each of eight performance domains reflected in NFPA 1001. Fewer than half the respondents had had recent training in four of the eight domains; the only domain in which

recent training was had by more than two-thirds was SCBA related training, reflecting the recently completed "entanglement drill" (see above discussion). Table 2 displays these data.

Table 2

Performance Domains

1. Which of the following types of Fire Department sponsored training have you been a part of in the past 12 months? (This does ***NOT*** include working fires)

Please check ***ALL*** that apply:	Yes	No
☐ Hose Lays (Forward and Reverse)	49%	51%
☐ Hand-line Layout (First in and backup)	67%	33%
☐ Master Streams (Using a Deck gun or fly pipe)	58%	42%
☐ Automatic Sprinkler Support (Hooking up to connection)	25%	75%
☐ Ladders (Putting up a ladder)	61%	39%
☐ Hoisting Tools (Ropes and Knots)	42%	58%
☐ Ventilation (Actual cutting of a hole)	35%	65%
☐ SCBA (Donning and Doffing)	81%	19%

Respondents were also asked to rate the importance of training in each of those domains for the effective performance of their jobs. Virtually every dimension was rated as showing high applicability (8-10 on a 10 point scale) and essentially none were rated as low (1-3 on a 10 point scale). Table 3 displays these results.

Table 3

Survey Results Internal

Competency	1-3	4-7	8-10
Hose Lays	7%	30%	62%
Hand Lines	5%	25%	71%
Master Streams	4%	28%	67%
Sprinkler	5%	29%	65%

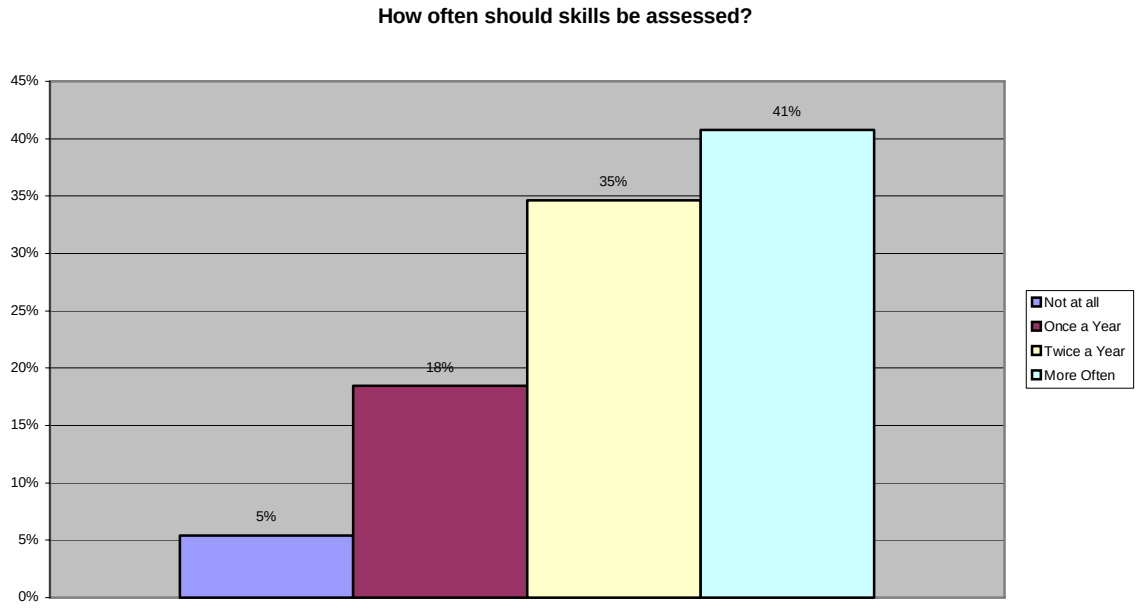
Support			
Ladders	5%	45%	48%
Hoisting	4%	32%	64%
Ventilation	5%	12%	82%
SCBA	5%	8%	86%

Respondents were asked if they had attended outside training in any of these areas (i.e., structured training sponsored by an entity other than their employer); 40% indicated such attendance in the past year. More than three-fourths (77.5%) of those who had attended outside trainings found them highly applicable (8-10 on a ten point scale), while fewer than 8% rated their experience as one of low applicability (1-3 on a ten point scale). About one in five respondents felt strongly that KCFD trains adequately after academy graduation (22%); almost a third strongly disagreed (31%).

