

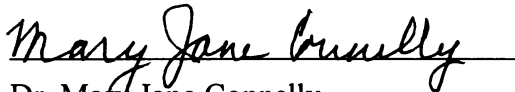
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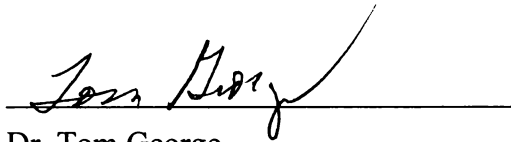


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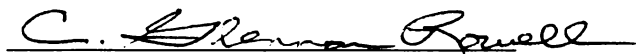
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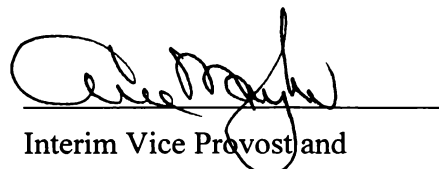


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A STUDY OF UNDERGRADUATE FIRE SERVICE DEGREE PROGRAMS
IN THE UNITED STATES – FALL 2000

A Dissertation
Presented for the
Doctor of Education Degree
The University of Tennessee, Knoxville

Thomas B. Sturtevant

May 2001

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DEDICATION

This dissertation is dedicated to the coordinators/directors of fire service degree programs. More often than not, your best work is not readily noticed. In fact, you may never see the fruits of your labor. Press forward knowing that a better educated fire service will positively impact this nation's high fire losses.

ACKNOWLEDGEMENTS

This dissertation was completed with the assistance of a number of special individuals who I wish to acknowledge and thank.

First, I extend a special thanks to Ed Kaplan at the National Fire Academy for his assistance and support. He encouraged me to look past the degree toward the importance of this study to the fire service.

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Finally, I wish to thank my wife Karen and our three wonderful children, Rachel, Hannah, and James for their endless love, understanding, and support.

ABSTRACT

Recent national efforts to coordinate and promote higher education in the fire service led to this national survey of fire service degree programs. The main purpose of the study was to gather descriptive information concerning fire service degree programs offered at two-year and four-year accredited institutions. A second purpose of the study was to identify the perceptions fire service degree program coordinators/directors hold concerning current and future issues affecting their programs. The information collected as part of the study can be used in a variety of ways from benchmarking among fire service degree programs to assistance and support with policy formation at the local, state, and federal level.

Of the 248 institutions identified for this study, 222 (89.52 percent) were associate level programs and 26 (10.48 percent) were bachelor level programs. A survey instrument was developed, pilot tested by national experts, and then mailed to the coordinators/directors of fire service degree programs for each of the institutions. Respondents were provided the opportunity to return completed surveys in the traditional paper format or through an electronic version located on the Internet. A total of 210 institutions responded to the survey resulting in an 84.68 percent return rate. At the associate level, 184 (82.88 percent) of the 222 programs responded and 26 (100 percent) of the 26 bachelor level programs responded.

The purpose of the study was achieved as the data collected provides an in-depth snapshot of the current status of fire service degree programs in the United States. Data were collected in the following five areas: Degree Program Information,

Student Information, Faculty Information, Distance Education Information, and Program Directors/Coordinators Perceptions.

Findings of the study included: 1) much is unknown about fire service degree programs during the 80s and 90s based on a void in research during this time period, 2) degree programs lack diversity in gender and race for coordinators/directors, faculty, and students, 3) the most important reported challenges facing degree programs included means and methods to increase enrollment, updating curriculum, finding quality instructors, lack of funding, and lack of incentives for earning an advanced degree, and 4) program changes coordinators/directors plan to make include updating and revising curriculum, working on distance education initiatives, and adding new courses, certifications, and programs.

Recommendations for further research included extending this study into a consistent collection process and expanding investigation into other related/advanced degree programs and into the fire service itself. Based on the findings and analysis of the study, the researcher suggested that fire service degree program coordinators/directors in cooperation with national fire service organizations such as the National Fire Academy, the International Association of Fire Chiefs, the International Association of Fire Fighters and other organizations work together toward: 1) supporting ongoing fire and emergency service higher education research, 2) developing nationally recognized traditional and distance education curriculum, 3) establishing meaningful incentives for obtaining advanced fire service degrees, 4) providing increased assistance to degree programs, and 5) increasing the diversity of students and faculty within fire service degree programs.

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CHAPTER I

INTRODUCTION

Background

Throughout the history of the fire service, training of firefighters most often occurred from within a fire department. As a discipline, the fire service is training-oriented (Clark, 1993). Even today, almost every fire department in the United States has a training division. However, fire department training programs have been overburdened by the need to address several disturbing trends. These include lack of progress toward reducing the staggering number of U.S. emergencies, the continued increase in complexity and diversity of these emergencies, and the changing role and scope of services provided by fire departments. These three issues have highlighted the need to embrace formalized higher education as a required supplement to traditional fire department training programs.

Each year, fire and emergency service personnel respond to a staggering number of emergencies. According to the United States Fire Administration, each year fire departments respond to an average of 2.1 million fires that result in 5,117 civilian fire deaths, 28,400 civilian injuries, and \$9.6 billion in property loss ("Fire in the United States," 1998). To put the large number of annual fires in perspective, Karter reported that during 1999, a fire department responded to a fire somewhere in the nation every 17 seconds (2000, p. 81). Firefighters themselves are not immune to the devastating effects of fire. During 1997, a total of 94 firefighters lost their lives (Washburn, LeBlanc, & Fahy, 1998) and in 1998 a total of 87,500 firefighters were

injured (Karter & LeBlanc, 1999). Progress toward reducing these trends has been slow and, in some cases, non-existent.

Today, fires in general are more dangerous than ever before. Materials commonly found in most homes help fire to spread quickly as well as produce volumes of toxic smoke. For example, the increased use of plastics in the U.S. has resulted in more fire deaths from toxic fumes and rapid-fire progression during a fire. Construction methods can also make fires more dangerous. The move to reduce construction costs has triggered a growing trend to use lightweight construction methods that tend to accelerate the spread of fire and reduce the time it takes for structures to collapse.

Added to the dilemma of responding to a large number of dangerous fires is the changing role and scope of fire departments. Thirty years ago, fire departments primarily responded to fires. Fifteen years ago, fire departments were expected to respond to medical and hazardous materials emergencies (“America Burning Revisited,” 1990). Today, citizens throughout the United States rely upon, and expect, firefighters and emergency service personnel to respond instantly to a wide range of emergencies. Emergency service personnel are being forced to explore and develop more sophisticated methods to mitigate emergencies. This changing landscape requires emergency service personnel to be better educated (Wilson, 1996).

Although fire service degree programs in higher education have been in existence for a number of years, only recently has the fire service actively supported and encouraged the trend. An informal review of job announcements in professional journals finds that many senior ranking positions in the fire service now require an

advanced degree. In addition, advancement through lower ranks within the fire service increasingly has a pre-requisite of a two-year or four-year degree program (Weiger, 1998). This recent emphasis on higher education by the fire service has resulted in an increase in the number of institutions offering fire service degree programs.

The growth in fire service degree programs has not occurred without controversy. One important issue centers on the distribution of training and education between in-house fire training departments, two-year programs, and four-year programs. Lack of communication and coordination between and among the fire service and higher education institutions offering fire service degree programs is another issue. This lack of communication and coordination has led to a variety of different fire service degree programs. The result is confusion for both the fire service and higher education.

Over the past three decades, several efforts were made to assist the fire service and educational institutions offering fire service degree programs. The major focus of efforts during the 1970s was research. The National Fire Prevention and Control Administration, U.S. Department of Commerce, sponsored several national research projects that attempted to identify the status, trends, and issues of fire related degree programs. During the late 80s and early 90s, the major focus appeared to center on enhancing communication and coordination between and among fire service degree programs. During this time, the National Fire Academy (NFA) took a lead role by sponsoring several regional and national meetings and conferences. Funding issues in the mid 90s limited the NFA's efforts to build on initial success. During the late 90s,

with funding issues resolved, the NFA initiated the most recent, and perhaps most aggressive, effort to assist fire service degree programs.

In April 1999, the NFA sponsored a conference of fire training and higher education coordinators to discuss a formalized process for networking, planning, and collaborating. During the conference, discussions in breakout sessions were hampered by a lack of descriptive information on the current status of degree programs such as the number of degree programs, degree names, enrollment and graduation trends, instructor qualifications, and delivery methods.

The final report generated by this conference contained several goals related specifically to research needs (“Fire & Emergency Services Higher Education Conference” 1999). These goals were:

1. Conduct a national survey of higher education institutions offering fire service degree programs to determine demographic information such as the number, structure, and enrollments of fire service programs.
2. Analyze and determine the current level of service provided by two-year and four-year programs as the first step toward development of a model curriculum.
3. Conduct a survey to identify current use of distance education methods in fire service higher education degree programs.

This study was designed to help achieve these goals.

Statement of the Problem

To date, no recent empirical studies on the status of fire service degree programs have been reported in the literature. The National Fire Prevention and Control Administration sponsored the most recent national study on fire service degree programs in 1975.

The National Fire Academy sponsored the first conference for the Fire and Emergency Services Higher Education Conference in April 1999. Throughout the conference, participants echoed the concern of not having important information on the current status of fire service degree programs in the U.S.. What types and levels of degree programs are being offered? What qualifications do instructors in these programs possess? How many students are enrolled and graduate from these programs? How is distance education being used in these programs? Should a model curriculum be developed? What are current and future issues for fire service degree programs? This study was designed to answer these questions.

Purpose of the Study and Research Questions

The main purpose of this study was to gather descriptive information concerning fire service degree programs offered at two-year and four-year level institutions in the United States. Specific research questions investigated were:

1. Of the institutions offering fire service degrees, what percent are associate degrees and bachelor degrees and are these programs evenly distributed across the United States between the two levels or are there regional patterns or trends?"

2. Are there differences within each degree level concerning degree name and between the levels concerning enrollment, graduation, and purpose?
3. What are the directors' and instructors' characteristics concerning highest earned degree, salary, and number of full-time/adjunct instructors?
4. What is the percentage of technical and general education courses, and who controls the curriculum?
5. To what extent do degree granting institutions accept transfer credit other than college courses such as national certificates and/or Academic Council on Education (ACE) recommendations for National Fire Academy (NFA) courses?
6. How many and what percent of fire service degree programs use distance learning methods to deliver courses?
7. What are the types of distance learning delivery methods used and what courses are offered through distance learning methods?

