Author: Goeldner, Jason R

Title: *A Study to Determine the Effectiveness of Hybrid Training for the Fire Service at Nicolet College*

The accompanying research report is submitted to the **University of Wisconsin-Stout**, **Graduate School** in partial completion of the requirements for the

Graduate Degree/ Major: MS Career and Technical Education

Research Advisor: Carol Mooney, Ph.D.

Submission Term/Year: Spring, 2013

Number of Pages: 69

Style Manual Used: American Psychological Association, 6th edition

☒ **I understand that this research report must be officially approved by the Graduate School and that an electronic copy of the approved version will be made available through the University Library website**
☒ **I attest that the research report is my original work (that any copyrightable materials have been used with the permission of the original authors), and as such, it is automatically protected by the laws, rules, and regulations of the U.S. Copyright Office.**
☒ **My research advisor has approved the content and quality of this paper.**

STUDENT:

NAME Jason R Goeldner **DATE: 5/9/2013**

ADVISOR: (Committee Chair if MS Plan A or EdS Thesis or Field Project/Problem):

NAME Carol Mooney, PhD **DATE: 5/9/2013**

This section for MS Plan A Thesis or EdS Thesis/Field Project papers only
Committee members (other than your advisor who is listed in the section above)

1. **CMTE MEMBER'S NAME:** **DATE:**

2. **CMTE MEMBER'S NAME:** **DATE:**

3. **CMTE MEMBER'S NAME:** **DATE:**

This section to be completed by the Graduate School
This final research report has been approved by the Graduate School.

Director, Office of Graduate Studies: **DATE:**

Goeldner, Jason R. ***A Study to Determine the Effectiveness of Hybrid Training for the Fire Service at Nicolet College***

Abstract

Nicolet Area Technical College has the smallest student population among the sixteen districts that make up the Wisconsin Technical College System. All sixteen college districts deliver various levels of fire service training. In efforts to better serve the Nicolet College district in delivering entry level fire service training, the purpose of this research was to determine the effectiveness of incorporating hybrid delivery mode in addition to the traditional face-to-face format.

Fire service instructors employed by Nicolet College with more than five years of teaching experience were asked to evaluate the Job Performance Requirements (JPRs) as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. Based on the research collected, Nicolet College should consider converting some entry level fire curriculum so that specific lessons or quizzes can be delivered in a hybrid and online delivery modes which will allow for more classroom time for hands-on training evolutions.

Table of Contents

List of Tables

Chapter I: Introduction

Background

Various forms of distance education have been around for over 150 years. With the invention and discovery of digital technologies in the 1980's so began the birth of another educational delivery platform through the internet. "By 1995, nearly 50 percent of higher education institutions engaged in some type of online learning" (Blackboard, Inc., 2000, p. 1). Over the past decade, online offerings by institutions of higher learning education have steadily increased. According to the National Center for Education Statistics (2004), the number of students enrolled in online courses nearly doubled between 1997-1998 and 2000-2001 while the percentage of postsecondary institutions that offer online course deliveries only increase 34 percent from 34 percent in 1997-1998 and 56 percent in 2000-2001.

Throughout the United States, many fire departments are facing a serious if not deadly consequence as a result of failing to train its firefighters. According to a national fire department needs study conducted by the National Fire Protection Association (NFPA), the United States Fire Administration (USFA) and the United States Department of Homeland Security (DHS) (2006), 53 percent of fire departments that engage in structural firefighting have firefighters that lack formalized training in firefighting. In a similar study at the state level conducted by the NFPA, USFA and DHS in 2007, it was discovered that 29 percent of Wisconsin firefighters lacked formal structural firefighting training.

During 1977, the Wisconsin Board of Vocational, Technical and Adult Education had prepared a plan to provide fire training and education throughout the State. Additional support for this plan became a reality when the Acting Wisconsin Governor designated the Wisconsin Board of Vocational, Technical and Adult Education to establish, coordinate and to supervise the

fire service education training in Wisconsin (Wisconsin Fire Service Education and Training, 2010a). Wisconsin State Statues, Chapter 38.04(9) and 38.12(9) mandate the district college board to provide fire fighter training to career and volunteer fire departments that are maintained by cities, villages and towns within each of the 16 college districts (Wisconsin State Statue, 2007-2008). Training of fire fighters shall be at no cost to the fire departments. Funding for this program is provided by two percent of the assessment on fire insurance premiums. For 2007-08, the funding amounted to $600,000 and trained 4,032 fire fighters (Wisconsin Technical College System, 2009). The Wisconsin Board of Vocational, Technical and Adult Education then went on to approve a provision that allowed state certification for fire fighters in the state of Wisconsin. Concurrently, the Wisconsin Board of Vocational, Technical and Adult Education adopted the National Professional Qualifications for the Fire Service, the National Fire Protections Association 1000 Series Standards and any future standards which are utilized for identifying criteria and process for the certification of Wisconsin fire fighters (Wisconsin Fire Service Education and Training, 2010b). In 1994, the Wisconsin Board of Vocational, Technical and Adult Education changed its name to the Wisconsin Technical College System under the provisions of 1993 Act 399 and currently operate under this name (Wisconsin Technical College System, 2009).

Today, the Wisconsin Technical College System, Fire Service Education and Training Board offer 19 fire service training courses in six areas; fire fighter, apparatus driver/operator, hazardous materials, fire inspector, fire instructor and fire officer (Wisconsin Fire Service Education and Training, 2010c). In addition, some Wisconsin Technical Colleges offer Associate Degree Programs in Fire Science, Fire Protection, Fire Protection Engineering Technology, Environmental Hazardous Materials Specialist and Fire Medic (Wisconsin Fire

Service Education and Training, 2010d). To date, all of these programs and courses are offered in traditionally delivered, face-to-face format. Very few of the WTCS campuses offer distance education, specifically, online instruction of the fire service training courses which are state funded by the two percent fire dues. Recently, Mid-State Technical College in Wisconsin Rapids has begun work on offering the Certified Fire Officer course and Gateway Technical College in Burlington has offered the 24 hour Hazardous Materials Operations Course in hybrid platforms, combining face-to-face with online or other distance education delivery.

Statement of the Problem

Over the past years, several entry level fire classes offered by Nicolet College have been canceled due to low enrollments. To better serve the fire service within the Nicolet College district, research needs to be conducted to determine the feasibility of alternative delivery methods.

This research proposes to study the predicted effectiveness of incorporating a hybrid component into the fire training curriculum for entry level fire service training. With the addition of this hybrid component, Nicolet would like to better serve the fire service community with flexible opportunities in enrollment for Protective Services Fire Service Training.

1. Can hybrid and online delivery of the didactic portion of initial firefighter training sufficiently prepare firefighters for accomplishing the job performance objectives as identified by the Wisconsin Technical College Fire Systems Board?
2. With the acceptance of hybrid and online learning, will fire service instructors have sufficient classroom time to prepare firefighting participants for successful completion of the job performance requirements as established by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications?

The design for this study will use descriptive research methodology. A survey will be used to gather data of the variables. The independent variables will be the respondent's views toward distance education delivery of entry level firefighting course as compared to traditional face-to-face offerings. The dependent variable will be the courses offered via distant education platform as a result of respondent surveys. The control variable in this study will be fire service instructors employed by the Nicolet College District.

The population for this study will be current fire service instructors employed by the Nicolet College District. All respondents will have previously completed their training as Wisconsin State Certified Firefighter 1, Wisconsin State Certified Firefighter 2, and Wisconsin State Fire Instructor in the traditional face to face format. Additionally, all respondents will have at least five years of fire service teaching experience with Nicolet College.

Definition of Terms

For ease of understanding, the following terms have been defined:

Didactic training. Referring to the lecture portion of instruction delivered in the traditional face-to-face classroom delivery.

Distance education and hybrid delivery. Electronic communication platform in which the student mostly engages with the instructor and classmates through the internet or interactive television or similar device. Course work is not submitted in-person but through drop boxes and email submissions as identified by the instructor. The didactic portion of the class is delivered through the electronic platform. The only face-to-face experience students will encounter will be on specified weekends to conduct psychomotor activities to complete required job performance requirements.

Entry-level fire fighter part 1. 30-hour course which introduces the participant to the basic knowledge and skills necessary to perform firefighting functions under direct supervision (Wisconsin Technical College System, 2011).

Entry-level fire fighter part 2. Additional 30-hour course which introduces the participant to the basic knowledge and skills necessary to perform firefighting functions under direct supervision (Wisconsin Technical College System, 2011).

Face-to-face classroom. An environment in which students and instructors engage in classroom lectures and activities as a group in-person while in a traditional classroom. Entry level firefighting classes generally meet 10 consecutive evenings from 6:30 pm to 9:30 pm in room BC 105 of the Birchwood's Center of Nicolet College Lake Julia Campus.

Fire fighter 1. This 36-hour course prepares the participant to be able to perform firefighting functions at a minimum nationally recognized level under direct supervision (WTCS, 2011).

Fire fighter 2. This 42-hour course prepares the participant to perform firefighting functions at an advanced nationally recognized level under general supervision (WTCS, 2011).

National Fire Protection Association. The National Fire Protection Association (NFPA) is an international nonprofit organization that was established in 1896. The mission of NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. http://www.nfpa.org/categoryList.asp?categoryID=495&URL=About%20NFPA/Overview

Nicolet College District. "The Nicolet College District includes all of Oneida, Vilas, and Forest counties, and portions of Lincoln, Langlade and Iron counties. The district covers

about 4,000 square miles and has a population of about 84,000 people" (Nicolet Area Technical College, 2013).