Regarding company drills, more than 75% endorsed the upper values (8-10 on a ten point scale) respecting the value of such drills (82%) and their importance in keeping skills sharp (78%); almost 90% endorsed at that level the idea that the more one trains, the better one's proficiency becomes (87%). Barely a fifth of respondents (21%) endorsed strongly the idea that on the job activity was enough to keep skills current and fully a third (33%) strongly disagreed (1-3 on a ten point scale).

Almost three-fourths gave strong endorsement of their willingness to participate in structured training regarding core competencies, with only 7% indicating low agreement. Responses regarding how frequently skill assessment should occur would also seem to reflect strong interest and willingness to participate. Figure 4 shows that more than 40% endorsed having assessments more frequently than twice a year, with more than a third (35%) endorsing semiannual assessment and another 18% endorsing annual assessments. Only five percent indicated that no assessments should occur.

Figure 4



Research Question 4: How would the organization move toward specifying, measuring and maintaining fundamental skill and competencies?

To answer this question five principal figures representing different entities within the fire department were asked about the future of the organization as it relates to core competency training. Each was presented three questions, prefaced with the following paragraph:

> *While our Strategic Plan appears to touch on every element of a complete system for developing and maintaining core suppression competencies, there is still considerable work needed to forge those pieces into a finished system.*

Answers provided are summarized below; the full text of all responses may be found in Appendix D.

1. *How high a priority is this for us as an organization?*

   There was, as expected, general agreement that development and maintenance of core fire suppression competencies was an organizational priority. Philosophical differences were

clear, however, regarding what made it a priority and just how high a priority it might practically be when compared to other pressing issues. Fire Administration respondents placed it as a high priority without qualification. Both labor leaders agreed that it was a top priority but each raised qualifications regarding whether it could be considered a *top* priority. Most related the need to issues such as declining frequency of structural fires and the inherent danger of structural firefighting, implying that safety in performance was a unifying point. The ability to measure and track competencies as a mechanism for improving safety and performance was noted by the administrator responsible for strategic planning.

2. *What obstacles do you see to completing the process?*

   Both Fire Administration and labor representatives noted that while matters of training and safety are always spoken of as top priorities, consistent action is always harder to muster and maintain. This agreement of understood priorities and executed actions is one major obstacle touched upon from several angles. More specific obstacles could be classified as *practical*, *motivational*, and *philosophical*. The practical obstacles were seen by all and related top matters such as time, resources, and deployment impacts of additional training, drill time, assessments, and such. Motivational obstacles center on how committed individuals are to maintaining skills that most perceive they already hold, how motivated company officers may be to increased formal training and drills, and how the additional demands for formal activity would impact the responsiveness of the system (e.g., companies out of service for training and drilling). Philosophical obstacles may arise from differences in thinking regarding what these efforts should accomplish; since

each respondent placed a somewhat different "spin" on this, the process of achieving consensus becomes important.

3. *How might those obstacles be addressed?*

   This is where respondents differed distinctly. The Professional Development chief offered a succinct "simply do it" while the president of the local union representing line personnel discussed in detail strategies to be pursued through the collective bargaining process (now underway) that would realign the work week with additional training duty envisioned as a consequence. The Fire Chief emphasized expanded resources at the Fire Academy, including new training props and live burn capacities, and increases in available time once training of additional firefighters to meet NFPA 1710 staffing has been completed. The president of the local union representing supervisors and battalion chiefs emphasized motivational matters and the need to carry these through to all ranks. The administrator responsible for strategic planning focused on the Labor Management Partnership as the vehicle needed to build commitment to the objectives and consensus on strategies for their implementation.