A second purpose of this study was to identify the perceptions fire service degree program coordinators/directors hold concerning current and future issues affecting fire service degree programs. Specific research questions investigated were:

8. What do coordinators/directors consider to be current challenges facing fire service degree programs?
9. What degree program changes are planned?
10. What are the views of coordinators/directors toward program funding, purpose of degree programs, acceptance of higher education in the fire service and the development of a model fire service curriculum?

Significance of the Study

The fire service is in a critical period as it attempts to both enhance its professional image as well as provide expanding services in an efficient and effective manner. The current method of training firefighters in-house is perceived by some to be ineffective in reducing the staggering number of U.S. emergencies and lacking in ability to address the changing role and scope of services provided by fire departments. The fire service must increase the integration of formalized education into their training and education program. This study may help this process by providing the NFA, the International Fire Chiefs Association, the International Fire Fighters Association, the fire service, and higher education institutions with descriptive data from which to begin cooperative planning. The information collected as part of this study will provide baseline data for future studies allowing for more accurate tracking of trends. In addition, institutions offering fire service degree programs can use this information as a benchmark and/or for comparing their program to national averages. Finally, policymakers at the state and national level can use the information gathered to initiate and/or support program and legislative initiatives.

The ultimate goal of the fire service is to save lives and property. Indirectly, this study, all those who provided guidance for the study, and those who participated in the study will assist in the fire service's goal of saving lives and property. The information provided in this study may help the NFA and higher education institutions work toward increasing the acceptance and use of higher education in the fire service. In turn, a better-educated fire service may begin to meaningfully affect the staggering

number of fires in the United States. It is conceivable that lives could be saved and suffering reduced based on the information derived from this study.

Assumptions

This study is based on the following assumptions:

1. Fire service degree coordinators are knowledgeable about various aspects of their degree program.
2. Degree program coordinators provided accurate information on the questionnaire.

Limitations and Delimitations

The following limitations of the study were identified:

1. The study was limited by the willingness of fire service degree program coordinators to participate in the survey.
2. This study was limited by the extent to which respondents accurately and thoroughly completed the survey instrument.

This study was delimited to:

1. Institutions that held regional accreditation during the 1999/2000 academic year.
2. Institutions offering two-year and four-year fire service degree programs with a 43.02 Classification of Instructional Programs (CIP) code as listed in the 1990 edition of the Classification of Instructional Programs.

3. Responses from coordinators of fire service degree programs.

Definition of Terms

The following statements define selected terms as they are used in the study.

Accredited institutions refers to higher education institutions that are accredited by one of the regional accrediting bodies.

Asynchronous learning refers to instructional interaction between the professor and students that occurs with a time delay.

Distance education refers to a system of instruction that uses a wide spectrum of delivery technologies such as video, email, Internet, and telephone to reach students that are geographically distanced from the instructor.

Fire service refers to organizations that respond to emergency calls.

Fire service degree programs are formalized instruction programs offered by higher education institutions that prepare individuals for firefighting, fire protection specialist, fire service administration and related services.

General education courses include those academic courses typically required in most degree programs such as English, speech, math, psychology, and history.

HazMat is a common acronym in the fire service for Hazardous Materials.

Higher education institutions refers to regionally accredited institutions offering AS, BS, and post-baccalaureate degree programs.

ProBoard is the accepted acronym for the Professional Qualifications Board.

Synchronous learning refers to instructional interaction between the professor and students that occurs in real time.

Technical courses include specific courses directly related to a particular field such as fire science courses, emergency medical courses, or fire service administration courses.

Summary of Chapter I

Traditionally, training of firefighters occurred from within a fire department. The recent trend to include higher education within the training and education process for firefighters has triggered an increase in the number of fire service degree programs. Controversy and lack of coordination between and among the fire service and higher education institutions has lead to a variety of different fire service degree programs. The final report from a recent fire service higher education conference sponsored by the NFA included three goals related to conducting a national survey to determine the current status of fire service degree programs in the U.S. This study was designed to help achieve those goals.

Organization of the Study

This study was organized in the following manner:

Chapter I provides an introduction to the study consisting of a background, statement of the problem, and research hypotheses. This chapter also includes the significance and assumptions of the study. Finally, the limitations, delimitations, and definitions are included in this chapter.

Chapter II includes a review of the literature related to the study. Specifically, it covers a brief overview of the development of higher education degree programs. In

addition, previous empirical studies related to higher education in the fire service are presented.

Chapter III presents the methodology of the study. It describes population, collection of the data, and analysis of the data.

Chapter IV contains study findings and the analysis of the data.

Chapter V presents a summary of the study. It also presents conclusions and implications drawn from the findings as well as recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to determine the current status of fire service degree programs in the United States. This chapter presents a summary of articles, publications, and research related to fire service degree program development in the United States. The summary is organized and presented in an historical format with three major time periods of development. The section entitled “Early Years” includes the 1900s to the 1950s and highlights the initial emergence of fire service education programs. The next section, “Growth Years,” includes the 1960s to the 1970s and is characterized by rapid growth in fire related degree programs. The majority of research on degree programs occurred during this time frame. The final section, “Transitional Years,” includes the 1980s to the 1990s. During this time, attention shifted from a national focus to a local or regional focus. Very little research occurred during this time.

Early Years (1900s to 1950s)

During this time, fire service degree programs began to emerge in the United States on a limited basis. The first degrees to be developed focused on engineering. It was not until after World War II that associate level programs began to appear. The majority of growth during this time frame occurred on the west coast (Bryan, 1979, p.

116).

Fire related education programs in the United States began with a Fire Protection Engineering degree established in 1903 at the Armour Institute of Technology in Chicago, Illinois. Prompted by severe conflagrations during the late nineteenth and early twentieth centuries, insurance companies supported this baccalaureate degree program with extensive student aid and scholarship programs. Although actively supported until 1973 by the insurance industry, the concept of a fire protection engineering degree program was slow to develop. The second fire protection engineering degree was not established until 1957 at the University of Maryland (Bryan, 1977). Both of these programs are still active today (Sa'adah, 1999).

The first academic program in the United States specifically developed for the fire service was a two-year certificate in Fire Protection established at the Oklahoma A & M College in 1937. In 1952 the certificate program progressed into an Associate Degree and then in 1972 it expanded into a Baccalaureate degree in Fire Protection and Safety Technology. In 1939, City College in Manhattan developed the first fire service related degree program, a bachelor degree in fire administration. Little progress was made with fire service degree programs during the late 30s and into the 40s as a result of World War II (Bryan, 1979).

After World War II, associate level programs were developed on a limited basis motivated in part by the educational benefits provided to veterans. During this time, most of the development occurred in California and on the west coast. The first

of these programs began in 1949 at the Contra Costa Community College and the East Los Angeles Community College. A few bachelor programs were also developed during this time. One of the first programs, established in 1948 by the University of Southern California, was a Public Administration program with a concentration in Fire Administration. Overall, fire service degree development progress in the United States remained slow during the 40s and 50s (Bryan, 1977, 1979).

The International Association of Fire Chiefs founded the International Fire Administration Institute (IFAI) in 1975 to assist in the development of higher education in the fire service. The IFAI established the following purposes:

1. To engage in research and otherwise obtain material for the preparation of courses of study in fire administration and subjects related thereto, and to prepare such courses of study;
2. To make such material and courses of study in fire administration and subjects related thereto available for use by educational institutions particularly at college level, in the United States and foreign countries, and to work with and assist educational institutions in the development of such courses of study;
3. To give assistance by grants of funds or establishment of scholarships, or otherwise, to students in the field of fire administration; and to receive funds, grants and gifts for carrying out the purposes of the corporation (Favreau, 1971, p 4).

The early efforts of the IFAI helped set the stage for a rapid growth in fire service degree development in the 60s and 70s (Bryan, 1977, 1979).

Growth Years (1960s to 1970s)

The 60s and 70s were marked with tremendous growth in fire service degree programs. In addition, national support for fire service degree programs reached its peak during this time. Associate degree programs were readily accepted on the west coast and fire service degree programs rapidly developed. The east coast was a little more reluctant to accept associate level programs, resulting in a slower growth. The first east coast program was established in 1964 at the Rowan Technical Institute in Salisbury, North Carolina (Bryan, 1979). According to Favreau, the number of states offering fire service education increased from five in 1960 to fourteen in 1965 (1971).

Favreau Studies

Donald F. Favreau conducted three landmark surveys on fire service degree programs in the United States over a five-year period. The first study, titled "Fire Science Technology Curricula Survey," was conducted in 1966. Sponsored by the International Fire Administration Institute (IFAI), the purpose of the study was to determine the scope of fire education programs. Although the methodology and population for the study was not provided in the published report, it appeared that Favreau surveyed colleges and universities in the United States and collected program summaries and/or curriculum guides for their programs. In this study, Favreau reported that 21 institutions offered a fire related degree program in eleven states. Of these, nineteen programs were at the associate level and two were at the bachelor level. California had the highest number of programs at eight followed by New York with

three programs. In the study report, Favreau provided one of the first proposed degree program designs. The technical courses for this proposed Associate of Applied Science degree in Fire Administration and Protection are provided in Table 2-1.

Favreau's second study, titled "Higher Education in the Nation's Fire Service" was conducted in 1968. As with the first study, the methodology and population were not provided in the report. In this study, Favreau reported that 59 institutions offered fire related degree program in 17 different states. Of the 59 programs, 57 were at the associate level and two were at the bachelor level. California increased the number of programs from eight in the previous study to 33 in this study. Within the report, Favreau discussed the issues and challenges facing the development of fire service curriculum within higher education. In addition, Favreau provided recommendations for fire science program development. The recommended steps for a "Fire Chief to follow in developing and implementing a college level program..." are provided in Table 2-2 (Favreau, 1968).