Limitations

This study will be based on the following limitations:

Limitation 1. The population analyzed for this study will be limited to the fire service instructors within the Nicolet Area Technical College District in Northern Wisconsin.

Limitation 2. This study is limited to the effects on incorporating a hybrid component into the existing fire service curriculum.

Assumptions

This study will be based upon the following assumptions:

Assumption 1. Participants of this study have previously reviewed and delivered entry level fire training to the fire service within the Nicolet Area Technical College District in Northern Wisconsin in compliance with the Wisconsin Technical College System.

Assumption 2. Respondents will look beyond their fire service education delivery and style in determining if adding a hybrid component will successfully prepare firefighters with entry level fire service training within the Nicolet College District.

Chapter II: Review of Literature

The purpose of this study will be to determine if hybrid and online delivery of the didactic portions of initial firefighting training will sufficiently train firefighters for accomplishing the Job Performance Requirements (JPRs) as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. In order to implement the aforementioned statement, students from the Nicolet College District must be willing to enroll in this new delivery technique for training firefighters in Wisconsin.

Coleman (1994) attributes early training of firefighters in the United States to both the Edinburgh Fire Brigade (1830) and the London Fire Academy (1876). Benjamin Franklin and George Washington remain two key figures in early American firefighting; however, neither focused upon formalized firefighter training. Following the Civil War, the training of American firefighters occurred in the form of on the job training. This methodology remained throughout much of the 19th Century and into the early 20th Century. While formalized training programs remained minimal, the formation of the National Fire Protection Association (1866), the International Association of Fire Engineers (1873), and the International Association of Fire Chiefs (1876) all served as instrumental agents in raising the competence level of firefighters. The *Fireman's Handbook*, published in the 1890‟s provided one of the first training handbooks for many firefighters (Coleman, 1994).

Firefighting Training Standards

There are no mandated federal requirements for fire fighter training in the United States. The National Fire Protection Association (NFPA) guidelines for training in the form of consensus standards; however, it is up to the individual states to decide which standards they

wish to adopt in their training standards. According to the Wisconsin Department of Safety and Professional Services (SPS 300.08) (formally known as Wisconsin Department of Commerce), in order for a firefighter to engage in structural firefighting in the State of Wisconsin the following requirements shall be met:

- Training requirements shall be set forth by the Wisconsin Technical College System
- An approved state apprentice program
- An in-house training program approved by the Wisconsin Technical College System Board, or
- NFPA 1001

Wisconsin Technical College Fire Service Training Board

As the competence level of firefighters continued to increase through the efforts of both key fire departments and professional organizations, formalized firefighter training programs began to take shape. By 1968, state and local fire department training academies were joined by over 100 community college fire science programs all in an effort to improve the competence level of firefighters (Coleman, 1994). In 1977, the Wisconsin Technical College Board was granted authority by the Acting Governor to establish, coordinate, and supervise fire service education and training in Wisconsin (WTCS Fire Service Training Manual, 1). In the 35 years since, the 16 technical college districts in Wisconsin have continued to provide training in fire prevention and protection to both volunteer and career fire department personnel. Funding for this initiative is provided by two percent of fire prevention premiums underwritten in the state resulting in free training for firefighters affiliated with a fire department for specifically designated coursework, including several certifications. Since 1978, the WTCB has adopted the NFPA 1000 series standards as the basis for all certification fire training in Wisconsin. While not

a requirement for Wisconsin Firefighters, IFSAC accreditation certification is available for those who wish to pursue certification (Wisconsin Technical College System Fire Service Training Manual, 2009).

According to recent statistics, in 2008/2009, the Wisconsin Technical College System trained 6105 firefighters in fire courses supported by 2 percent dues, resulting in 2044 certifications (Wisconsin Technical College System, 2009). In Wisconsin, the minimum training requirement for firefighters is 60 hours of formal training. Although there are 30,000 firefighters in Wisconsin, over 50 percent are members of the 702 volunteer fire departments (Plumer, 2008) for which firefighting is a second occupation. Nicolet College is in the process of reviewing their training program to determine if there is a manner in which they may reach a greater number of firefighter students in the district to provide this vital training. In this process the intended outcomes include but are not limited to improving the college's training image, increase our FTE's, generate a greater percentage of the two percent dues reimbursement and increase the level of firefighter competence throughout our district.

According to national statistics, 8 percent of fire departments in the United States are career, 5 percent are mostly career, 16 percent are mostly volunteer, while the majority of fire departments, 71 percent are volunteer. Nationally, 13 percent represent career firefighters with the majority, 87 percent are served by volunteer firefighters. Wisconsin is served by more volunteer firefighters than national statistics with approximately 93 percent while only 7 percent is served by career firefighters (United States Fire Service Administration, 2012).

In many departments the level of firefighter certification ends at Firefighter 1 Certification. Manning (2004) attributes the willingness to stop training at the, lowest common denominator to life issues. Yet, Manning (2004) cites Ed Croker who once wrote, "Let no firefighter's ghost

say, my training let me down." Today's firefighters are faced with hectic lifestyles, financial limitations and family commitments resulting in schedules that are often not conducive to the traditional classroom environment. As a state certified fire training program, Nicolet owes the district fire personnel to explore alternative methods whereby firefighters can increase both proficiency and competency.

Traditional Face-to-Face Classroom

The classroom may not be the most exciting place to conduct training due mostly to long lectures which develop the foundation upon the premise the learning will take place. Training in this environment makes take the setting of real-world experience in settings one can expect to find in the workplace. Classroom settings can produce images or videos of several real life experiences with instant feedback from the students. This example can be shared among the firefighting students instantaneously to discuss the potential hazardous situations without actually placing any students in harm's way. This type of training has a vital role in paving the way for safe and efficient firefighters in the field. Valencia, Link, Baukal and McGuire (2008) point out that successful classroom training must be fun and interesting enough to engage the students to want to learn.

One alternative learning methodology that holds promise is distance education through hybrid and online platforms.

Distance Education and Hybrid Delivery

Similar to the evolution of firefighter training, distance education has evolved since its inception in the 1960's (Miller, 2007). What began as an enhanced correspondence course has now evolved to interactive multi-media opportunities (Bernard, Brauer, Abrami, & Surkes, 2004). At the college level, online learning has been available for over twenty years (Rodgers,

2005). Regardless of the increase in online education there remain those in favor and those opposed of such training initiatives.

According to the United States Fire Administration, "The most effective way of learning how to fight fire is to fight fire" (United States Fire Administration, 2009, para. 1). Though this practice is not always feasible, Nicolet needs to develop a delivery platform in which more district fire service students can be given the opportunity to achieve the minimum requirements set forth by WISPS. Curriculum has already been established in Wisconsin by the WTCS Fire Service Training Board for Entry Level Firefighter parts 1 and 2, Certified Firefighter 1 and Certified Firefighter 2 (WTCS). Nicolet will also need to develop fire training instructors to delivery training via this educational platform.

Prior studies of fire personnel suggest that apprehension to online training is due in part to the negative attitude associated with this training medium. Opponents of online learning argue the results will include lower test scores, higher attrition due to lack of focus, poor time management, technology challenges, and poor organization skills, and minimal interaction resulting in a reduction of essential training (Donovant, 2009). Specifically for firefighters, Rodgers concerns included the inability to include hands-on practical skills and limited student interaction. However, a closer review of literature reveals educational institutions have experienced success with this delivery method since the 1980's.

Advocates contend online training advantages include flexibility in delivery and scheduling and cost saving (Miller, 2007). Miller (2007) found that by some estimates, nearly two-thirds of training budgets are spent on travel, not training, convenience to the learner (Gentry, 2005). Over the past decade, both police (Donovant, 2009) and EMS organizations (Eastham & Paluck, 2001) have incorporated on-line education into their training programs in an effort to reduce the

cost of training and to improve upon retention of material (Miller, 2004). In an effort to determine if online training and education would be accepted by fire personnel Rodgers (2004) found in a survey of 100 fire chiefs that 62 percent believed basic certification coursework could not be completed online. However, this same group felt that for higher level training online training provided one method to reach a group of firefighters that otherwise may not be reached. Contrary to the critiques that cite lack of learner motivation as a deterrent to online education, DeMauro (2008) believes a true professional will take the initiative, with or without the help of others, to acquire the necessary skills of their occupation. Manning (2004) believes that the online learning holds promise for firefighters who may be limited by their remote locations, for departments with high turnover, and overcoming inconsistent teaching methodologies.

Chapter III: Methodology

The purpose of this study will be to determine if hybrid and online delivery of the didactic portions of initial firefighting training will sufficiently train firefighters for accomplishing the Job Performance Requirements (JPRs) as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. In order to implement the aforementioned statement, students from the Nicolet College District must be willing to enroll in this new delivery technique for training firefighters in Wisconsin.

Questions that will be answered in this study involve fire service instructors employed by Nicolet College with more than five years of teaching experience to review each JPR as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. Participants will then determine if the JPR must be delivered face-to-face or in a hybrid delivery mode.

Participants were instructed to read each of the 30 Job Performance Requirements as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System and to select either face-to-face or hybrid as the delivery mode in which this entry level fire service training could be delivered regardless of their training or current delivery strategy.