Discussion

When it comes to matters of skill development and skill training in the American fire service, it is not clear just how much systematic attention these processes receive in the fire service agencies. Much attention is given to entry-level training and industry standards have been established for basic competencies at that level and much is also written about acquisition of new skills and refinement of skills later in one's career. Surprisingly little attention has been

given to systematic approaches to retention of core skills or their assessment after completion of basic entry-level training.

This raises concerns on a very basic level. Safety and consistency in performance depend, in particular, on ensuring that any order or instruction results in a safe and predictable set of actions that lead to a consistent, anticipated outcome. No matter what the tactical objective may be, its execution depends on the readiness of the companies and personnel receiving the order to apply the right actions, done the right way, at the expected time and place and in the expected manner. This means that the basic competencies have to be established, reinforced, periodically assessed, incrementally refined to ensure that no matter what company or which individuals may receive the instruction, the result will be a safe, predictable, and consistent execution of the expected actions. If that result can be maintained, it will yield the greatest possible likelihood that the outcome anticipated would be achieved safely and consistently.

Many other professions have a similar strong reliance on core skill sets; most of those give much attention to skill retention and periodic assessment of core skills. Airline pilots and railroad engineers have regular skill checks in both field and simulations. Medical practitioners use “skill labs” and clearly structured continuing education requirements. Fire service agencies usually depend on company drill, though this is not often systematically conducted or evaluated.

Field training of new personnel in similar situations is frequently structured with this type of reinforcement squarely in mind. Law enforcement and independent EMS concerns typically utilize Field Training Officers (FTOs) charged to ensure that core competencies are applied, evaluated, assessed, and refined in the equivalent of the KCFD apprenticeship period. “Check pilots” periodically fly with seasoned airlines pilots to observe, assess, and refine critical skills in the cockpit setting. Quality assurance boards routinely review both successful medical

procedures and those that go awry to ensure that consistency is maintained and deviations addressed.

Military efforts to systematize skill retention and assessment suggest that skills must be well-defined, successful performance behaviorally anchored, and competence reinforced through periodic assessment, and relearning. The ideal model uses one clear set of basic core competencies to drive selection, initial training, on the job training (apprenticeship) and professional certification testing. Those same basic competencies must then be periodically revisited through inservice training, systematically verified through performance assessments, and reflected in employee performance appraisals. The research questions for this applied research project explored the progress made by KCFD toward building a complete and systematic approach to skill maintenance and skill retention.

The first question examined how successfully current practices have been in incorporating these elements. Given that the curriculum is driven by a set of standards and those standards are evaluated outside of the department, the cadet's initial learning experience is pretty straightforward and structured. After that point, while KCFD has made great strides and may well be further along than many similar agencies (see below), the systematic connection of activities to defined core competencies begins quickly to fade. Establishing linkages that bring systematic continuity to post academy efforts and tie these to a consistent set of basic competencies is a solution KCFD can fairly readily realize.

The second question examined how other similarly situated fire departments were concerned about similar issues and the extent to which they might have addressed them in any systematic fashion. The survey conducted showed that the nations fire service is struggling with the same issues as KCFD. It could be said that the desire is there but, due to many types of

training required in today's fire service, time and resources inhibit the ability to "do it all." This may be the reason that most appear to have chosen to focus on EMS or Hazmat training and leave the training on core competencies to field officers.

The third question asked what standards, if any, currently drive KCFD company training, what training they believe to be most necessary and how often they believe the training should take place. The data let us look at what the companies know and what is happening in the field. We find that they already know a lot and are willing to train, even without a structured program. If our concerns are correct and they are willing to train on their own set of standards, to what degree is that training in line with the curriculum we provided them when they were at the academy? Field officers are indeed conducting some type of training, and training more than expected—we need now to develop systems that will help us ensure that the training taking place is indeed going to lead us to safe, predictable actions that will yield safe and consistent outcomes.