Favreau's final study titled "A Survey and Historical Developments of Fire Service Education in the United States" was conducted in 1971. The purpose of the study was reported to be "collecting and disseminating information related to some of the basic quantitative aspects of fire service education" (Favreau, 1977, p. 1). For this study, 250 colleges and universities were mailed a survey. It is unknown if these institutions actually offered a fire related degree program. In this study, Favreau reported that 138 institutions offered a fire related degree program. Of the 138, a total of 134 were at the associate level and four were at the bachelor level. California

TABLE 2-1

FAVREAU'S PROPOSED TECHNICAL COURSES FOR A FIRE SERVICE
ASSOCIATE OF APPLIED SCIENCE DEGREE - 1966

Technical Subjects (16 units)	Administrative Subjects (28 units)
Building codes and inspections	Finances and taxation
Special hazards	Budgeting and purchase
Strategy and tactics	Law
Insurance and grading schedules	Leadership development
Equipment	Organization and management
Pumps, sprinkler systems and hydraulics	Cases and concepts in administration
	Fire prevention and public relations
	Human relations, labor relations
	Fire department communications

TABLE 2-2

FAVREAU'S RECOMMENDED STEPS FOR A FIRE CHIEF TO FOLLOW IN
DEVELOPING AND IMPLEMENTING COLLEGE LEVEL PROGRAMS OF
HIGHER EDUCATION - 1968

Step	Activity
1	"Determine the Need" (conduct a survey to determine immediate and long term needs)
2	"Instructional Personnel" (Recruit qualified instructional personnel with a minimum of a bachelor degree)
3	"Schedule Exploratory Meeting with College"
4	"Advisory Committee" (Organize a fire science advisory committee)
5	"Class Size" (Ensure adequate class size, at least fifteen students, is achievable)
6	"Time Factor" (Take time to develop the program)

continued to have the most programs (56) followed by Massachusetts (ten) and New York (nine). Within the report, Favreau emphasized the need for fire science advisory committees and provided considerations and recommendations for establishing and operating an advisory committee (1971).

Wingspread Conferences

The Wingspread conferences of 1966 and 1977 highlighted the growth, support, and controversy of higher education in the fire service. These conferences provided a meeting place for key fire service leaders to coordinate their efforts and to exchange ideas (Favreau, 1967,1971; Sa'adah). In the final report of the 1966 Wingspread Conference on "Fire Service Administration, Education, and Research," the participants suggested that professional status begins with education (Favreau, 1967, 1968, 1971; Bryan 1977; Clark 1993). The participants also developed an educational model and suggested that training and education of junior officers should occur at the associate degree and chief officer training and education should occur at the bachelor degree level (Clark). At the 1977 Wingspread Conference, this model was expanded to include both municipal and private sector disciplines and discrete disciplines at each level such as fire protection engineering and fire administration (Clark). During this conference, the Joint Council of National Fire Service Organizations identified seven national goals of the fire service. The fifth goal was "to establish realistic standards of educational achievement, and provide to every member of the Fire Service equal educational opportunities commensurate with professional

requirements” (Favreau, 1971, p. 6).

Congressional Study, America Burning (1973)

In 1971, congress funded the National Commission on Fire Prevention and Control to study the fire problem in the United States. In May of 1973, the Commission submitted its final report to President Nixon. The report, titled “America Burning,” described the current fire problem and contained numerous recommendations. One of the recommendations emphasized the need for better training and education in the fire service. The report stated that:

“Training for firefighters and officers ranges from excellent, as in some large cities, to almost non-existent, as in many rural areas. Better training would improve the effectiveness of fire departments and reduce firefighter injuries. Better education provides the key to developing leadership for fire prevention.” (“America Burning,” 1973, p. x).

The report brought a variety of issues to national attention, including the need for higher education in the fire service.

Consortium Survey (1975)

The most recent study investigating fire service higher education degree programs in the United States occurred in 1975. A consortium of four national fire service organizations, the International Association of Fire Chiefs, the International Association of Fire Fighters, the International Society of Fire Service Instructors, and

the National Fire Protection Association conducted the survey. The “purpose of the study was to provide the National Fire Prevention and Control Administration with data on the current status of fire related training and education” (“Report on a Survey of the Fire Education and Training Programs,” 1975, p. 2-1). To investigate the current status of fire related “training” in the United States, the consortium surveyed all 50 state training agencies and 3,360 fire departments. To investigate the current status of fire related “education” in the United States, the consortium identified 313 institutions known or thought to be offering fire related programs. A total of 244 surveys were returned. Of those, 223 were associate level programs and 17 were bachelor level programs. Because of publishing time limitations, very little descriptive information was provided in the report.

The report contained several conclusions and recommendations related to fire service education programs. The conclusions focused on three concerns: 1) the limited number of qualified instructors with the necessary mix of teaching skills and subject matter; 2) the need for a clearer definition of the role of two year colleges; and 3) the limited number of bachelor level programs. The recommendations focused primarily on charging the national fire academy to assist educational institutions by sponsoring seminars and conferences, by assisting with curriculum development, and by providing grants and stipends. One other recommendation highlighted the growing debate between training and education provided by degree programs. Specifically, the consortium study recommended that institutions offering credit for manipulative skills should be encouraged to transfer this form of training to the state program or separate

them from the academic program.

Statistical Analysis of the National Survey of Fire Education and Training Programs
(1977)

This study was conducted to provide a more detailed analysis of the data collected by the consortium survey. Although additional information was provided, the report disclosed several problems with the survey that “caused considerable doubt as to the meaningfulness of some of the results” (Ford, Gaumnitz, Gwynne, Johnson, Joiner, Lamby, Martin, 1977, p. 21). For example, respondents left many questions blank because answer categories such as “none,” “unknown,” or “don’t know” were not provided. In addition, many “questions were worded in an ambiguous fashion.” Finally, a large percentage of the responses to the many open-ended questions could not be categorized, reducing the ability to evaluate and logically report findings. No recommendations were provided in the report related to education in the fire service. One of the few open-ended questions that was categorized and presented asked respondents to identify their five most important educational needs. See Table 2-3.

A study of the Relationship of the National Fire Academy to the Fire Related Educational Programs in Colleges and Universities (1977)

The objective of this study was to identify and evaluate fire related educational programs as compared to the National Fire Academy. The study examined in detail issues and considerations of fire related degree programs including program

TABLE 2-3

FIVE MOST IMPORTANT EDUCATIONAL NEEDS IDENTIFIED BY
INSTITUTIONS OFFERING FIRE RELATED DEGREE PROGRAMS IN THE
UNITED STATES AS REPORTED IN THE STATISTICAL ANALYSIS OF THE
NATIONAL SURVEY OF FIRE EDUCATIONAL AND TRAINING
PROGRAMS – 1977

Educational Need	Percent
Specialized Training and Education Aids for Instruction	28
Uniform or Standardized Fire Related Program Curriculum	8.4
Financial Assistance for Program Operation and Development	7.9
Fire Related Program Texts	4.7
Financial Assistance for Students	4.1

curriculum, objectives, students, faculty, and transfer credit. Table 2-4 lists the principal problems existing in fire related education programs in colleges and universities as reported in the study (Bryan, 1977).

Summary of the 60s and 70s.

This period experienced a rapid growth in fire related degree programs. Table 2-5 provides a summary of program development during this period. Higher education in the fire service received much national attention during this time. In addition, most of the research conducted on fire related degree programs occurred during this period. Favreau's studies tracked the growth in degree programs while the consortium study and the study of the Relationship of the National Fire Academy to the Fire Related

TABLE 2-4

PRINCIPAL PROBLEMS EXISTING IN FIRE RELATED EDUCATION
PROGRAMS AS REPORTED BY BRYAN – 1977

Problems	
a.	Restricted or closed enrollment policies to members of organized fire departments
b.	Need of incentives for program participation
c.	Awarding academic credit for experience
d.	Qualifications of faculty
e.	Uniformity of programs and courses
f.	Articulation and accreditation
g.	Graduate and student opportunity

TABLE 2-5

SUMMARY OF ASSOCIATE AND BACHELOR PROGRAM DEVELOPMENT
DURING THE 60S AND 70S

Study/Report	Year	Associate	Bachelor	Totals	States
Fire Science Technology Curricula Survey, Favreau	1966	19	2	21	12
Higher Education in the Nation's Fire Service, Favreau	1968	57	2	59	17
A Survey and Historical Developments of Fire Service Education in the United States, Favreau	1971	134	4	138	30
Report on a Survey of the Fire Education and Training Programs within the United States and its Territorial Possession, Consortium Study	1975	223	17	240	44

Educational Programs in Colleges and Universities highlighted the issues and concerns of fire related degree programs in the United States.

Transitional Years (1980s to 1990s)

The transition from national attention to the local and regional level occurred during this time period. Research on fire related degree programs at the national level does not appear in the literature for this time period. In fact, very few published reports or articles on fire service higher education appear in the literature especially during the 1980s. The first edition of “Managing Fire Services” contained a whole section on higher education in the fire service (Bryan, 1979). However, the second edition of “Managing Fire Services” was produced during this time period and rarely even mentioned education (Coleman and Granito, 1988). Published articles during this time typically discussed aspects related to the growing need/acceptance of higher education into the fire service (Carter, 1989; Kirltey 1989; Clark B. 1993; Clark, A. 1996; Wilson, 1996; Weiger, 1998; Rivenbark and McCall, 2000). Unpublished reports collected over the years by this researcher focused on local or regional efforts to initiate or encourage higher education acceptance in the fire service. The attention and support that was provided during this time occurred primarily through the National Fire Academy.

Degrees at a Distance Program (DDP)

In 1979, the National Fire Academy (NFA) developed the Open Learning Fire

Science Program (OLFSP), now called the Degrees at a Distance Program (DDP).

Managed by the National Fire Academy, the program consists of a national network of seven colleges and universities. A listing of the seven institutions and the regions they cover are provided in Table 2-6. Each of the seven institutions requires the same common core, 45 semester hours, of technical courses. The courses are also offered in some form of independent study format. The program was developed to help make fire related bachelor level programs more accessible to the fire service. According to the DDP web site, the goals of the program are to:

- Prepare graduates for professional and allied service positions in all levels of government, business, and industry;
- Provide an interdisciplinary curriculum with studies in fire science, administration, and prevention technology leading toward a baccalaureate degree;
- Enable graduates to acquire the knowledge, skills, and abilities necessary to apply the theories and practices of fire administration and prevention technology effectively; and
- Enable graduates to provide leadership in the preservation of life and property and the reduction of human suffering resulting from all types of emergencies and disasters.