More specifically it will examine if the enrollment options into hybrid online courses will increase due this flexible offering. Currently, Nicolet College has a minimum student enrollment attached to the State Funded Fire Course offerings. Courses are offered in Forest, Oneida, and Vilas Counties in Wisconsin which are located within the Nicolet College District. Often, classes are cancelled due to low enrollment in each class offering. If a hybrid delivery mode is

determined to be a feasible option for delivery, one or two entry level classes could be offered with students enrolled from a number of communities located in the various counties served by the Nicolet College.

Research Design

The research design for this study will be a quantifiable descriptive research using survey methodology to gather data. This type of research was selected to provide the researcher with information that would determine the most feasible instructional delivery mode for each Job Performance Requirement. The independent variables will be the respondent's views toward distance education delivery of entry level firefighting course as compared to traditional face-to-face offerings. The dependent variable will be the courses offered via distance education platform as a result of respondent surveys. The control variable in this study will be fire service instructors employed by the Nicolet College District.

Population and Sample

The population for this study will be current fire service instructors employed by the Nicolet College District. This includes all instructors that have previously completed their training as Wisconsin State Certified Firefighter 1, Wisconsin State Certified Firefighter 2, and Wisconsin State Fire Instructor in the traditional face to face format. Additionally, all members of the population will have at least five years of fire service teaching experience with Nicolet College.

Nicolet College located in Rhinelander, Wisconsin, offers a unique environment and styles of education. Nicolet offers a two-year Associate Degree, one-year and two-year technical diploma programs that prepare students for immediate employment upon completion, and a two-year Collegiate or University Transfer program that prepares student that have goals of achieving

a four-year degree from a college or university. For the previous mentioned educational opportunities, Nicolet has in place numerous articulation agreements with the University of Wisconsin and private colleges and universities across the nation that allow students a smooth transition to achieving a baccalaureate degree (Nicolet Area Technical College, 2012-13). All deliveries of education are offered either by the traditional face-to-face classroom setting, on-line or a combination of the two known as a hybrid delivery format.

The survey was distributed to 16 fire service instructors employed by Nicolet College to their college issued email address. Surveys were emailed on April 16, 2013 and closed on April 26, 2013. The population, the firefighter instructors, were informed of this survey in advance by personal communication and asked if they would be willing to participate in this study survey. This survey was voluntary and recipients remained anonymous. All agreed they would participate in this research.

Instrumentation

A questionnaire type survey was developed by the researcher. The survey consisted of 34 research questions to gather information by the participants which delivery mode was preferred in instruction the Job Performance Requirements (JPRs) set forth by the National Fire Protection Association 1001 (NFPA 1001), Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. The research questions were written and articulated to the research objectives and NFPA 1001. Thirty of the 34 questions asked the participants to select face-to-face or hybrid as their preferred method for delivering entry level fire service training within the Nicolet College District. Three questions allowed the participants an opportunity to provide written comments.

Prior to distribution, the survey was reviewed for face validity by the researcher and research advisor, Dr. Carol Mooney. This study was then approved by the Barbara Larrabee of the Institutional Review Board at the University of Wisconsin-Stout. After receiving IRB approval, the survey was distributed electronically to the population with an invitation to complete an on-line survey. The researcher used the electronic survey tool Survey Monkey to distribute the survey. Each member of the population was provided with a link to the survey. This included a cover letter that was emailed to the participant's email. Directions provided included a request to reply if the JPRs set forth by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System could be delivered in a hybrid format of the didactic portions or must they be delivered in the traditional face-to-face classroom.

The courses selected for inclusion in this research were limited to Entry Level Firefighter part 1, Entry Level Firefighter part 2, and Certified Firefighter 1. Comment sections were provided after each chapter of the JPRs for respondents to provide additional comments on why or why not each JPR must be delivered in either hybrid or the traditional face-to-face classroom.

Data Collection

The research study survey was distributed to 16 fire service instructors employed by the Nicolet College District to their college email addresses. The Nicolet College District employs 20 fire service instructors that provide education to approximately 40 fire departments in Forest, Oneida and Vilas Counties and portions of Iron, Langlade and Lincoln Counties. Four of the 20 fire service instructors have less than five years of teaching experience in the fire service and were excluded from this research. All respondents were informed their participation in this survey was voluntary and were reassured they and their responses will remain confidential.

Participants were sent an email on April 16, 2013 to their email address which contained a cover letter that contained the purpose of this research and the link to Survey Monkey to complete the survey. Participants were sent a follow-up email on April 19 and April 24 as a reminder to complete the survey in an effort for increased response rates. The survey was closed on April 26, 2013 with 9 of the 16 (53.25 percent) fire service instructors responding to the survey.

Data Analysis

Upon completion, the survey data will be analyzed using simple descriptive statistics. This data includes frequencies and percentages of the participant's preference to offer face-to-face or hybrid delivery modes of instruction in each of the 30 JPRs set forth by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System for the delivery of entry level fire service training in the Nicolet College District. The response summary tool from Survey Monkey was used to calculate the data analysis.

Analysis will lead to decision making about the likelihood of incorporating hybrid components into the existing fire service training in the Nicolet College District. The hybrid components will replace the didactic training currently presented during the traditional face-to-face classroom deliveries. The amount of time currently utilized for classroom lectures, presentations, discussions and quizzes will be replaced with psychomotor activates which will prepare the class participants in accomplishing the job performance objectives as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College Fire Systems Board.

Chapter IV: Findings

The purpose of this study will be to determine if hybrid and online delivery of the didactic portions of initial firefighting training will sufficiently train firefighters for accomplishing the Job Performance Requirements (JPRs) as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System. In order to implement the aforementioned statement, students from the Nicolet College District must be willing to enroll in this new delivery technique for training firefighters in Wisconsin.

Participants were instructed to read each of the 30 Job Performance Requirements as identified by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System and to select either face-to-face or hybrid as the delivery mode in which this entry level fire service training could be delivered regardless of their training or current delivery strategy.

The Sample (or Subjects)

The population for this study was current fire service instructors employed at Nicolet College. Respondents were instructed to only consider Entry Level Firefighter part 1, Entry Level Firefighter part 2, and Certified Firefighter 1 as part of this survey in considering hybrid entry level firefighting course at Nicolet College. Data for this study was retrieved from the Protective Services Director at Nicolet College through Survey Monkey. Participants included in this research reside in Forest, Langlade, Lincoln, Oneida, Price, and Vilas Counties and employed by Nicolet College as a minimum Certified Fire Service Instructor Level 1.

Variable 1. The first question this study set out to answer was: Can hybrid and online delivery of the didactic portion of initial firefighter training sufficiently prepare firefighters for

accomplishing the job performance objectives as identified by the Wisconsin Technical College Fire Systems Board and National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications?

Variable 2. Nicolet College has instructors that have been employed at the college instructing fire service training for over 20 years. Other instructors have been added within ten years and five years. Despite how the respondents were trained, will Nicolet College Fire Service Instructors support the use of Hybrid and Online delivery as a method of delivery for entry level fire services courses?

All questions this study set out to answer was: Can hybrid and online delivery of the didactic portion of initial firefighter training sufficiently prepare firefighters for accomplishing the job performance objectives as identified by the Wisconsin Technical College Fire Systems Board? The survey was distributed via college email to 16 fire service instructors employed by Nicolet College to their email as provided by the respondents. Surveys were emailed on April 10, 2013 and closed on April 26, 2013. This distribution was preferred as all participants are employees of Nicolet College and their emails which were updated in a Microsoft Outlook distribution list. Participants were informed of this survey in advance if they would be willing to participate in this study survey. Of the 16 sample members, nine (56.25 percent) responded to the survey. This survey was voluntary and recipients remained anonymous. One responded only completed seven survey questions while only eight completed the remaining 23 questions. Four questions asked for comments only. Only five written comments were included in this survey.

Question 1 asked respondents to address a number of JPRs and indicate whether or not the content could be satisfactorily delivered in a face to face or online format. For qualification at Level I, the fire fighter candidate shall meet the general knowledge requirements in 5.1.1; the

general skill requirements in 5.1.2; the JPRs in Sections 5.2 through 5.5 of this standard; and the requirements defined in Chapter Five, Core Competencies for Operations Level Responders, and Section 6.6, Mission-Specific Competencies: Product Control, of NFPA 472, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents

The first questions asked respondents to review a set of JPR's for online or face-to-face instruction. Nine responses (100 percent) were recorded for question one. Four respondents (44.4 percent) said this JPR needed to be delivered Face-to-Face while five (56.6 percent responded that Hybrid delivery would be acceptable to deliver this information to entry level firefighters. See Table 1 JPR 5.1 General Skill Requirements.

Table 1

JPR 5.1 General Skill Requirements

	JPR 5.1 General Skill Requirements	
Delivery Mode	Response Percent	Response Count
Face-to-Face	44.4 percent	4
Hybrid	56.6 percent	5

Question two as indicated on Table 2 JPR 5.1.1 General Knowledge Requirements asked respondents if additional general knowledge requirements, JPR 5.1.1 pertaining to the organization of the fire department, mission of the fire service, standard operation procedures, health and safety components should be delivered either in the Face-to-Face or Hybrid delivery. Nine participants (100 percent) responded to this question. Five respondents (56.6 percent) said this JPR needed to be delivered Face-to-Face while four (44.4) percent responded that Hybrid delivery would be acceptable to deliver this information to entry level firefighters.