The fourth question asked key leaders of KCFD about their ideas on the direction the department was taking and what priority this issue held. All stated that training was a high priority and should be addressed. But underneath it all, the sense that it is time to quit talking and start taking action is shared, even if not quite so bluntly stated, by all. Given the challenges of keeping the organization up to date in ever-changing industry responding to an ever-changing world, it is not surprising that the most basic of skills are neither consistently practiced nor systematically structured. The willingness of the companies in the field to train shows that, if given the blueprint for a more systematic training program all companies could pick up and utilize, they could readily be on the same page and working in a more efficient way.

Recommendations

The Kansas City, Missouri Fire Department needs to institute a systematic core competency skills training program as outlined in the Strategic Plan. This will help ensure uniformity of effort on the fire ground and also help create a safer environment in other areas of the department.

A systematic training program would not only help the current membership with core competencies but also ensure that the current members with less than 5 years seniority will be able to maintain the basic knowledge and skill set with which they left the academy. A systematic training program should have the following components:

1. Outline the core competency to be reinforced.
2. Show the proper way of executing the competency.
3. Evaluate the competency.
4. Utilize an FTO approach to reinforce core competencies and evaluate them.
5. Give companies equal and ample time to train for the competencies.
6. Standardize the training for not only company level but district level training.

A program should be implemented to include a component that tests both core competencies and EMT skill sets on a rotating base. Field Training Officers (FTOs) provide a mechanism for delivering the knowledge to the field without taking them out of their home environment. FTOs could be drawn from District Safety Officers now deployed in each battalion, captains in locations where apprentices are assigned after the academy, or any of a number of possible pools; the important issue is to ensure that there are responsible parties in the system whose duties include maintenance and assessment of core competencies in the field.

This also brings forth the question of coordinating and managing all these interrelated activities. The Special Operations Bureau has a section devoted to EMS Quality Assurance, but there is no parallel component that holds similar responsibility for suppression related activities. The assignment of a position parallel to the EMS Quality Assurance Coordinator to build and maintain similar systems for this critical area of agency performance might be a very prudent recommendation.

The vehicle for consideration and action on these recommendations in KCFD is the Labor Management Partnership and the KCFD Strategic Plan. Accordingly, the following recommendations will be made (see Appendix E):

1. A Project Team should be authorized by the Labor Management Steering Committee (LMSC) and charged to integrate the work related to these recommendations now underway in Professional Development, Human Resources, and Operations committees. That charge should include a plan for specification and coordination of skill retention and quality assurance issues for suppression activities.
2. Strategic Plan initiatives related to this area should be reviewed and consolidated to ensure that there is a consistent organizational location and responsibility for maintaining activities and information needed to execute the objectives of these recommendations.
3. Activities related to maintenance and assessment of core competencies in suppression should be integrated with and parallel to EMS related skill retention and assessment activities to ensure best integration of skills for providers expected to remain competent in both.

Fire suppression is the most dangerous portion of the firefighters job description but is, for many, the least frequently utilized. It currently has none of the monitors the emergency medical side of the job has built to ensure skill retention, competence, and continuity. The firefighter's core competencies and skills in suppression, along with their EMT skills, combine to yield a skilled firefighter in today's fire service. As noted earlier, the sooner a firefighter reinforces skills taught at the academy the longer they will retain them and the more reliably they can repeat them when called upon to do so. In that lies the essence of safety and effectiveness in the contemporary fire service.

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Kansas City Fire Department Field Training Survey

City Fire Department is interested in how you feel about the training you are now receiving as a member of the department. We would also like to evaluate our training efforts. Survey responses are anonymous and your confidentiality is assured. We appreciate your honest answers to the questions below.

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1. Which of the following types of Fire Department sponsored training have you been a part of in the past 12 months? (This does ***NOT*** include working fires)
Please check ***ALL*** that apply:

- ☐ Hose Lays (Forward and Reverse)
- ☐ Hand-line Layout (First in and backup)
- ☐ Master Streams (Using a Deck gun or fly pipe)
- ☐ Automatic Sprinkler Support (Hooking up to connection)
- ☐ Ladders (Putting up a ladder)
- ☐ Hoisting Tools (Ropes and Knots)
- ☐ Ventilation (Actual cutting of a hole)
- ☐ SCBA (Donning and Doffing)