Fire and Emergency Services Higher Education Conferences

In 1988, the National Fire Academy provided a limited amount of financial

TABLE 2-6

LISTING OF INSTITUTIONS AND THEIR REGIONS INVOLVED WITH THE
NATIONAL FIRE ACADEMY'S DEGREES AT A DISTANCE PROGRAM - 1979

SCHOOL	REGION
Cogswell College	Arizona, California, Nevada
University of Cincinnati	Indiana, Michigan, Minnesota, North Dakota, Ohio, South Dakota, Wisconsin, Florida, Georgia
University of Memphis	Alabama, Arkansas, Kentucky, Mississippi, Tennessee, South Carolina, Louisiana
Western Oregon University	Alaska, Colorado, Hawaii, Idaho, Montana, Oregon, Utah, Washington, Wyoming
University of Maryland	Delaware, Maryland, New Jersey, North Carolina, District of Columbia, West Virginia, Virginia
Western Illinois University	Illinois, Iowa, Kansas, Missouri, Nebraska, New Mexico, Oklahoma, Texas
Empire State College/SUNY	Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, Vermont

support to the seven DDP institutions to “help promote ‘stepping stone’ linkages between themselves and the community within their respective regions” (“The Fire Service and Higher Education: A Blueprint for the 21st Century”, 1998, p. 4). The success of these regional meetings and conferences held in the early 90s helped pave the way for the first Fire and Emergency Services Higher Education Conference in April of 1999. Sponsored by the National Fire Academy, program coordinators/directors of fire related degree programs gathered in Emmitsburg, Maryland to discuss common issues and concerns. The impetus for this dissertation was fostered at this conference.

Summary of Chapter II

This chapter presents a summary in historical format of articles, publications, and research related to fire service degree program development in the United States. During the “Early Years” (1900s to 1950s) degree programs emerged in a limited format. With national attention growing, fire service degree programs expanded rapidly during the “Growth Years” (1960s to 1970s). The majority of research on fire service degree programs occurred during this period. During the “Transitional Years,” (1980s to 1990s) attentions shifted from a national focus to a local or regional focus. The majority of attention and support during this time was provided by the National Fire Academy in the form of sponsoring meetings and conferences.

CHAPTER III

METHODS AND PROCEDURES

Introduction

The purpose of this study was to determine the current status of fire service degree programs in the United States. Degree programs around the country were asked to respond to a survey developed in order to compile the most current and accurate information. This chapter describes the population and the development of the survey instrument, the data collection procedures, and finally the computer-assisted analysis of the data.

Population

The population for this study included all regionally accredited higher education institutions offering two-year and four-year fire service degree programs in the United States. The institutions identified for this study were compiled from lists provided by the National Fire Academy (NFA) and the International Fire Service Accreditation Congress (IFSAC). The NFA list was developed over time through efforts to help organize and develop a higher education network in the United States. The IFSAC list was developed over the past several years as the organization began marketing a new accreditation process for fire service degree programs. Both lists were cross-referenced and combined into one database containing institution names, degree contact names, mailing addresses, phone numbers, and in some cases email

addresses.

To further ensure that a comprehensive list was obtained, the database was compared to two separate lists of institutions compiled from Internet based searches at College Board Online and Embark.com. Both web sites provide criteria-based searches of their database allowing lists of accredited institutions to be generated based on specific majors. College Board Online has a database of more than 3,200 two- and four-year colleges (<http://www.collegeboard.org>) and Embark.com has “information on over 6,000 accredited higher education institutions” (<http://corp.embark.com/>). Institutions identified through the web sites were added to the master database.

Initially, 365 surveys were sent to institutions identified using the previously described process. The data collection process identified 128 institutions that were determined not to offer fire service degrees. Identification and verification of these institutions occurred: 1) through returned surveys indicating no fire related degree was offered; 2) during follow up-phone calls; and/or 3) through review of institutional web sites. The explanation provided by many of these institutions was that the fire related degree program was closed due to low enrollment. Eleven institutions were also identified as offering fire degree programs and were added to the population. Institutions offering both an associate level and bachelor level fire service degree program were asked to complete a survey for both programs. Institutions offering more than one fire service degree program at the same level were asked to complete only one survey for the most popular program. The final population identified for this study included 248 institutions offering a fire related degree program. Of these 248

institutions, 210 responded to the survey resulting in an 84.68 percent return rate.

Survey Instrumentation

The survey questionnaire (Appendix A) was designed to obtain descriptive information about fire service degree programs. The survey was divided into five sections as follows:

1. Degree Program Information (characteristics of degree programs related to distribution of programs, name of degree, and purpose)
2. Student Information (trends in enrollment and graduation rates)
3. Faculty Information (characteristics of program directors/coordinator and instructors related to demographics, experience and qualifications)
4. Distance Education Information (use of distance education for fire service course delivery)
5. Program Directors/Coordinators Perceptions (perceptions of current/future issues, the development of a model curriculum, and immediate/long term changes)

In February 2000, the preliminary survey was developed and field-tested using a panel of nationally recognized fire training and education experts. Their suggestions were evaluated and incorporated into the final instrument. These individuals were:

Dr. Larry Collins, Program Chair, Eastern Kentucky State University

Daniel Hillis, Program Coordinator, Chattanooga State Technical Community College

Dr. Susan Darnell, Program Dean, Memphis State University

Ed Kaplan, Director, National Fire Academy's Degrees at a Distance Program

Art Cota, Division Chief of Training, California Fire Marshal Office

Wayne Powell, Program Chair, National Fire Academy

The survey instrument was available to respondents in both a traditional paper format as well as an electronic version for use over the Internet. Those choosing the paper version returned the completed survey via mail or fax. Those choosing the electronic version completed the survey by connecting to the survey web page. After responding to the on-line survey, the information was automatically appended to a database file. Information received on the paper survey was also added to this file via the web interface.

The electronic version of the survey was created by first coding the paper format. Next, a Hyper Terminal Markup Language (html) form page was developed using Microsoft FrontPage 2000. This html survey form page was then uploaded and maintained on a secured server at West Texas A & M University in Canyon, Texas. The survey web site was hosted by West Texas A & M University at <http://wtonline.wtamu.edu/eval/fma>. Finally, the survey web site was beta tested to ensure proper functioning of the site. In addition, the test data used to verify functionality were evaluated and validated.

Method of Data Collection

Using the database of names and addresses compiled for this study, the

National Fire Academy (NFA) conducted a mass mailing in April 2000, to all coordinators/directors of fire related degree programs inviting them to the next Fire and Emergency Services Higher Education Conference in Emmitsburg, Maryland. The invitation letter from the NFA made reference to the importance of this survey and encouraged participation in the study (Appendix B). In addition, the mailing contained the survey cover letter (Appendix C), a paper copy of the survey, and a self addressed stamped envelope. Instructions for accessing the web version of the survey were included with the survey. During April and May a total of 85 surveys were returned.

Follow up phone calls were conducted in June and July both to verify that fire related degree programs were offered and to encourage participation in the study for those who did not respond to the initial invitation. In addition, follow-up emails were sent to all institutions for the same purpose. The emails were sent to the coordinator/director. When the coordinator/director's email was unknown or not available, the mail was sent to the institution's advising department, records department, or to the institutional research office with a note asking that the email be forwarded to the coordinator/director. The emails also contained instructions for accessing the survey web site as well as containing the survey as an attachment in both a Portable Document Format (PDF) and Word document. Appendix D contains an example of this email. During June and July, a total of 75 surveys were returned.

A second email was sent during August and September to encourage participation in the survey. This email (Appendix E) went to the same individual as the first as well as to the President, Vice President of Academic Affairs, and Dean

when their emails were available on the institution's web site. A final follow-up phone call was conducted in September. Data collection of this study ended in September. During August and September, a total of 50 surveys were returned.

Electronic Data Collection

The survey web site was maintained by West Texas A & M University on a secured Dell 6300 server with quad xion processors and one gigabyte of random access memory (RAM). The operating system was Linux with Apache Web server software. Languages used were Hyper Terminal Markup Language (HTML), JavaScript, common gateway interface (CGI) and PHP scripting language.

Survey participants responded to questions posted on the survey web site. The first two sections of the survey web site are provided as examples in Appendix F. The web site was written in HTML, while responses were processed with CGI scripts written in the PHP scripting language. After respondents entered information and clicked on the "submit" button, the PHP script wrote the survey information to a database file and displayed a new web page confirming the submission (Appendix G).

In order to ensure valid data, JavaScript was used to check submissions and repeatedly prompt the user until all of the required information was supplied. Once the data were submitted, the PHP script reviewed the material again and recorded the date, time, and the user's IP address in order to provide tracking information so multiple or malicious submissions could be identified. The database file was maintained in a password-protected directory on the server.

Methodology of Analyzing the Data

The data consisted of information requested from institutions offering fire service degree programs in the United States. A total of 89 (42.4 percent) of the surveys were completed on-line via the survey web site while 121 (57.6 percent) were returned via mail or fax. The survey web site was also used to enter data from surveys returned through the mail or by fax. The data were maintained in a database file on the secured web server, imported into an Excel file, then opened in the Statistical Package for the Social Sciences (SPSS). Basic descriptive statistics, frequencies, percentages, ranges, and averages were used for data analysis. Data were displayed using tables and charts.

Summary of Chapter III

This chapter presents information on the population, survey instrument development, data collection procedures, and a description of the computer-assisted analysis of the data. This study sought to determine the current status of fire service degree programs in the United States. A total of 365 accredited institutions offering a fire service degree program were initially identified based on databases provided by the National Fire Academy and the International Fire Service Accreditation Congress and through comparisons of lists generated by two different college search web sites. During data collection 128 institutions were determined not to offer a fire related degree and eleven new institutions were identified and added to the database. Of the 248 institutions offering a fire related degree program, 210 responded to the survey

resulting in a 84.68 percent return rate. A survey was developed to provide information on five different areas: Degree Program Information, Student Information, Faculty Information, Distance Education Information, and Program Directors/Coordinators Perceptions. Respondents were provided the opportunity to return completed surveys in the traditional paper format or through an electronic version provided on the Internet. Frequency distributions and contingency tables were used to display the data. The next chapter presents the findings and analysis of the data.

CHAPTER IV

FINDINGS AND ANALYSIS OF THE DATA

Introduction

This study was conducted to determine the current status of fire service degree programs in the United States. The population for this study included 248 institutions offering two-year and four-year fire service degree programs. A total of 210 institutions returned a survey resulting in an 84.68 percent return rate. This chapter presents the findings and analysis of the data.

Findings

The survey questionnaire was divided into five sections as listed below. Survey findings will be presented in this format.