Table 2

JPR 5.1.1 General Knowledge Requirements

	JPR 5.1.1 General Knowledge Requirements	
Delivery Mode	Response Percent	Response Count
Face-to-Face	56.6 percent	5
Hybrid	44.4 percent	4

The third question asked respondents additional general skills requirements that addressed JPR 5.1.2. The respondents were asked if the ability to don personal protective clothing within 1 minute; doff personal protective clothing and prepare for reuse; hoist tools and equipment using ropes and the correct knot; and locate information in departmental documents and standard or code materials could be delivered either Face-to-Face or in a Hybrid would be acceptable to deliver this information to entry level firefighters.

Nine participants (100 percent) responded to this question. Nine respondents (100 percent) said this JPR needed to be delivered Face-to-Face to be acceptable information to entry level firefighters. See Table 3 JPR 5.1.2 General Skill Requirements.

Table 3

JPR 5.1.2 General Skill Requirements

	JPR 5.1.2 General Skill Requirements	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	9
Hybrid	0 percent	0

Question four allowed respondents with an opportunity to provide comments to JPRs 5.1 through JPR 5.1.2. Only one (11.1 percent) of the respondents made a comment. This comment was, "Do not feel the entry level should be hybrid. Everything is all new to the student."

Question five asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for fire department communication components relating to initiating responses, receiving telephone calls and using fire department communications equipment to correctly relay verbal and written communication.

Nine participants (100 percent) responded to this question. Two respondents (22.2 percent) said this JPR needed to be delivered Face-to-Face while seven (77.8 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 4 JPR 5.2 Fire Department Communication.

Table 4

JPR 5.2 Fire Department Communication

	JPR 5.2 Fire Department Communication	
Delivery Mode	Response Percent	Response Count
Face-to-Face	22.2 percent	2
Hybrid	77.8 percent	7

Question six asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.2.1 initiating the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center.

Nine participants (100 percent) responded to this question. Four respondents (44.4 percent) said this JPR needed to be delivered Face-to-Face while five (55.6 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 5 JPR 5.2.1 Initiating the Response.

Table 5

JPR 5.2.1 Initiating the Response

	JPR 5.2.1 Initiating the Response	
Delivery Mode	Response Percent	Response Count
Face-to-Face	44.4 percent	4
Hybrid	55.6 percent	5

Question seven asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.2.2 fire department communication in receiving a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed.

Nine participants (100 percent) responded to this question. Three respondents (33.3 percent) said this JPR needed to be delivered Face-to-Face while six (66.7 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 6 JPR 5.2.2 Telephone Call.

Table 6

JPR 5.2.2 Telephone Call

	JPR 5.2.2 Telephone Call	
Delivery Mode	Response Percent	Response Count
Face-to-Face	33.3 percent	3
Hybrid	66.7 percent	6

Question eight asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.2.3 transmitting and receiving messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the authority having jurisdiction.

Nine participants (100 percent) responded to this question. Five respondents (55.6 percent) said this JPR needed to be delivered Face-to-Face while four (44.4 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters.

Table 7 JPR 5.2.3 Transmit and Receive Messages.

Table 7

JPR 5.2.3 Transmit and Receive Messages

	JPR 5.2.3 Transmit and Receive Messages	
Delivery Mode	Response Percent	Response Count
Face-to-Face	55.6 percent	4
Hybrid	44.4 percent	5

Question nine allowed respondents with an opportunity to provide comments for JPRs 5.2 through JPR 5.2.3. Only one (11.1 percent) of the respondents made a comment. This comment was, "All requisites skills should be demonstrated face-to-face."

Question 10 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for fire ground operations as this duty shall involve performing activities necessary to ensure life safety, fire control, and property conservation, according to the JPRs in 5.3.1 through 5.3.19.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 8 JPR 5.3 Fire Ground Operations.

Table 8

JPR 5.3 Fire Ground Operations

	JPR 5.3 Fire Ground Operations	
	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 11 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.1: the use of self-contained breathing apparatus (SCBA) during emergency operations. The student must be able to demonstrated the use of SCBA and other personal protective equipment, so that the SCBA is correctly donned and activated within 1 minute, the SCBA is correctly worn, controlled breathing techniques are used, emergency

procedures are enacted if the SCBA fails, all low-air warnings are recognized, respiratory protection is not intentionally compromised, and hazardous areas are exited prior to air depletion.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 9 Self Contained Breathing Apparatus.

Table 9

Self-Contained Breathing Apparatus

	JPR 5.3.1 Self Contained Breathing Apparatus	
	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 12 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.2 respond on apparatus to an emergency scene, given personal protective clothing and other necessary personal protective equipment, so that the apparatus is correctly mounted and dismounted, seat belts are used while the vehicle is in motion, and other personal protective equipment is correctly used.

Eight participants (88.9 percent) responded to this question. Six respondents (75 percent) that answered this question said this JPR needed to be delivered Face-to-Face while two responses (25 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 10 JPR 5.3.2 Respond on Apparatus.

Table 10

JPR 5.3.2 Respond on Apparatus

	JPR 5.3.2 Respond on Apparatus	
Delivery Mode	Response Percent	Response Count
Face-to-Face	75 percent	6
Hybrid	25 percent	2

Question 13 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.3 establish and operate in work areas at emergency scenes, given protective equipment, traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards and downed electrical wires, an assignment, and standard operating procedures (SOPs), so that procedures are followed, protective equipment is worn, protected work areas are established as directed using traffic and scene control devices, and the fire fighter performs assigned tasked only in established, protected work areas.

Eight participants (88.9 percent) responded to this question. Seven respondents (87.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face while 1 response (12.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 11 JPR 5.3.3 Establish and Operate at Emergency Scenes.

Table 11

JPR 5.3.3 Establish and Operate at Emergency Scenes

	JPR 5.3.3 Establish and Operate at Emergency Scenes	
Delivery Mode	Response Percent	Response Count
Face-to-Face	87.5 percent	7
Hybrid	12.5 percent	1

Question 14 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.4 to force entry into a structure, given personal protective equipment, tools, and an assignment, so that the tools are used as designed, the barrier is removed, and the opening is in a safe condition and ready for entry.

Eight participants (88.9 percent) responded to this question. Six respondents (75 percent) that answered this question said this JPR needed to be delivered Face-to-Face while two responses (25 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 12 JPR 5.3.4 Forcible Entry.

Table 12

JPR 5.3.4 Forcible Entry

	JPR 5.3.4 Forcible Entry	
Delivery Mode	Response Percent	Response Count
Face-to-Face	75 percent	6
Hybrid	25 percent	2

Question 15 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.5 exit a hazardous area as a team, given vision-obscured conditions, so that a safe haven is found before exhausting the air supply, others are not endangered, and the team integrity is maintained.

Eight participants (88.9 percent) responded to this question. Seven respondents (87.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face while 1 response (12.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 13 JPR 5.3.5 Exit a Hazardous Area as a Team.

Table 13

JPR 5.3.5 Exit a Hazardous Area as a Team

	JPR 5.3.5 Exit a Hazardous Area as a Team	
Delivery Mode	Response Percent	Response Count
Face-to-Face	87.5 percent	7
Hybrid	12.5 percent	1

Question 16 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.6 set up ground ladders, given single and extension ladders, an assignment, and team members if needed, so that hazards are assessed, the ladder is stable, the angle is correct for climbing, extension ladders are extended to the necessary height with the fly locked, the top is placed against a reliable structural component, and the assignment is accomplished.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be

acceptable information to entry level firefighters. One person did not respond. See Table 14 JPR 5.3.6 Set Up Ground Ladders.

Table 14

JPR 5.3.6 Set Up Ground Ladders

	JPR 5.3.6 Set Up Ground Ladders	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 17 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.7 to attack a passenger vehicle fire while operating as a member of a team, given personal protective equipment, attack line, and hand tools, so that hazards are avoided, leaking flammable liquids are identified and controlled, protection from flash fires is maintained, all vehicle compartments are overhauled, and the fire is extinguished.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 15 JPR 5.3.7 Attack Passenger Vehicle Fire.

Table 15

JPR 5.3.7 Attack Passenger Vehicle Fire

	JPR 5.3.7 Attack Passenger Vehicle Fire	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 18 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.8 extinguish fires in exterior Class A materials, given fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices.

Eight participants (88.9 percent) responded to this question. Seven respondents (87.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face while 1 response (12.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 16 JPR 5.3.8 Extinguish Fires in Exterior Class A Materials.

Table 16

JPR 5.3.8 Extinguish Fires in Exterior Class A Materials

	JPR 5.3.8 Extinguish Fires in Exterior Class A Materials	
Delivery Mode	Response Percent	Response Count
Face-to-Face	87.5 percent	7
Hybrid	12.5 percent	1

Question 19 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.9 conduct a search and rescue in a structure operating as a member of a team, given an assignment, obscured vision conditions, personal protective equipment, a flashlight, forcible entry tools, hose lines, and ladders when necessary, so that ladders are correctly placed when used, all assigned areas are searched, all victims are located and removed

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 17 JPR 5.3.9 Conduct Search and Rescue.