2. How important is this training to practice your skills and the execution of your duties

	Less				**Not Much**					**More**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Hose Lays	1	2	3	4	5	6	7	8	9	10
Hand-line Layouts	1	2	3	4	5	6	7	8	9	10
Master Streams	1	2	3	4	5	6	7	8	9	10
Automatic Sprinklers	1	2	3	4	5	6	7	8	9	10
Ladders	1	2	3	4	5	6	7	8	9	10
Hoisting Tools	1	2	3	4	5	6	7	8	9	10
Ventilation	1	2	3	4	5	6	7	8	9	10
SCBA	1	2	3	4	5	6	7	8	9	10

`

3. Please indicate and circle your level of agreement with the following statements:

1	2	3	4	5	6	7	8	9	10
Strongly Disagree				**Slightly Disagree**	**Slightly Agree**				**Strongly Agree**

Company drills are an effective way to learn about a f**ire fighter**s capability.
1 2 3 4 5 6 7 8 9 10

The more you train your proficiency increases. 1 2 3 4 5 6 7 8 9 10

Company drills are the best way to keep your skills sharp as a Fire Fighter.
1 2 3 4 5 6 7 8 9 10

The Kansas City Fire Department trains adequately on fire fighting after leaving the academy.
1 2 3 4 5 6 7 8 9 10

CEU's are an effective way to keep your skills proficient. 1 2 3 4 5 6 7 8 9 10

You would train more if you were able to have a place to train? 1 2 3 4 5 6 7 8 9 10

You can still perform your duties at the level you did at the academy even though you may not train on your skills. 1 2 3 4 5 6 7 8 9 10

On the job training is enough to keep your skills up to date without additional training.
1 2 3 4 5 6 7 8 9 10

4. Do you believe that you can still perform all of the skills that you learned in the fire academy the same as you did when you graduated?

☐ Yes
☐ No

5. Did you attend any outside hands-on department sponsored fire training within the last 12 months?

☐ Yes
☐ No

6. If you attended outside training, did it help you with your skills as a Kansas City fire fighter?

1	2	3	4	5	6	7	8	9	10
Not at All Helpful				**Slightly Not Helpful**	**Slightly Helpful**				**Extremely Helpful**

7. Do you think the training tower is a helpful place to practice your skills as a fire fighter?

1	2	3	4	5	6	7	8	9	10
Not at All Helpful				**Slightly Not Helpful**	**Slightly Helpful**				**Extremely Helpful**

8. Are you able to use the fire academy training tower any time you want to train?

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- ☐ Yes
- ☐ No

9. You would participate in standardized training for evolutions?

1	2	3	4	5	6	7	8	9	10
Not at All				**Probably Not**	**Probably Would**				**Absolutely Would**

10. Please indicate your rank:

- ☐ BC
- ☐ Capt
- ☐ FAO
- ☐ FF

11. Please indicate your seniority in years.
i.e. 6 months = 0
1+ year= 01

0	1	2	3	4				
1	2	3	4	5	6	7	8	9

12. If the Kansas City Fire Department was to create standard training evolutions, how often should it be done?

- ☐ Not at all
- ☐ Once a year
- ☐ Twice a year
- ☐ More-How often? _____

13. Please indicate your district.

- ☐ 102
- ☐ 103
- ☐ 104
- ☐ 105
- ☐ 106
- ☐ 107
- ☐ 108
- ☐ Other division

Thank you for taking the time to complete this survey it will help us in making the Kansas City Fire Department even better.

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Department:

1. Do you have a training academy?

2. How many instructors do you have?

3. Do you train to FFII level?

4. Do you evaluate your fire fighters on suppression skills after leaving the academy?

5. Do you track the training?

6. Do you train on fire suppression skills?

    a. In the field?

    b. Evaluated?

    c. What standard?

    d. How often?

7. Who trains them?

    a. Company officers?

    b. Training academy?

1. While our Strategic Plan appears to touch on every element of a complete system for developing and maintaining core suppression competencies, there is still considerable work needed to forge those pieces into a finished system.