1. Degree Program Information
2. Student Information
3. Faculty Information
4. Distance Education Information
5. Program Directors/Coordinators Perceptions

Section 1 - Degree Program Information

The purpose of question 1-1 was to gather basic degree program information. Respondents were asked to identify the level of their degree program. Of the 210

responses, 184 (87.6 percent) were associate level degrees while 26 (12.4 percent) were bachelor level degrees. The distribution of specific degree levels within associate and bachelor programs is presented in Table 4-1. Respondents were also asked to provide the “name of degree as it appears on the diploma.” This open-ended question yielded a diverse number of names for both levels. A total of 30 different degree names were reported at the associate level. However, four-degree titles, “Fire Science” with a frequency of 55 (29.9 percent), “Fire Science Technology” with a frequency of 49 (26.6 percent), “Fire Protection Technology” with a frequency of 24 (13 percent), and “Fire Technology” with a frequency of 22 (12 percent), represent 81.5 percent of all degree names. The remaining 34 (18.48 percent) names had frequencies of between 1 and 3. A total of 14 different degree names were reported at the bachelor level. “Fire Science” was the most commonly reported degree name with a frequency of 6 (23.1 percent) and “Fire Administration,” “Fire Science Administration,” and “Fire Services Administration” each had a frequency of 3 (11.5 percent). Table 4-2 displays this information. See Table A-1 (Appendix F) for a complete listing of degree names.

The next two questions (1-2 and 1-3) solicited information related to courses within the degree. Question 1-2 asked respondents to “please identify the percentage of general education courses and technical courses within the degree program.” A total of 182 respondents provided the requested information with two non-responses occurring at the associate level. On the average, general education courses represented 41.96 percent and technical courses represented 57.06 percent of all courses within the

TABLE 4-1

DISTRIBUTION OF DEGREE LEVELS WITHIN FIRE SERVICE ASSOCIATE
AND BACHELOR PROGRAMS AS REPORTED BY FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Associate Level	Frequency	Percent
Associate of Applied Science	109	59.2
Associate of Science	54	29.3
Associate of Arts	17	9.2
Other Associate Level	4	2.2
<i>Associate of Applied Technology (1)</i>		
<i>Associate of Technical Arts (2)</i>		
<i>Associate of Technical Studies (1)</i>		
Total	184	100
Bachelor Level	Frequency	Percent
Bachelor of Science	21	80.8
Bachelor of Arts	2	7.7
Other Bachelor Level	3	11.5
<i>Bachelor of Applied Arts & Science (1)</i>		
<i>Bachelor of Business Administration (1)</i>		
<i>Bachelor of Professional Studies (1)</i>		
Total	26	100

TABLE 4-2

INSTITUTIONAL DEGREE TITLES AS REPORTED BY ASSOCIATE DEGREE
AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS – FALL 2000

Associate Level Degree Names	Frequency	Percent
Fire Science	55	29.9
Fire Science Technology	49	26.6
Fire Protection Technology	24	13.0
Fire Technology	22	12.0
Fire Technology and Administration	3	1.6
Emergency Services Technology	2	1.1
Fire Command Administration	2	1.1
Fire Protection	2	1.1
Fire Protection Technician	2	1.1
Fire Service Administration	2	1.1
Fire Service Technology	2	1.1
Others (each with a frequency of one)	19	10.33
Total	184	100
Bachelor Level Degree Names	Frequency	Percent
Fire Science	6	23.1
Fire Administration	3	11.5
Fire Science Administration	3	11.5
Fire Services Administration	3	11.5
Fire Science Management	2	7.7
Others (each with a frequency of one)	9	34.62
Total	26	100

degree. Associate level programs reported similar results, with general education courses representing 40.04 percent and technical courses representing 58.92 percent of courses within the degree. However, bachelor level programs reported a greater percentage of general education courses within their program. For bachelor level programs, general education courses represented 55.38 percent and technical courses represented 44.04 percent of all courses within the degree.

Question 1-3 asked respondents to indicate the approximate percentage of technical courses within each of the following categories: Suppression, Medical, Rescue, Hazmat, Supervision/Administration, and Other. A total of 194 responses were recorded for this question. Of the 16 non-responses, fourteen occurred at the associate level and two occurred at the bachelor level. Average responses for each category were Suppression (35.58 percent), Supervision/Administration (25.01 percent), Other (12.08 percent), HazMat (11.41 percent), Medical (9.07 percent), and Rescue (6.85 percent). Associate level programs reported a similar distribution of technical courses. However, the distribution for bachelor level programs was slightly different. Figure 4-1 presents the average distribution of technical courses at both the associate and bachelor level programs.

Question 1-4 sought answers to the question “What do you consider the primary purpose of the degree program?” All but one institution responded to this question. The one non-response occurred at the associate level. Respondents were prompted to choose between “pre-employment” (preparing students for entry into the emergency service field), “advancement” (preparing current emergency service

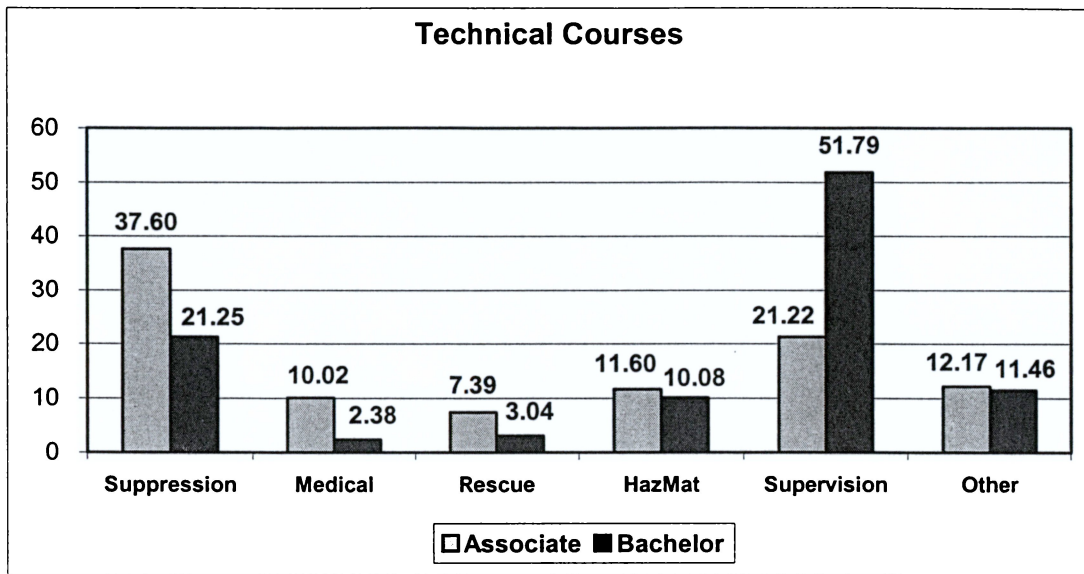


FIGURE 4-1

PERCENTAGE OF VARIOUS TECHNICAL COURSES WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

personnel for advancement within the field), “both” (asked to estimate the percentage of graduates in pre-employment and in advancement), and finally “other.” Most programs, 134 (63.8 percent), selected “both” as the primary purpose of their degree followed by “advancement,” 56 (26.7 percent), and then “pre-employment,” 18 (8.6 percent). Only one institution selected other and indicated they did not know the primary purpose of their degree. The distributions for associate and bachelor level programs were different. See Table 4-3 for a presentation of this information.

Of the 134 selecting “both” as the primary purpose of their degree, 123 were at the associate level and 11 at the bachelor level. Of the 123 associate level programs, 51.21 percent reported that the graduates were “pre-employment” and 48.72 percent were “advancement.” Just the opposite occurred at the bachelor level where, of the 11 programs, respondents reported that 43.73 percent of the graduates were “pre-employment” while 51.73 percent were “advancement.”

Question 1-5 focused on transfer credit into the degree program. Respondents were prompted to select all that applied from eight different categories. Table 4-4 displays the number of programs accepting transfer credit in each of the categories. Of the 57 associate level programs that give credit for national certification, 29 (50.88 percent) give credit for IFSAC certification, 2 (3.51 percent) give credit for ProBoard certification, and 15 (26.32 percent) give credit for both IFSAC and Proboard certification. A total of 3 (5.26 percent) selected “other” and 8 (14.04 percent) did not respond to this question. Of the three selecting “other,” one reported giving credit for “EMS only,” one reported giving credit for an unknown acronym “CFSTES,” and the

TABLE 4-3

PRIMARY PURPOSE OF INSTITUTIONAL DEGREE PROGRAMS AS
REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE
SERVICE PROGRAM COORDINATORS/DIRECTORS – FALL 2000

Degree Purpose	Associate		Bachelor		Combined	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Pre-Employment	18	9.8	0	0	18	8.6
Advancement	41	22.3	15	57.7	56	26.7
Both	123	66.8	11	42.3	134	63.8
Other	1	0.5	0	0	1	0.5
No response	1	0.5	0	0	1	0.5
Total	184	100	26	100	210	100

TABLE 4-4

NUMBER OF INSTITUTIONAL DEGREE PROGRAMS ACCEPTING VARIOUS
TYPES OF TRANSFER CREDIT AS REPORTED BY ASSOCIATE DEGREE AND
BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS – FALL 2000

Type of Transfer Credit	Associate	Bachelor
Technical courses from other institutions	172	25
Vocational courses	65	6
Academic Council on Education (ACE) recommendations	135	19
Life experience, portfolio and/or experiential learning	75	18
National certification	57	6
State certification	123	13
Fire department courses	50	7
Other	18	5

last one did not explain.

The next two questions (1-6 and 1-7) asked respondents to indicate if the degree program articulates to a higher degree and if students receive state or national certification after successfully completing any of the fire related courses. In response to question 1-6, “Does this degree program articulate with a higher degree?”, 127 (60.6 percent) indicated that “yes” their program does articulate, 77 (36.7 percent) indicated that “no” their program does not articulate to a higher degree, and 6 (2.9 percent) did not respond. The results were similar at the associate and bachelor level. The majority of programs articulate to a higher degree at both the associate level 113 (61.4 percent) and bachelor level 14 (53.8 percent). In response to question 1-7, the majority of programs, 124 (59 percent), indicated that “yes” students could receive certification, while 72 (34.4 percent) indicated that “no” students could not receive certification when completing fire service courses. Fourteen respondents did not answer this question with ten occurring at the associate level and four at the bachelor level. Similar results were recorded at the associate level with 118 (64.1 percent) of the programs offering certification and 56 (30.4 percent) indicating they do not offer certification after completing fire service courses. The opposite occurred at the bachelor level with 6 (23.1 percent) offering certification and 16 (61.5 percent) not offering certification upon successfully completing fire service course work.