Table 17

JPR 5.3.9 Conduct Search and Rescue

	JPR 5.3.9 Conduct Search and Rescue	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 20 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.10 attack an interior structure fire operating as a member of a team, given an attack line, ladders when needed, personal protective equipment, tools, and an assignment, so that team integrity is maintained, the attack line is deployed for advancement, ladders are correctly placed when used, access is gained into the fire area.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face

while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 18 JPR 5.3.10 Attack an Interior Structure Fire.

Table 18

JPR 5.3.10 Attack an Interior Structure Fire

	JPR 5.3.10 Attack an Interior Structure Fire	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 21 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.11 to perform horizontal ventilation on a structure operating as part of a team, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, so that the ventilation openings are free of obstructions, tools are used as designed, ladders are correctly placed, ventilation devices are correctly placed, and the structure is cleared of smoke.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 19 JPR 5.3.11 Perform Horizontal Ventilation of a Structure.

Table 19

JPR 5.3.11 Perform Horizontal Ventilation of a Structure

	JPR 5.3.11 Perform Horizontal Ventilation of a Structure	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 22 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.10 to perform vertical ventilation on a structure as part of a team, given an assignment, personal protective equipment, ground and roof ladders, and tools, so that ladders are positioned for ventilation, a specified opening is created, all ventilation barriers are removed, structural integrity is not compromised, products of combustion are released from the structure, and the team retreats from the area when ventilation is accomplished.

Eight participants (88.9 percent) responded to this question. All eight respondents (88.9/100 percent) that answered this question said this JPR needed to be delivered Face-to-Face while no responses (0 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 20 JPR 5.3.10 Perform Vertical Ventilation of a Structure.

Table 20

JPR 5.3.10 Perform Vertical Ventilation of a Structure

	JPR 5.3.10 Perform Vertical Ventilation of a Structure	
Delivery Mode	Response Percent	Response Count
Face-to-Face	100 percent	8
Hybrid	0 percent	0

Question 23 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to JPR 5.3.13 overhaul a fire scene, given personal protective equipment, attack line, hand tools, a flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

Eight participants (88.9 percent) responded to this question. Seven respondents (87.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face while 1 response (12.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 21 JPR 5.3.13 Overhaul a Fire Scene.

Table 21

JPR 5.3.13 Overhaul a Fire Scene

	JPR 5.3.13 Overhaul a Fire Scene	
Delivery Mode	Response Percent	Response Count
Face-to-Face	87.5 percent	7
Hybrid	12.5 percent	1

Question 24 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable to conserve property as a member of a team, given salvage tools and equipment and an assignment, so that the building and its contents are protected from further damage.

Eight participants (88.9 percent) responded to this question. Five respondents (62.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face while 3 responses (37.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 22 JPR 5.3.14 Conserve Property.

Table 22

JPR 5.3.14 Conserve Property

	JPR 5.3.14 Conserve Property	
Delivery Mode	Response Percent	Response Count
Face-to-Face	62.5 percent	5
Hybrid	37.5 percent	3

Question 25 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.15 to connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed.

Eight participants (88.9 percent) responded to this question. Six respondents (75 percent) that answered this question said this JPR needed to be delivered Face-to-Face while two responses (25 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 23 JPR 5.3.15 Connect a Fire Department Pumper to a Water Supply.

Table 23

JPR 5.3.15 Connect a Fire Department Pumper to a Water Supply

	JPR 5.3.15 Connect a Fire Department Pumper to a Water Supply	
Delivery Mode	Response Percent	Response Count
Face-to-Face	75 percent	6
Hybrid	25 percent	2

Question 26 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.16 to extinguish incipient Class A, Class B, and Class C fires, given a selection of portable fire extinguishers, so that the correct extinguisher is chosen, the fire is completely extinguished, and correct extinguisher-handling techniques are followed.

Eight participants (88.9 percent) responded to this question. Four respondents (50 percent) that answered this question said this JPR needed to be delivered Face-to-Face and four responses (50 percent) also said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 24 JPR 5.3.16 Extinguish Incipient Class A, D and C Fires.

Table 24

JPR 5.3.16 Extinguish Incipient Class A, D and C Fires

	JPR 5.3.16 Extinguish Incipient Class A, D and C Fires	
Delivery Mode	Response Percent	Response Count
Face-to-Face	50 percent	4
Hybrid	50 percent	4

Question 27 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.17 to illuminate the emergency scene, given fire service electrical equipment and an assignment, so that designated areas are illuminated and all equipment is operated within the manufacturer's listed safety precautions.

Eight participants (88.9 percent) responded to this question. Four respondents (50 percent) that answered this question said this JPR needed to be delivered Face-to-Face and four responses (50 percent) also said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 25 JPR 5.3.17 Illuminate the Emergency Scene.

Table 25

JPR 5.3.17 Illuminate the Emergency Scene

	JPR 5.3.17 Illuminate the Emergency Scene	
Delivery Mode	Response Percent	Response Count
Face-to-Face	50 percent	4
Hybrid	50 percent	4

Question 28 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.18 to turn off building utilities, given tools and an assignment, so that the assignment is safely completed.

Eight participants (88.9 percent) responded to this question. Three respondents (37.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face and five responses (62.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 26 JPR 5.3.18 Turn Off Building Utilities.

Table 26

JPR 5.3.18 Turn Off Building Utilities

	JPR 5.3.18 Turn Off Building Utilities	
Delivery Mode	Response Percent	Response Count
Face-to-Face	37.5 percent	3
Hybrid	62.5 percent	5

Question 29 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.3.19 to combat a ground cover fire operating as a member of a team, given protective clothing, SCBA if needed, hose lines, extinguishers or hand tools, and an assignment, so that threats to property are reported, threats to personal safety are recognized, retreat is quickly accomplished when warranted, and the assignment is completed.

Eight participants (88.9 percent) responded to this question. Four respondents (50 percent) that answered this question said this JPR needed to be delivered Face-to-Face and four responses (50 percent) also said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 27 JPR 5.3.19 Combat a Ground Cover Fire.

Table 27

JPR 5.3.19 Combat a Ground Cover Fire

	JPR 5.3.19 Combat a Ground Cover Fire	
Delivery Mode	Response Percent	Response Count
Face-to-Face	50 percent	4
Hybrid	50 percent	4

Question 30 asked respondents for comments for JPRs 5.3 through JPR 5.3.19. Only two (25 percent) of the respondents made a comment. The first comment is, "Some of these skills will require more in-depth explanations and are better understood in a discussion format. In groups, some people will ask the questions and all of the students benefit from the discussion." The second comment was, "All requisite skills should be performed face-to-face.

Question 30 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.5 prevention, preparedness and maintenance involving performing activities that reduce the loss of life and property due to fire through response readiness, according to the JPRs in 5.5.1 and 5.5.2.

Eight participants (88.9 percent) responded to this question. Two respondents (25 percent) that answered this question said this JPR needed to be delivered Face-to-Face and six responses (75 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. See Table 28 JPR 5.5 Prevention, Preparedness and Maintenance.

Table 28

JPR 5.5 Prevention, Preparedness and Maintenance

	JPR 5.5 Prevention, Preparedness and Maintenance	
Delivery Mode	Response Percent	Response Count
Face-to-Face	25 percent	2
Hybrid	75 percent	6

Question 32 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for the JPR 5.3.18 to clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment,

so that equipment is clean and maintained according to manufacturer's or departmental guidelines.

Eight participants (88.9 percent) responded to this question. Three respondents (37.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face and five responses (62.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 29 JPR 5.5.11 Clean and Maintain Equipment

Table 29

JPR 5.5.11 Clean and Maintain Equipment

	JPR 5.5.11 Clean and Maintain Equipment	
Delivery Mode	Response Percent	Response Count
Face-to-Face	37.5 percent	3
Hybrid	62.5 percent	5

Question 33 asked respondents to indicate if either Face-to-Face or Hybrid delivery is acceptable for JPR 5.5.2 to clean, inspect, and return fire hose to service, given washing equipment, water, detergent, tools, and replacement gaskets, so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service.

Eight participants (88.9 percent) responded to this question. Three respondents (37.5 percent) that answered this question said this JPR needed to be delivered Face-to-Face and five responses (62.5 percent) said this could be accomplished through Hybrid delivery to be acceptable information to entry level firefighters. One person did not respond. See Table 30 JPR 5.5.2 Clean, Inspect and Return Fire Hose to Service.

Table 30

JPR 5.5.2 Clean, Inspect and Return Fire Hose to Service

	JPR 5.5.2 Clean, Inspect and Return Fire Hose to Service	
	Response Percent	Response Count
Face-to-Face	37.5 percent	3
Hybrid	62.5 percent	5

The last survey question, question 30 asked respondents for comments for JPRs 5.5 through JPR 5.5.2. Only one (12.5 percent) of the respondents made a comment. The comment was, "All requisite skills should be performed face-to-face to demonstrate the requisite knowledge."

Chapter V: Summary, Conclusions, and Recommendations

The purpose of this study was be to determine if hybrid and online delivery of the didactic portions of initial firefighting training will sufficiently train firefighters for accomplishing the job performance requirements as identified by the Wisconsin Technical College System. In order to implement the aforementioned statement, students from the Nicolet College District must be willing to enroll in this new delivery technique for training firefighters in Wisconsin. More specifically it will examine if the enrollment into hybrid online courses will increase due this flexible offering.