    (a) How high a priority is this for us as an organization?

    (b) What obstacles do you see to completing the process?

    (c) How might those obstacles be addressed?

1. *How high a priority is this for us as an organization?*
    - *Chief Dyer*- I believe the element of developing and maintaining core fire suppression competencies is a high priority for the organization. The reduction in the number of structural fires that the department confronts makes this element even a higher priority than it has been in the previous decades.
    - *Battalion Chief Dujakovich*- This is fairly high on the list, but *not* a top priority, but up there. While fire suppression is not our most prevalent activity, it is still our most dangerous. Also, due to the decline in structural fires, training has become even more "important" to retaining the core competencies that are not being used in the field setting.
    - *A Deputy Chief Berardi*- Maintaining suppression core competency is a high priority for he organization just as are EMS, and IMS competencies.
    - *President of the International Association of Firefighters: Captain Wright*- I think intellectually it's a high priority. I think we all acknowledge and know that in terms of those core competencies, is critically related to and not just how effectively and efficiently we do our job but its critically related to firefighter safety, public safety and acknowledge the need for training. Particularly, on the fire suppression side in light of fewer fires compared to 25 or 30 years ago, I would also recognize that those of the post Vietnam era are coming to the point when they can retire on this department hired a large number in the mid 1970's with allot of experience going out the door, and we probably haven't done as good a job as we could or should have, figuring out

a way to incorporate that experience through training rather than on the job observation historically. At that level we all it's important, intellectually I think most people say it's our highest priority and even what I call a "back to the basic's" mentality I think many people would express concern that with the added dimensions of our job, primarily EMS some of the Hazmat, rescue disciplines and etcetera that too few training hours are focused on core suppression competencies etcetera. Now with that being said at the operational level, where the rubber meets the road, too many of us don't want to get up from the computer, television, video game or get out of our rack to actually engage in meaningful let alone rigorous training. Where our mind is our feet aren't completely there yet.

- *Dr. Gist*- The next strategic moves for KCFD share in common the collection and application of data to help inform and drive decisions. Among the most crucial areas for these enhancements are training, safety, risk management, and quality improvement. All these areas intersect and all are strongly interdependent. Tightening the interconnections in establishing, assessing, reinforcing, and maintaining competency in core suppression capabilities is a critical step in the correct direction.

2. *What obstacles do you see to completing the process?*

- *Chief Dyer*- Some of the primary obstacles to completing such a program primarily involve resources and time. The new training prop located at the Academy and part of the implementation of this portion of the strategic plan will assist us in the process. Also the completion of the last cadet classes of

the new 135 firefighters will be completed during the upcoming fiscal year. This will permit us to utilize more of our training division resources for on going training and core competencies of the department.

- *Battalion Chief Dujakovich*- Time is a big factor for coordinating the core competencies for suppression with EMS, Rescue, and new rig familiarization. Money to pay for this training, with overtime costs and the size of the organization some of this training I can only see as having to be done off-duty. Each time we take advantage of a new training opportunity it takes away from core competencies. It has always been our culture to complete and reinforce these core competencies in the field after drill school.
- *Deputy Chief Berardi*- Time and timing are probably the biggest remaining obstacles to completing the process. A point of note is that we will likely never complete the program, as it will continue to evolve. Time, because it is a limited resource and there are many priorities of the department. Timing, because for the core competency program to be successful, the department needs to be prepared and coordinate the particular competency training to meld into the entire program and improvement plan.
- *President of the International Association of Firefighters: Captain Wright*- I think the dichotomy between were we are in our heads and were we are in our actions trying to get those things aligned is an obstacle in itself. I think candidly the way we deliver training historically on the department is somewhat of an obstacle in terms of we are used to going to the drill yard and training academy and all that is important but I don't think we fully utilize the

potential for not just company level but district level training in an organized structure in a more decentralized fashion. We have move in that direction but I think still the way we are structured is somewhat an obstacle, as well as somewhat the work schedule with days off and details it presents a challenge to have sequential training at the company level and getting people there to train.