Question 1-8 gathered information about who has the most control over courses within the degree, excluding curriculum committees or similar faculty committees. Response categories included “fire service advisory board or committee,”

“fire service program coordinator/director,” “state agency, commission, or state training board,” or “other.” A total of 205 respondents answered this question with four non-responses occurring at the associate level and one at the bachelor level. The majority of programs, 116 (55.2 percent), indicated that the program coordinator/director had the most control followed by advisory boards, 62 (29.5 percent), and then state agencies, 14 (6.7 percent). Similar results were noted at both the associate and bachelor level. Table 4-5 presents this information.

The next three questions (1-9, 1-10, and 1-11) asked respondents if their institution was public or private and about the accreditation for both the institution and the degree program. Concerning question 1-9, the vast majority, 202 (96.2 percent) of the institutions were public and 8 (3.8 percent) were private. At the associate level 183 (99.5 percent) of the institutions were public and 1 (.5 percent) was private. However, at the bachelor level 19 (73.1 percent) were public and 7 (26.9 percent) were private.

All 210 respondents answered question 1-10, “Is your institution regionally accredited?” The “North Central Association of Colleges & Schools” accredited most of the institutions, 67 (36.4 percent), followed by the “Southern Association of Colleges & Schools,” 42 (20 percent), and then the “Western Association of Schools & Colleges,” 29 (13.8 percent). The distribution of accrediting agencies among associate and bachelor level programs was slightly different. Table 4-6 displays this information. The purpose of question 1-11 was to determine if degree programs were accredited. Of the 193 who responded to this question, only 61 (31.6 percent)

TABLE 4-5

CONTROL OVER FIRE SERVICE COURSES IN INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS – FALL 2000

Degree Program Control	Associate		Bachelor	
	Frequency	Percent	Frequency	Percent
Program Coordinator	101	54.9	15	57.7
Advisory Board	58	31.5	4	15.4
State Agency	14	7.6	0	0
Other	7	3.8	6	23.1
No response	4	2.2	1	3.8
Total	184	100	26	100

TABLE 4-6

INSTITUTION ACCREDITATION AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS – FALL 2000

Regional Accreditation	Associate		Bachelor	
	Frequency	Percent	Frequency	Percent
Southern Association of Colleges & Schools (SACS)	38	20.7	4	15.4
New England Association of Schools & Colleges (NEASCS)	12	6.5	3	11.5
North Central Association of Colleges & Schools (NCA)	67	36.4	8	30.8
Northwest Association of Schools & Colleges (NASC)	21	11.4	3	11.5
Middle States Association (MSA)	19	10.3	6	23.1
Western Association of Schools & Colleges (WASC)	27	14.7	2	7.7
Total	184	100	26	100

indicated that their programs were accredited. Associate programs had a higher percentage of accredited programs than at the bachelor level. At the associate level 57 (33.7 percent) of the programs were accredited, and at the bachelor level 4 (16.7 percent) of the programs were accredited. Table 4-7 presents information on the accrediting entity for these programs.

Section 2 - Student Information

The first three questions (2-1, 2-2, and 2-3) in this section focus on enrollment within the degree program. Question 2-1 asked respondents to estimate enrollments for full-time and part-time students. A total of 155 responses were provided for full-time students with 49 non-responses at the associate level and six at the bachelor level. For part-time estimates, a total of 179 responses were recorded with 25 non-responses at the associate level and six at the bachelor level. At the associate level, the average number of students for the spring/fall semester was 72.63 for full-time students and 89.16 for part-time students. Compared to associate level programs, bachelor programs had a higher average of full-time students, 79.52, and a lower number of part-time students, 79.95.

Question 2-2 asked if enrollment in the degree program had “increased,” “decreased,” or “not changed” over the past three years. Two hundred six respondents answered this question. Question 2-3 asked if enrollment is expected to “increase,” “decrease,” or “not change” over the next three years. Two hundred seven respondents answered this question.

TABLE 4-7

ACCREDITATION OF INSTITUTIONAL DEGREE PROGRAMS AS REPORTED
BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE
PROGRAM COORDINATORS/DIRECTORS – FALL 2000

Accrediting Entity	Associate		Bachelor	
	Frequency	Percent	Frequency	Percent
Accrediting Board for Engineering and Technology (ABET)	4	7	2	50
International Fire Service Accreditation Congress (IFSAC)	19	33.3	1	25
State Fire Marshal, State Fire Training, or other state fire related agency	18	31.6	0	0
State Education Department, State Board of Regents or other state education related agency	8	14	1	25
Combination or other agency/department	8	14	0	0
Total	57	100	4	100

All non-responses occurred at the associate level. Overall, enrollment was reported to have increased over the past three years for 140 (66.7 percent) programs and was expected to increase over the next three years for 161 (76.6 percent) programs.

Enrollment had not changed for the past three years for 45 (21.4 percent) programs and was not expected to change in 43 (20.5 percent) of the programs. A decrease in enrollment over the past three years was reported for 21 (10 percent) programs and was expected to decrease in 3 (1.4 percent) of the programs over the next three years. Similar distributions occurred at both the associate and bachelor level. Figure 4-2 presents this information.

Questions 2-4, 2-5, 2-7, and 2-8 focused on graduation information. Question 2-7 asked, “During 1999, how many students graduated from the degree program?” A

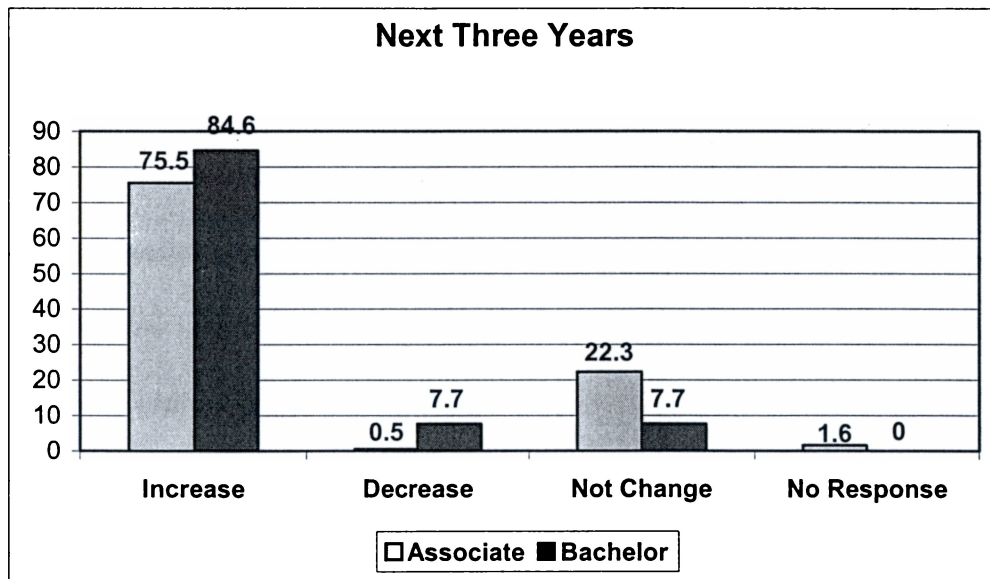
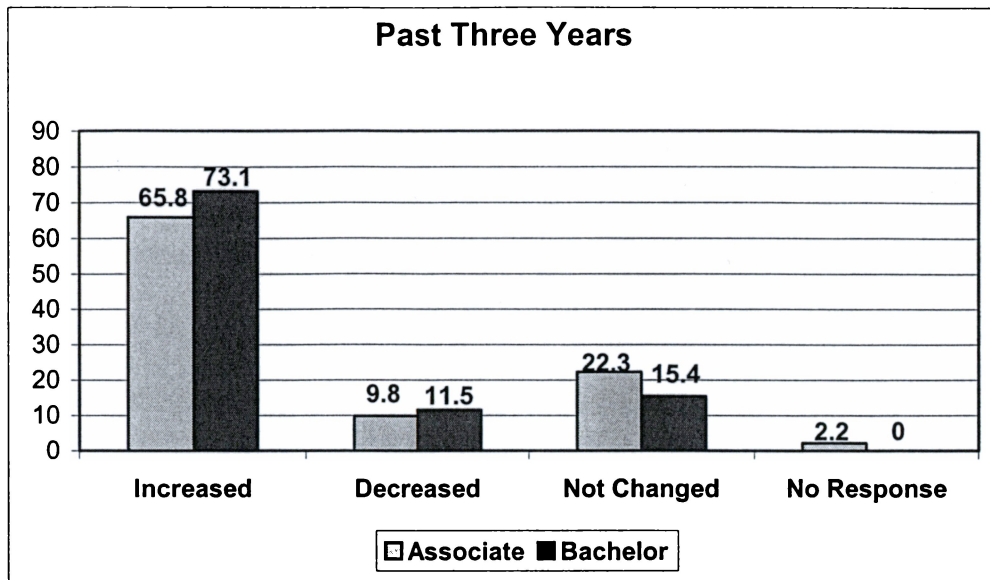


FIGURE 4-2

PERCENTAGE OF RESPONSES TO ENROLLMENT TRENDS WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS – FALL 2000

total of 182 responses were recorded with 24 non-responses occurring at the associate level and four at the bachelor level. Responses ranged from 0 to 112 with a total of 2,764 reported graduates for 1999. Associate level programs reported graduating a total of 2,237 students while bachelor level programs reported graduating a total of 527 students. An average of 13.98 students graduated from associate programs and 23.95 students graduated from bachelor program during 1999.

For question 2-8, respondents estimated the number of students expected to graduate in the year 2000. As with the previous question, 182 responses were recorded with 24 associate and four bachelor non-responses. Responses ranged from 0 to 110 with a reported total of 3,239 students expected to graduate in 2000. Both program levels expected an increase in the number of 2000 graduates, with associate programs estimating a total of 2,634 students and bachelor programs projecting 605 students. An average of 16.46 students were expected to graduate from associate programs while an average 27.5 students were expected to graduate from bachelor program during 2000.