Summary

Over the past years, several entry level fire classes offered by Nicolet College have been cancelled due to low enrollments. To better serve the fire service within the Nicolet College district, research needs to be conducted to determine the feasibility of alternative delivery methods.

This research proposes to study the predicted effectiveness of incorporating a hybrid component into the fire training curriculum for entry level fire service training. With the addition of this hybrid component, Nicolet would like to better serve the fire service community with flexible opportunities in enrollment for Protective Services Fire Service Training.

For the purpose of this research, the following questions were asked:

1. Can hybrid and online delivery of the didactic portion of initial firefighter training sufficiently prepare firefighters for accomplishing the job performance objectives as identified by the Wisconsin Technical College Fire Systems Board?
2. Will the acceptance on hybrid and online learning, will the fire service instructors have sufficient classroom time to prepare firefighting participants for successful

completion of the job performance requirements as established by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications.

The research design for this study will be a scientific descriptive survey methodology will be used to gather data of the variables. The independent variables will be the respondent's views toward distance education delivery of entry level firefighting course as compared to traditional face-to-face offerings. The dependent variable will be the courses offered via distant education platform as a result of respondent surveys. The control variable in this study will be fire service instructors employed by the Nicolet College District.

The population for this study was current fire service instructors employed by the Nicolet College District. All respondents will have previously completed their training as Wisconsin State Certified Firefighter 1, Wisconsin State Certified Firefighter 2, and Wisconsin State Fire Instructor in the traditional face to face format. Additionally, all respondents will have at least five years of fire service teaching experience with Nicolet College.

Discussion of the Findings

The classroom may not be the most exciting place to conduct training due mostly to long lectures which develop the foundation upon the premise the learning will take place. Training in this environment makes take the setting of real-world experience in settings one can expect to find in the workplace.

The addition of hybrid and online training in conjunction with hands training can offer students more time in the face-to face sessions to practice their psychomotor skills: therefore, accomplishing the job performance objectives as identified by the National Fire Protection Association and the Wisconsin Technical College Fire Systems Board. This will be

accomplished as the didactic portions of the class will be the student's responsibility to complete outside of class in preparation for skills day training.

This research indicates19 of the 30 (63.3 percent) Job Performance Requirements established by the National Fire Protection Association 1001, Standard for Fire Fighter Professional Qualifications and the Wisconsin Technical College System were recommended for delivery mode via a traditional Face-to-Face format while eight of the 30 (26.7 percent) said Hybrid delivery would accomplish the learner's requirements. The research indicated face-to-face delivery modes for those JPRs requiring demonstration while Hybrid was the desired mode of delivery is knowledge was to be acquired.

According to the Wisconsin Technical College Fire Service Board's course schedule for class deliveries (Wisconsin Technical College, 2013), 43 percent (41.5 of the 96 hours) is devoted to practical evolutions. Entry Level Fire Fighter, part 1 devotes practical sessions for personal protective equipment and self-contained breathing apparatus (SCBA), SCBA skills, hose couplings and rolls and hose loads, water supply, and hose streams. Entry Level Fire Fighter, part 2 includes practical evolutions for ladders, fire control to include live fires of structure, dumpster, vehicle, and wild land fires. Practical sessions are scheduled for the following lessons of Certified Fire Fighter1; forcible entry, ropes and knots, communications, fire cause and determination, roof ventilation, ladders, hose evolutions, fire control, search, and water supply.

Lecture sessions delivered in the traditional classroom face-to-face delivery mode include all of the practical topics listed previously in addition to the following; Entry Level Fire Fighter, part 1, introduction and overview of the fire service, fire fighter safety, incident command system, fire behavior, and fire extinguishers. Entry Level Fire Fighter, part 2 includes hazardous

materials in addition to the practical evolution topics. Certified Fire Fighter 1spends classroom time delivering the following topics in a lecture delivery; fire fighter orientation and history, building construction, and utility safety. All three classes also include chapter quizzes and a final exam. The written certified exam follows Certified Fire Fighter 1.

Only three of the 30 (10 percent) questions received equal scores in the method of delivery. The three questions receiving equal scores did not impact life safety. These topics were from Entry Level Fire Fighter, part 1; extinguishing incipient class A, B and C fires, Entry Level Fire Fighter, part 2; combating a ground cover fire, and Certified Fire Fighter 1; illuminating the emergency scene.

Conclusions

The following is a list of conclusions that were made based on the findings of conducting this research.

1. Based on the data collected, Nicolet College should consider converting future entry level fire curriculum so that specific lessons or quizzes can be delivered in a hybrid and online format.
2. Based on the data collected, it is recommended to move some of the curriculum to a hybrid format.
3. Hybrid offerings of specific entry level fire service lessons and quizzes may allow more time for practical skill demonstration of the job performance requirements.
4. Any option of Hybrid delivery methods will need to be communicated with all members of the fire service residing in the Nicolet College District.
5. At this time, Nicolet would not support a full Hybrid delivery platform for entry level fire service training.

There are no mandated federal requirements for fire fighter training in the United States. The National Fire Protection Association (NFPA) guidelines for training in the form of consensus standards; however, it is up to the individual states to decide which standards they wish to adopt in their training standards. According to the Wisconsin Department of Safety and Professional Services (SPS 300.08) (formally known as Wisconsin Department of Commerce), in order for a firefighter to engage in structural firefighting in the State of Wisconsin the following requirements shall be met:

- Training requirements shall be set forth by the Wisconsin Technical College System
- An approved state apprentice program
- An in-house training program approved by the Wisconsin Technical College System Board, or
- NFPA 1001

Recommendations

The following is a list of the recommendations for further research.

1. Provide training to Nicolet Fire Service Instructors on Blackboard if utilizing the current publisher, International Fire Service Training Association (IFSTA), Essentials of Fire Fighting 6th Edition. Further research needed would be required to determine the effectiveness of introducing hybrid components as a delivery mode for entry level fire service training within the Nicolet College District providing the college continues to use the IFSTA curriculum.
2. Provide training to Nicolet Fire Service Instructor on Navigate if changing publishers to Jones and Bartlett Learning, Fundamentals of Fire Fighter Skills, 3rd Edition. Further research needed would be required to determine the effectiveness of introducing hybrid

components as a delivery mode for entry level fire service training within the Nicolet College District through Jones and Bartlett Learning.

3. Review other fire training publishers to determine if hybrid and online platforms have already been developed.
4. Provide training to Nicolet Fire Service Instructors on online training. Further research needed would be required to determine the effectiveness of introducing hybrid components as a delivery mode for entry level fire service training within the Nicolet College District.
5. Develop hybrid and online delivery platforms locally at Nicolet College if the aforementioned publishers do not utilize this delivery option available. Further research needed would be required to determine the effectiveness of introducing hybrid components as a delivery mode for entry level fire service training within the Nicolet College District.
6. Further research into other entry level fire service programs would be required to determine the effectiveness of introducing hybrid components as a delivery mode for entry level fire service training within the Nicolet College District.

References

Bernard, R., Brauer, A., Abrami, P., & Surkes, M. (2004). The development of a questionnaire for predicting online learning achievement. *Distance Education, 25*(1), 44-47.

Coleman, R. J. (1994). *The evolution of California fire service training and education.* Long Beach, CA: California State University.

DeMauro, K. (2008). Self-directed learning. *Fire Engineering,* 20-21.

Donovant, B. (2009). The new, modern practice of adult education: Online instruction in a continuing professional education setting. *Adult Education Quarterly, 59*(3), 227-245.

Eastham, J., & Paluck, J. (2001). Taken it online: Moving classroom-based EMS training and education to the internet. *EMS, 30*(8).

Gentry, C. (2005). *Learning on demand: Flexibility and accessibility lead retailers to web-based classrooms.* Retrieved January 2, 2012, from :www.ChainStoreAge.com http://www.everyonegoeshome.com

Kittner, G. (2008, September). Volunteer firefighters harder to find. *Wisconsin Firefighters Journal,* 18-19.

Linstrom, J. (2004). Look to new learning strategies in new year. *Fire Chief,* 28-29.

Manning, B. (2004). Training in the new year. *Fire Engineering,* 8.

Miller, R. W. (2007). Out of the classroom: Making the case for on-line training. *Public Safety Communications, 73*(10), 46-49.

Nicolet Area Technical College. (2012-2013). *College catalog.* Rhinelander, WI: NATC District Office.

Nicolet Area Technical College. (2013). *District map: About Nicolet.* Retrieved February 26, 2013 from http://www.nicoletcollege.edu/about/about-nicolet/district-map.html

United States Fire Administration. (2012). *National fire department census quick facts.* Retrieved from http://apps.usfa.fema.gov/census/summary.cfm#e

Valencia, R., Link, D., Baukal, C., & McGuire, J. (2008). Consider classroom training for plant operators. *Hydrocarbon Processing, 87*(8), 55-59. Retrieved from http://web.ebcohost.com

Wisconsin Technical College System. (2013). *Fire fighter I implementation guide.* Retrieved May 8, 2013, from http://systemattic.wtcsystem.edu/webdocs/fst/coordinators/Fire-Fighter-1/FFI_Implementation_Guide_January_2013.pdf

Wisconsin Technical College System. (2010). *Fire service certification courses.* Retrieved from http://systemattic.wtcsystem.edu/fire/Progcors/Courses.htm

Appendix A

Correspondence to Fire Service Instructors of the Nicolet College District

Dear Instructor,

As part of my graduate research at the University of Wisconsin-Stout, I am conducting a survey in efforts to better serve the fire service community within the Nicolet District. Over the past years, several entry level fire classes have been cancelled due to low enrollments. Nicolet is proposing to incorporate a hybrid and online component in that students can complete the didactic portions of the class on their own time at home or at the fire station prior to each class meeting. Class sessions will likely be scheduled on Saturdays and/or Sundays in which students will be taught the skills needed to accomplish the job performance requirements established by the National Fire Protection Association and the Wisconsin Technical College Fire Service Board. To supplement the weekend class meeting, additional instruction will be delivered online.