- *Dr. Gist*- One obstacle the organization is having to address on several fronts is the need to develop an infrastructure for the collection, analysis, application, and dissemination of data regarding its central activities and initiatives. It's not that we don't collect data—we indeed collect quite a bit. It's more that we collect the correct data—to wit, data that is necessary and useful for the decisions we need to make and track—and that we have databases and systems in place *and utilized* so that these data become useful and accessible.

  Organizations that haven't been data dependent for their primary decisions processes sometimes struggle with making this shift. One consequence of that struggle is that every decision risks being made independently of others to which it should logically relate; when this happens, it's inevitable that decisions will sometimes conflict and even at best, processes and procedures that should inform one another lack useful interaction on a routine basis (not just when a decision or answer is required, but consistently over time). We have to expect data, seek data, and value data before we're likely to effectively develop and deploy data.

3. *How might those obstacles be addressed?*

- *Chief Dyer*- I believe that we can overcome the obstacles that exist. The type of training that we have been recently conducting involving SCBA/Entanglement is demonstrative of what we can accomplish by setting up a standard program and then rotating all companies of the department through that evolution. With the new training room and the improvements to our existing tower, we will be able to improve what we have already started. In the future, I anticipate that we will only have one cadet class per year, which will consume most of the training division's fire suppression training capability for four months out of a calendar year. That should leave us approximately eight months per year where we can concentrate on the core competencies with our incumbent personnel.
- *Battalion Chief Dujakovich*- The department and fire administration must make a commitment to train on core competencies in the academy and in the field, where core competencies may not be utilized as much in the past, due to the reduction of structural fires. At the company level, it must be realized that core competencies learned early in their a firefighter's career may not be known to all members of their own company. What I mean is that a with such a young department something their Captain may want done at the scene of a fire may not be known to a younger member because the practice has died out and a "new" technique took it's place.
- *Deputy Chief Berardi*- Simply do it.

- *President of the International Association of Firefighters: Captain Wright-* There is a variety of approaches to do it; taking a step back there are a number of means to more decent approach. I think more resources in professional development in terms of personnel technology and classroom. I'm still fond of an idea that surfaced years ago at the bargaining table, that John Tvedten called the "flex 42" were we would work an essentially a 42 hour work shift schedule, but, with that there would be eight or more hours of training a month. Where people outside their shift would report as a company and train together and that would obviously take extraordinary resources to make that kind of shift schedule. It would allow people to train together as company or with a battalion district or beyond that and do it in a way that they would not be interrupted in any way. It would become ongoing.
- *Dr. Gist-* They are being addressed through the incremental progress of the strategic planning process and the L/M partnership. Closing this particular loop helps communicate an understanding of why systems need to interact and what it takes to make them interactive. As we monitor and utilize the data it anticipates, we'll develop a greater appreciation of what data can do to improve our understanding of who we are, what we do, and how we can do it even better. It takes time . . .

KCFD

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To: Fire Chief Richard (Smokey) Dyer

Chief Dyer,

As you know I am in my first year of the EFO program. The topic of this years project is "Core competencies and the Kansas City, Missouri Fire Department: Are we doing enough?" The data collected from across the nation and our own department shows that this is a critical issue needing attention.

The project contains three recommendations:

1. A Project Team should be authorized by the Labor Management Steering Committee (LMSC) and charged to integrate the work related to these recommendations now underway in Professional Development, Human Resources, and Operations committees. That charge should include a plan for specification and coordination of skill retention and quality assurance issues for suppression activities.
2. Strategic Plan initiatives related to this area should be reviewed and consolidated to ensure that there is a consistent organizational location and responsibility for maintaining activities and information needed to execute the objectives of these recommendations.
3. Activities related to maintenance and assessment of core competencies in suppression should be integrated with and parallel to EMS related skill retention and assessment activities to ensure best integration of skills for providers expected to remain competent in both.

I recommend a project team be assigned to address these critical issues and recommend a course of action to the Labor Management Steering Committee. If you have any questions on this matter please feel free to contact me.

Respectfully,

John Neeley
Battalion Chief 108/A