Question 2-4 asked if the number of students graduating from the degree program had “increased,” “decreased,” or “not changed” over the past three years, while question 2-5 asked if graduation is expected to “increase,” “decrease,” or “not change” over the next three years. A total of 205 respondents answered each question. All non-responses were at the associate level except for one occurring at the bachelor level. Overall, 119 (56.7 percent) programs reported an increase in the number of students graduating over the past three years and 156 (74.3 percent) programs expected

an increase in the number of students graduating over the next three years. The number of students graduating was reported not to have changed over the past three years for 74 (35.2 percent) programs and was not expected to change for the next three years in 44 (21 percent) of the programs. A decrease in the number of students graduating over the past three years was reported for 12 (5.7 percent) of the programs and a decrease in student graduation over the next three years was expected in 5 (2.5 percent) programs. Similar distributions occurred in both associate and bachelor programs. Figure 4-3 presents this information.

Question 2-6 sought information about student gender, age, race, and type of enrollment. Pertaining to student gender, 182 respondents answered this question with 24 non-responses at the associate level and four at the bachelor level. Overall, 90.66 percent of the students were reported to be male and 9.34 percent female. The same high percentage of male students was reported at both the associate (90.73 percent) and bachelor (90.23 percent) levels.

Regarding student age, 167 respondents provided the requested information with 37 non-responses at the associate level and six at the bachelor level. The majority of students, 30.89 percent, were reported to be in the “20 to 24” age category followed by 21.05 percent in the “25 to 29” category and finally 17.29 percent in the “30 to 34” age category. At the associate and bachelor level, the age distributions were different. Reported percentages of students in age categories indicated that students in associate programs were younger than in bachelor programs. These differences can be seen in Figure 4-4.

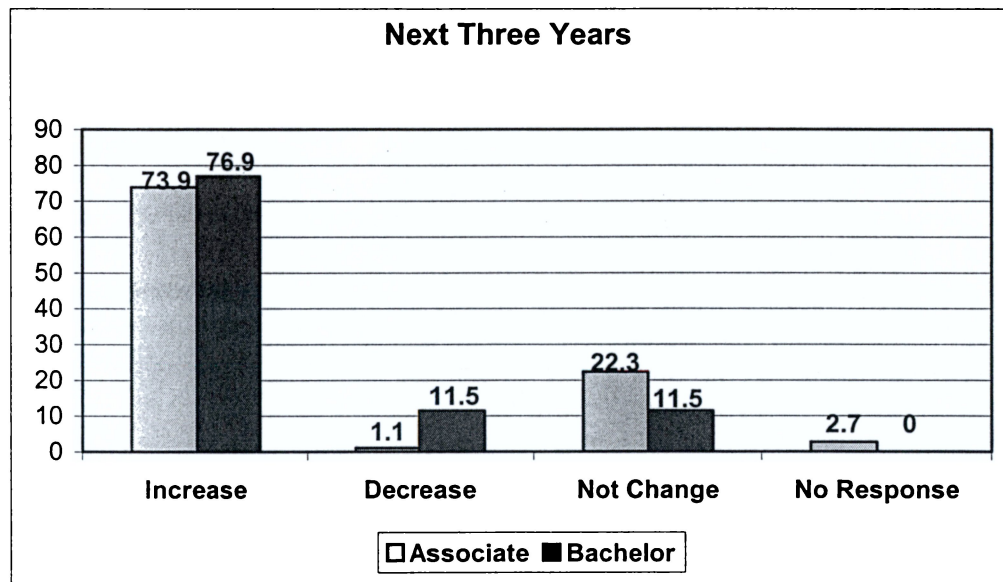
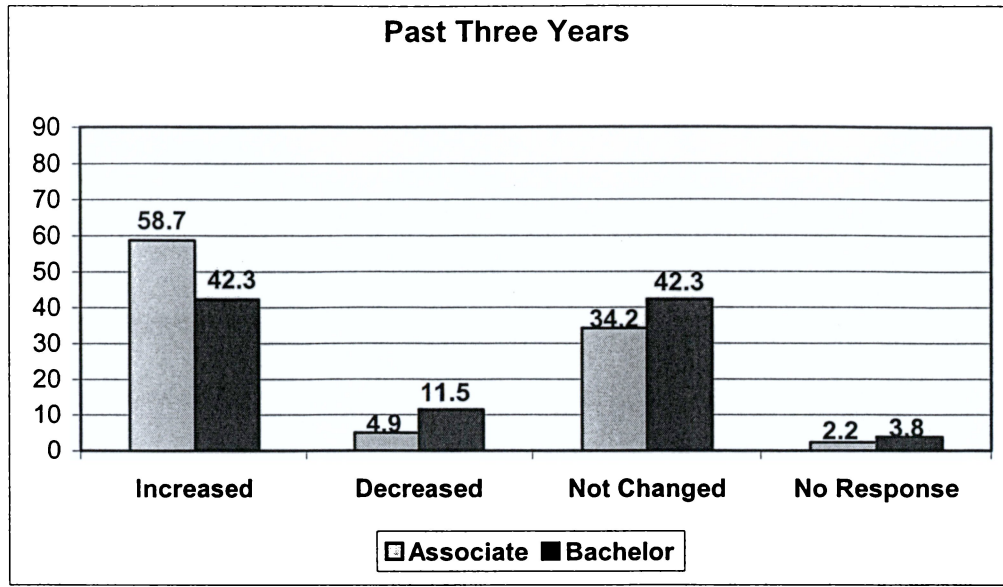


FIGURE 4-3

PERCENTAGE OF RESPONSES TO GRADUATION TRENDS WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS – FALL 2000

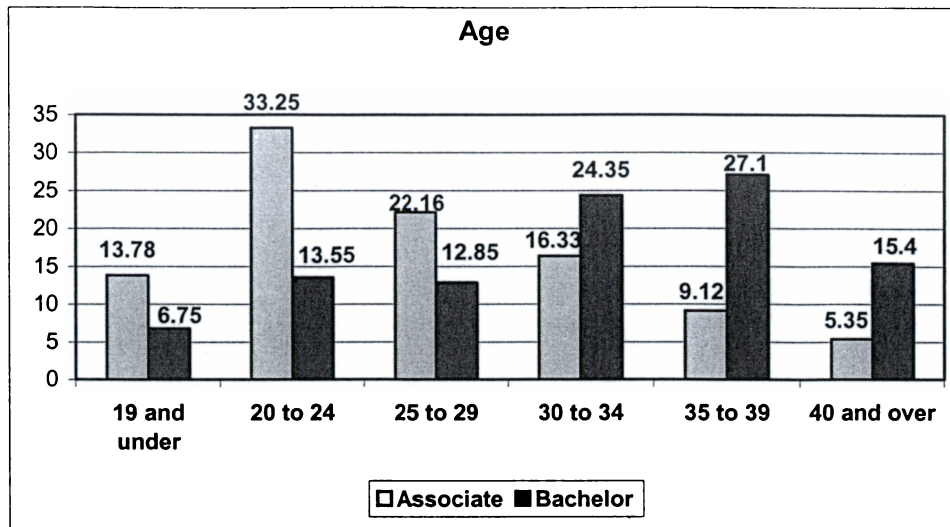


FIGURE 4-4

PERCENTAGE OF STUDENTS IN AGE CATEGORIES WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Concerning the race of students, 170 responses were recorded with 33 non-responses at the associate level and seven at the bachelor level. Overall, the majority of students were reported to be “White” at 81.01 percent followed by “Hispanic American” at 8.08 percent and then “African American” at 6.72 percent. The majority of students were reported to be “White” at the associate level, 80.71 percent, and at the bachelor level, 83.42 percent. However, associate programs reported a higher “Hispanic American” student enrollment (8.4 percent) than bachelor programs (5.53 percent). The reported race of students at the associate and bachelor level programs is presented in Table 4-8.

In relation to the type of enrollment, 164 respondents provided the requested

TABLE 4-8

PERCENTAGE OF STUDENTS IN RACE CATEGORIES WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Race	Associate	Bachelor
White	80.71	83.42
African American	6.40	9.26
Hispanic American	8.40	5.53
Asian American	1.23	0.74
Native American	1.58	0.68
Other	1.68	0.37
Total	100	100

information with 41 non-responses at the associate level and five at the bachelor level.

The majority of students (77.24 percent) were reported to be degree seeking while 22.76 percent were reported to be non-degree seeking. Similar results were reported at the associate level with 74.84 percent of their students reported to be “degree seeking” and 25.16 percent to be non-degree seeking. Bachelor level programs reported a much higher response for degree seeking students, 93.57 percent, and a much lower response for non-degree seeking students, 6.43 percent, as compared to associate level results.

The purpose of the final question (2-9) in this section was to identify programs/assistance available to students. A total of 169 respondents answered this question with 32 non-responses at the associate level and nine at the bachelor level. Respondents were presented with six categories and prompted to select all that apply.

A total of 135 programs offer scholarship opportunities, 88 offer co-op experiences, and 84 offer recruit training. Table 4-9 presents the distribution at the associate and bachelor level.

Section 3 – Coordinator/Director and Faculty Information

The first nine questions (3-1 through 3-9) in this section sought information about the individual in charge of the degree program. Question 3-1 asked respondents to provide their title. Of the 200 responses, the most common title was “Program Coordinator,” 77 (36.7 percent), followed by “Program Director,” 43 (20.5 percent), and then “Chair,” 23 (11 percent). Other reported titles included program “Manager,” 8 (3.8 percent), “Head,” 3 (1.4 percent), and “Supervisor,” 2 (1 percent). Similar results occurred at the associate and bachelor level.

Of the 204 responses to question 3-2, “Are you the primary instructor in the program?”, 90 (42.9 percent) indicated that “yes” they were the primary instructor while 114 (54.3 percent) indicated that “no” they were not the primary instructor. Of the six non-responses, five were at the associate level and one occurred at the bachelor level. Comparing the two levels, the spread between “yes” and “no” responses was greatest with bachelor programs. For associate level programs, 85 (46.2 percent) indicated “yes” and 94 (51.1 percent) indicated “no” while at the bachelor level 5 (19.2 percent) indicated “yes” and 20 (76.9 percent) indicated “no.”

The next three questions (3-3, 3-4, and 3-5) all explored the experience of the

TABLE 4-9

NUMBER OF INSTITUTIONAL DEGREE PROGRAMS OFFERING VARIOUS
TYPES OF ASSISTANCE PROGRAMS TO STUDENTS AS REPORTED BY
ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

	Associate	Bachelor
Scholarship Opportunities	120	15
Recruit Training	82	2
Co-op Experiences	77	11
Live-in Arrangements	32	7
Explorer Post (Boy Scouts)	30	1
Other	19	1

program coordinator/director. For each of these questions, the responses were re-coded into the following year categories: “0 to 4,” “5 to 9,” “10 to 14,” “15 to 19,” “20 to 24,” “25 to 29,” and “30 and above.” Question 3-3 asked respondents, “How many years have you held your current position?” Of the 203 responses, 91 (43.3 percent) were in the “0 to 4” year category, 41 (19.5 percent) were in the “5 to 9” year category, and 38 (18.1 percent) were in the “10 to 14” year category. All non-responses occurred at the associate level. The percentages of reported experience for associate and bachelor levels are presented in Figure 4-5.