By completing this online survey, you will be influencing the method in which Nicolet College delivers and educates the fire service within the district. Please take approximately 20 minutes to complete the survey accompanying this letter. Select Face-to-Face if you this JPR must be conducted in the traditional Face-to-Face classroom setting. Select Hybrid if you believe this JPR can be delivered in a combination of distance education along with Face-to-Face classroom session. In addition, please feel free to write any comments you may have about this survey. No personal identifying information will be accompanying this survey and all your responses will remain anonymous. Your participation in this survey is entirely voluntary. You may choose not to participate without any adverse consequences to you. You have the right to stop the survey at any time.

Please follow the link to complete the survey by Friday, April 26, 2013.
https://www.surveymonkey.com/s/2BRLX7Y (Control + Click will open survey link)

Thank you for your time,

Jason R. Goeldner
Director of Protective Services

Appendix B

Self-Study, Written, and Practical Skills Requirements **NFPA 1001, Fire Fighter I, current edition** ***IFSTA 5th Edition Curriculum***		
JPR's	**Face to Face**	**Hybrid**
5.1 General: For qualification at Level I, the fire fighter candidate shall meet the general knowledge requirements in 5.1.1; the general skill requirements in 5.1.2; the JPRs defined in Sections 5.2 through 5.5 of this standard; and the requirements defined in Chapter 5, Core Competencies for Operations Level Responders, and Section 6.6, Mission-Specific Competencies: Product Control, of NFPA 472, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents.		
5.1.1 General Knowledge Requirements: The organization of the fire department; the role of the Fire Fighter I in the organization; the mission of fire service; the fire department's standard operating procedures (SOPs) and rules and regulations as they apply to the Fire Fighter I; the role of other agencies as they relate to the fire department; aspects of the fire department's member assistance program; the importance of physical fitness and a healthy lifestyle to the performance of the duties of a fire fighter; the critical aspects of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, as they apply to the Fire Fighter I; knot types and usage; the difference between life safety and utility rope; reasons for placing rope out of service; the types of knots to use for given tools, ropes, or situations; hoisting methods for tools and equipment; and using rope to support response activities.		
5.1.2 General Skill Requirements: The ability to don personal protective clothing within 1 minute; doff personal protective clothing and prepare for reuse; hoist tools and equipment using ropes and the correct knot; and locate information in departmental documents and standard or code materials.		
Comments for 5.1	**Face to Face**	**Hybrid**

5.2 Fire Department Communications: This duty shall involve initiating responses, receiving telephone calls, and using fire department communications equipment to correctly relay verbal or written information, according to the JPRs in 5.2.1 through 5.2.3.		
5.2.1 Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center. (A) Requisite Knowledge. Procedures for reporting an emergency, departmental SOPs for taking and receiving alarms, radio codes or procedures, and information needs of dispatch center. (B) Requisite Skills. The ability to operate fire department communications equipment, relay information, and record information.		
5.2.2 Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. (A) Requisite Knowledge. Fire department procedures for answering nonemergency telephone calls. (B) Requisite Skills. The ability to operate fire station telephone and intercom equipment.		
5.2.3 Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. (A) Requisite Knowledge. Departmental radio procedures and etiquette for routine traffic, emergency traffic, and emergency evacuation signals. (B) Requisite Skills. The ability to operate radio equipment and discriminate between routine and emergency traffic.		
Comments for 5.2	**Face to Face**	**Hybrid**

5.3 Fireground Operations: This duty shall involve performing activities necessary to ensure life safety, fire control, and property conservation, according to the JPRs in 5.3.1 through 5.3.19.		
5.3.1 Use self-contained breathing apparatus (SCBA) during emergency operations, given SCBA and other personal protective equipment, so that the SCBA is correctly donned and activated within 1 minute, the SCBA is correctly worn, controlled breathing techniques are used, emergency procedures are enacted if the SCBA fails, all low-air warnings are recognized, respiratory protection is not intentionally compromised, and hazardous areas are exited prior to air depletion. (A) Requisite Knowledge. Conditions that require respiratory protection, uses and limitations of SCBA, components of SCBA, donning procedures, breathing techniques, indications for and emergency procedures used with SCBA, and physical requirements of the SCBA wearer. (B) Requisite Skills. The ability to control breathing, replace SCBA air cylinders, use SCBA to exit through restricted passages, initiate and complete emergency procedures in the event of SCBA failure or air depletion, and complete donning procedures.		
5.3.2 Respond on apparatus to an emergency scene, given personal protective clothing and other necessary personal protective equipment, so that the apparatus is correctly mounted and dismounted, seat belts are used while the vehicle is in motion, and other personal protective equipment is correctly used. (A) Requisite Knowledge. Mounting and dismounting procedures for riding fire apparatus, hazards and ways to avoid hazards associated with riding apparatus, prohibited practices, and types of department personal protective equipment and the means for usage. (B) Requisite Skills. The ability to use each piece of provided safety equipment.		

5.3.3 Establish and operate in work areas at emergency scenes, given protective equipment, traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards and downed electrical wires, an assignment, and SOPs, so that procedures are followed, protective equipment is worn, protected work areas are established as directed using traffic and scene control devices, and the fire fighter performs assigned tasked only in established, protected work areas. (A) Requisite Knowledge. Potential hazards involved in operating on emergency scenes including vehicle traffic, utilities, and environmental conditions; proper procedures for dismounting apparatus in traffic; procedures for safe operation at emergency scenes; and the protective equipment available for members' safety on emergency scenes and work zone designations. (B) Requisite Skills. The ability to use personal protective clothing, deploy traffic and scene control devices, dismount apparatus, and operate in the protected work areas as directed.		
5.3.4 Force entry into a structure, given personal protective equipment, tools, and an assignment, so that the tools are used as designed, the barrier is removed, and the opening is in a safe condition and ready for entry. (A) Requisite Knowledge. Basic construction of typical doors, windows, and walls within the department's community or service area; operation of doors, windows, and locks; and the dangers associated with forcing entry through doors, windows, and walls. (B) Requisite Skills. The ability to transport and operate hand and power tools and to force entry through doors, windows, and walls using assorted methods and tools.		
5.3.5 Exit a hazardous area as a team, given vision-obscured conditions, so that a safe haven is found before exhausting the air supply, others are not endangered, and the team integrity is maintained. (A) Requisite Knowledge. Personnel accountability systems, communication procedures, emergency evacuation methods, what constitutes a safe haven, elements that create or indicate a hazard, and emergency procedures for loss of air supply. (B) Requisite Skills. The ability to operate as a team member in vision-obscured conditions, locate and follow a guideline, conserve air supply, and evaluate areas for hazards and identify a safe haven.		

5.3.6 Set up ground ladders, given single and extension ladders, an assignment, and team members if needed, so that hazards are assessed, the ladder is stable, the angle is correct for climbing, extension ladders are extended to the necessary height with the fly locked, the top is placed against a reliable structural component, and the assignment is accomplished. (A) Requisite Knowledge. Parts of a ladder, hazards associated with setting up ladders, what constitutes a stable foundation for ladder placement, different angles for various tasked, safety limits to the degree of angulation, and what constitutes a reliable structural component for top placement. (B) Requisite Skills. The ability to carry ladders, raise ladders, extend ladders and lock flies, determine that a wall and roof will support the ladder, judge extension ladder height requirements, and place the ladder to avoid obvious hazards.		
5.3.7 Attack a passenger vehicle fire operating as a member of a team, given personal protective equipment, attack line, and hand tools, so that hazards are avoided, leaking flammable liquids are identified and controlled, protection from flash fires is maintained, all vehicle compartments are overhauled, and the fire is extinguished. (A) Requisite Knowledge. Principles of fire streams as they relate to fighting automobile fires; precautions to be followed when advancing hose lines toward an automobile; observable results that a fire stream has been properly applied; identifying alternative fuels and the hazards associated with them; dangerous conditions created during an automobile fire; common types of accidents or injuries related to fighting automobile fires and how to avoid them; how to access locked passenger, trunk, and engine compartments; and methods for overhauling an automobile. (B) Requisite Skills. The ability to identify automobile fuel type; assess and control fuel leaks; open, close, and adjust the flow and pattern on nozzles; apply water for maximum effectiveness while maintaining flash fire protection; advance 38 mm (1½ in.) or larger diameter attack lines; and expose hidden fires by opening all automobile compartments.		

5.3.8 Extinguish fires in exterior Class A materials, given fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices, and an assignment, so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, and signs of the origin area(s) and arson are preserved. (A) Requisite Knowledge. Types of attack lines and water streams appropriate for attacking stacked, piled materials and outdoor fires; dangers — such as collapse — associated with stacked and piled materials; various extinguishing agents and their effect on different material configurations; tools and methods to use in breaking up various types of materials; the difficulties related to complete extinguishment of stacked and piled materials; water application methods for exposure protection and fire extinguishment; dangers such as exposure to toxic or hazardous materials associated with storage building and container fires; obvious signs of origin and cause; and techniques for the preservation of fire cause evidence. (B) Requisite Skills. The ability to recognize inherent hazards related to the material's configuration, operate handlines or master streams, break up material using hand tools and water streams, evaluate for complete extinguishment, operate hose lines and other water application devices, evaluate and modify water application for maximum penetration, search for and expose hidden fires, assess patterns for origin determination, and evaluate for complete extinguishment.		

5.3.9 Conduct a search and rescue in a structure operating as a member of a team, given an assignment, obscured vision conditions, personal protective equipment, a flashlight, forcible entry tools, hose lines, and ladders when necessary, so that ladders are correctly placed when used, all assigned areas are searched, all victims are located and removed, team integrity is maintained, and team members' safety — including respiratory protection — is not compromised. (A) Requisite Knowledge. Use of forcible entry tools during rescue operations, ladder operations for rescue, psychological effects of operating in obscured conditions and ways to manage them, methods to determine if an area is tenable, primary and secondary search techniques, team members' roles and goals, methods to use and indicators of finding victims, victim removal methods (including various carries), and considerations related to respiratory protection. (B) Requisite Skills. The ability to use SCBA to exit through restricted passages, set up and use different types of ladders for various types of rescue operations, rescue a fire fighter with functioning respiratory protection, rescue a fire fighter whose respiratory protection is not functioning, rescue a person who has no respiratory protection, and assess areas to determine tenability.		

5.3.10 Attack an interior structure fire operating as a member of a team, given an attack line, ladders when needed, personal protective equipment, tools, and an assignment, so that team integrity is maintained, the attack line is deployed for advancement, ladders are correctly placed when used, access is gained into the fire area, effective water application practices are used, the fire is approached correctly, attack techniques facilitate suppression given the level of the fire, hidden fires are located and controlled, the correct body posture is maintained, hazards are recognized and managed, and the fire is brought under control. (A) Requisite Knowledge. Principles of fire streams; types, design, operation, nozzle pressure effects, and flow capabilities of nozzles; precautions to be followed when advancing hose lines to a fire; observable results that a fire stream has been properly applied; dangerous building conditions created by fire; principles of exposure protection; potential long-term consequences of exposure to products of combustion; physical states of matter in which fuels are found; common types of accidents or injuries and their causes; and the application of each size and type of attack line, the role of the backup team in fire attack situations, attack and control techniques for grade level and above and below grade levels, and exposing hidden fires. (B) Requisite Skills. The ability to prevent water hammers when shutting down nozzles; open, close, and adjust nozzle flow and patterns; apply water using direct, indirect, and combination attacks; advance charged and uncharged 38 mm (1½ in.) diameter or larger hose lines up ladders and up and down interior and exterior stairways; extend hose lines; replace burst hose sections; operate charged hose lines of 38 mm (1½ in.) diameter or larger while secured to a ground ladder; couple and uncouple various handline connections; carry hose; attack fires at grade level and above and below grade levels; and locate and suppress interior wall and subfloor fires.		
5.3.11 Perform horizontal ventilation on a structure operating as part of a team, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, so that the ventilation openings are free of obstructions, tools are used as designed, ladders are correctly placed, ventilation devices are correctly placed, and the structure is cleared of smoke. (A) Requisite Knowledge. The principles, advantages, limitations, and effects of horizontal, mechanical, and hydraulic ventilation; safety considerations when venting a structure; fire behavior in a structure; the products of combustion found in a structure fire; the signs, causes, effects, and prevention of backdrafts; and the relationship of oxygen concentration to life safety and fire growth. (B) Requisite Skills. The ability to transport and operate ventilation tools and equipment and ladders, and to use safe procedures for breaking window and door glass and removing obstructions.		

5.3.12 Perform vertical ventilation on a structure as part of a team, given an assignment, personal protective equipment, ground and roof ladders, and tools, so that ladders are positioned for ventilation, a specified opening is created, all ventilation barriers are removed, structural integrity is not compromised, products of combustion are released from the structure, and the team retreats from the area when ventilation is accomplished. (A) Requisite Knowledge. The methods of heat transfer; the principles of thermal layering within a structure on fire; the techniques and safety precautions for venting flat roofs, pitched roofs, and basements; basic indicators of potential collapse or roof failure; the effects of construction type and elapsed time under fire conditions on structural integrity; and the advantages and disadvantages of vertical and trench/strip ventilation. (B) Requisite Skills. The ability to transport and operate ventilation tools and equipment; hoist ventilation tools to a roof; cut roofing and flooring materials to vent flat roofs, pitched roofs, and basements; sound a roof for integrity; clear an opening with hand tools; select, carry, deploy, and secure ground ladders for ventilation activities; deploy roof ladders on pitched roofs while secured to a ground ladder; and carry ventilation-related tools and equipment while ascending and descending ladders.		
5.3.13 Overhaul a fire scene, given personal protective equipment, attack line, hand tools, a flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished. (A) Requisite Knowledge. Types of fire attack lines and water application devices most effective for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, obvious signs of area of origin or signs of arson, and reasons for protection of fire scene. (B) Requisite Skills. The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve obvious signs of area of origin and arson; and evaluate for complete extinguishment.		

5.3.14 Conserve property as a member of a team, given salvage tools and equipment and an assignment, so that the building and its contents are protected from further damage. (A) Requisite Knowledge. The purpose of property conservation and its value to the public, methods used to protect property, types of and uses for salvage covers, operations at properties protected with automatic sprinklers, how to stop the flow of water from an automatic sprinkler head, identification of the main control valve on an automatic sprinkler system, and forcible entry issues related to salvage. (B) Requisite Skills. The ability to cluster furniture; deploy covering materials; roll and fold salvage covers for reuse; construct water chutes and catch-alls; remove water; cover building openings, including doors, windows, floor openings, and roof openings; separate, remove, and relocate charred material to a safe location while protecting the area of origin for cause determination; stop the flow of water from a sprinkler with sprinkler wedges or stoppers; and operate a main control valve on an automatic sprinkler system.		
5.3.15 Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed. (A) Requisite Knowledge. Loading and off-loading procedures for mobile water supply apparatus; fire hydrant operation; and suitable static water supply sources, procedures, and protocol for connecting to various water sources. (B) Requisite Skills. The ability to hand lay a supply hose, connect and place hard suction hose for drafting operations, deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them, make hydrant-to-pumper hose connections for forward and reverse lays, connect supply hose to a hydrant, and fully open and close the hydrant.		
5.3.16 Extinguish incipient Class A, Class B, and Class C fires, given a selection of portable fire extinguishers, so that the correct extinguisher is chosen, the fire is completely extinguished, and correct extinguisher-handling techniques are followed. (A) Requisite Knowledge. The classifications of fire; the types of, rating systems for, and risks associated with each class of fire; and the operating methods of and limitations of portable extinguishers. (B) Requisite Skills. The ability to operate portable fire extinguishers, approach fire with portable fire extinguishers, select an appropriate extinguisher based on the size and type of fire, and safely carry portable fire extinguishers.		

5.3.17 Illuminate the emergency scene, given fire service electrical equipment and an assignment, so that designated areas are illuminated and all equipment is operated within the manufacturer's listed safety precautions. (A) Requisite Knowledge. Safety principles and practices, power supply capacity and limitations, and light deployment methods. (B) Requisite Skills. The ability to operate department power supply and lighting equipment, deploy cords and connectors, reset ground-fault interrupter (GFI) devices, and locate lights for best effect.		
5.3.18 Turn off building utilities, given tools and an assignment, so that the assignment is safely completed. (A) Requisite Knowledge. Properties, principles, and safety concerns for electricity, gas, and water systems; utility disconnect methods and associated dangers; and use of required safety equipment. (B) Requisite Skills. The ability to identify utility control devices, operate control valves or switches, and assess for related hazards.		
5.3.19 Combat a ground cover fire operating as a member of a team, given protective clothing, SCBA if needed, hose lines, extinguishers or hand tools, and an assignment, so that threats to property are reported, threats to personal safety are recognized, retreat is quickly accomplished when warranted, and the assignment is completed. (A) Requisite Knowledge. Types of ground cover fires, parts of ground cover fires, methods to contain or suppress, and safety principles and practices. (B) Requisite Skills. The ability to determine exposure threats based on fire spread potential, protect exposures, construct a fire line or extinguish with hand tools, maintain integrity of established fire lines, and suppress ground cover fires using water.		
Comments for 5.3	**Face to Face**	**Hybrid**

5.5 Prevention, Preparedness, Maintenance. This duty shall involve performing activities that reduce the loss of life and property due to fire through response readiness, according to the JPRs in 5.5.1 and 5.5.2.		
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. (A) Requisite Knowledge. Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. (B) Requisite Skills. The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.		
5.5.2 Clean, inspect, and return fire hose to service, given washing equipment, water, detergent, tools, and replacement gaskets, so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service. (A) Requisite Knowledge. Departmental procedures for noting a defective hose and removing it from service, cleaning methods, and hose rolls and loads. (B) Requisite Skills. The ability to clean different types of hose, operate hose washing and drying equipment, mark defective hose, and replace coupling gaskets, roll hose, and reload hose.		
Comments for 5.5	**Face to Face**	**Hybrid**