Question 3-4 sought answers to the question “How many years of experience do you have in the fire service excluding higher education experience?” Of the 205 total responses, 43 (20.5 percent) were in the “30 and above” year category, 41 (19.5 percent) were in the “0 to 4” year category, and 34 (16.2 percent) were in the “20 to

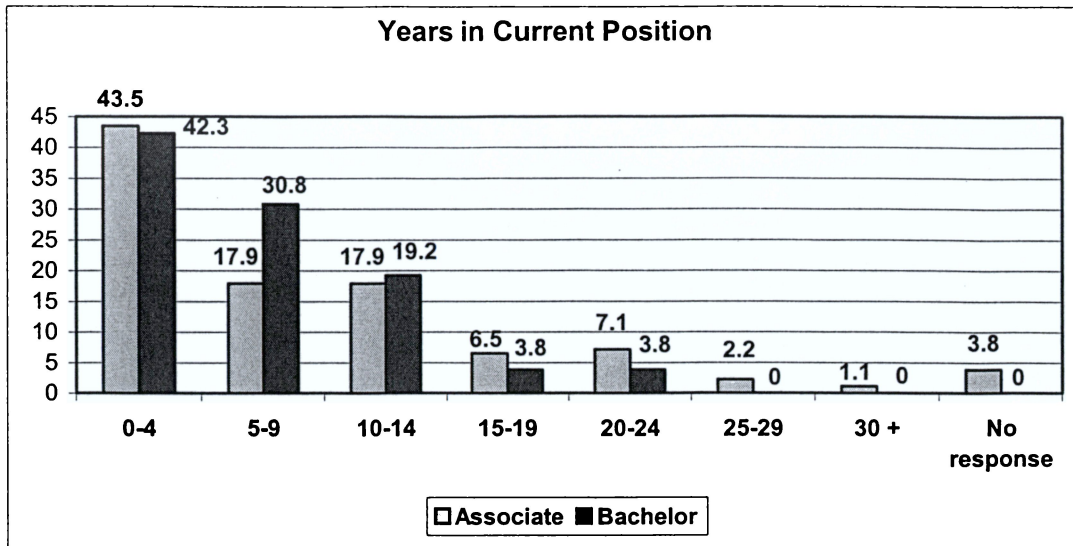


FIGURE 4-5

PERCENTAGE OF COORDINATORS/DIRECTORS WITHIN CURRENT POSITION EXPERIENCE CATEGORIES AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS - FALL 2000

24” year category. All non-responses were at the associate level. Most respondents at the associate level, 37 (20.1 percent), indicated that their fire service experience fell into the “30 and above” year category followed by 32 (17.4 percent) in the “0 to 4 “ year category. The opposite occurred at the bachelor level. Most respondents at the bachelor level, 9 (34.6 percent), indicated that their fire service experience fell into the “0 to 4” year category followed by 6 (23.1 percent) in the “30 and above” year category. The percentages of reported experience for associate and bachelor levels are presented in Figure 4-6.

Question 3-5 asked “How many years of experience do you have in higher education?” Of the 203 responses, 48 (22.0 percent) were in the “5 to 9” year

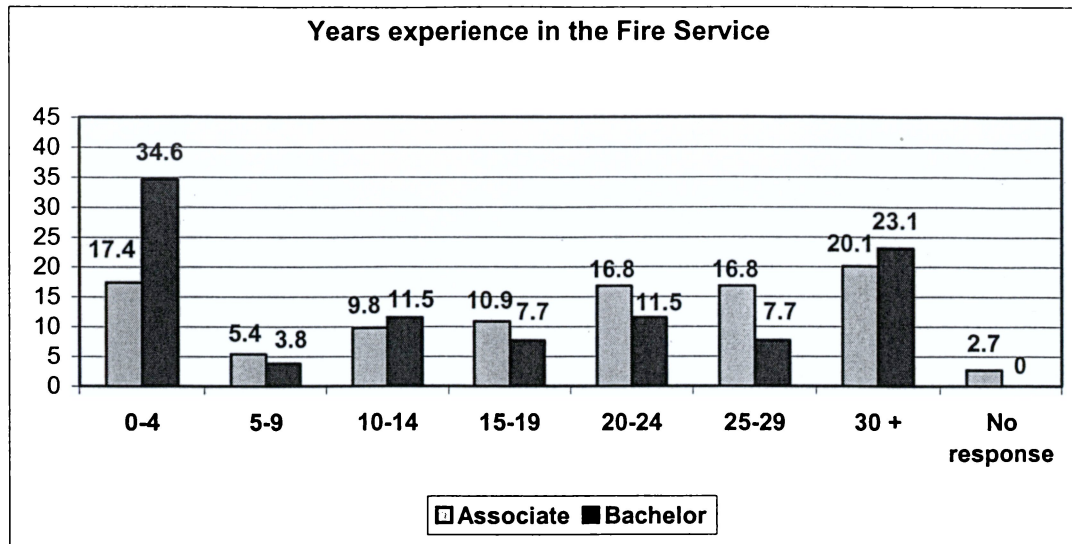


FIGURE 4-6

PERCENTAGE OF COORDINATORS/DIRECTORS WITHIN FIRE SERVICE
EXPERIENCE CATEGORIES AS REPORTED BY ASSOCIATE DEGREE AND
BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

category, 47 (22.4 percent) were in the “10 to 14” year category, and 33 (15.7 percent) were in the “15 to 19” year category. All non-responses were at the associate level. Most respondents at the associate level, 42 (22.8 percent), indicated that their higher education experience fell into the “5 to 9” year category followed by 39 (21.2 percent) in the “10 to 14 “ year category. As in the previous question, the opposite occurred at the bachelor level. Most respondents at the bachelor level, 8 (30.8 percent), indicated that their higher education experience fell into the “10 to 14” year category followed by 6 (23.1 percent) in the “5 to 9” year category. The percentages of reported experience for associate and bachelor levels are presented in Figure 4-7.

Questions 3-6 and 3-7 sought information about the gender, race, and age of

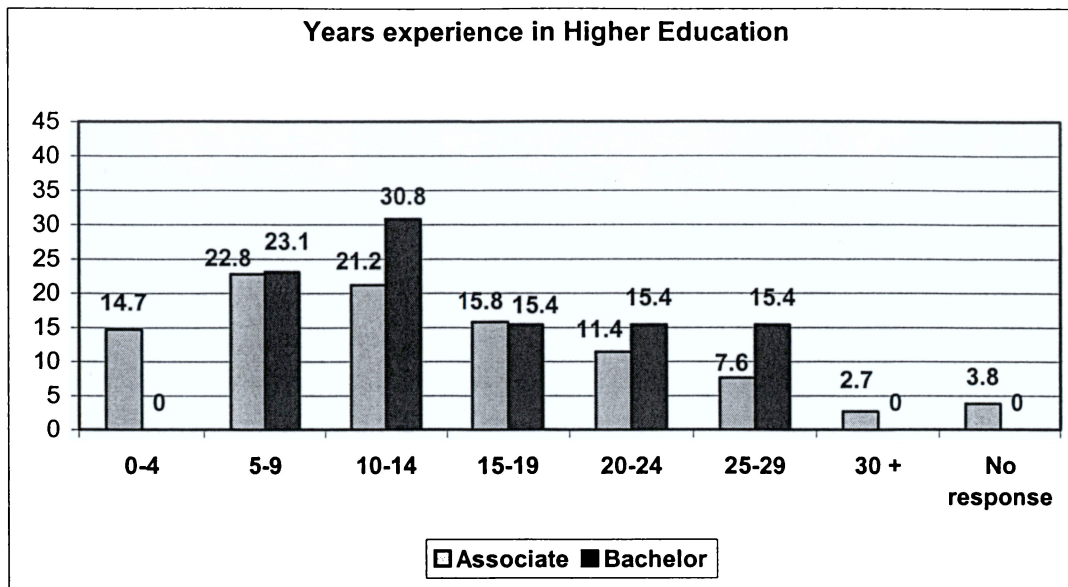


FIGURE 4-7

PERCENTAGE OF COORDINATORS/DIRECTORS WITHIN HIGHER
EDUCATION EXPERIENCE CATEGORIES AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

the program coordinator/director. Regarding gender, of the 201 responses, 178 (84.8 percent) were male and 23 (11 percent) were female. Of the nine non-responses, seven were at the associate level and two occurred at the bachelor level. At the associate level 159 (89.8 percent) were male and 18 (9.8 percent) were female. The gap was a little less prominent at the bachelor level where 19 (73.1 percent) were male and 5 (19.2 percent) were female. Pertaining to race, 175 (83.3 percent) of the 196 responses were “White” and 8 (3.8 percent) were “African Americans.” All other race categories received less than 3 percent each. Of the fourteen non-responses, eleven occurred at the associate level and three at the bachelor level. Table 4-10 presents the number of

TABLE 4-10

COORDINATOR/DIRECTOR'S RACE AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Race	Associate		Bachelor	
	Frequency	Percent	Frequency	Percent
White	155	84.2	20	76.9
African American	7	3.8	1	3.8
Hispanic American	1	0.5	0	0
Asian American	2	1.1	1	3.8
Native American	4	2.2	1	3.8
Other	4	2.2	0	0
No response	11	6	3	11.5
Total	184	100	26	100

coordinators/directors reported in each race category for associate and bachelor programs.

Only 152 respondents provided their age. Of the 58 non-responses, 50 occurred at the associate level and eight at the bachelor level. For those that did respond, the youngest reported age was 24 and the oldest was 73 while the average age of respondents was 48. For reporting purposes, the responses were recoded into the following age categories: "20 to 29," "30 to 39," "40 to 49," "50 to 59," "60 to 69," and "70 and above." The majority of respondents, 59 (28.1 percent), indicated that they fell into the "50 to 59" age category followed by 46 (21.9 percent) in the "40 to 49" age category and 26 (12.4 percent) in the "30 to 39" age category. Figure 4-8

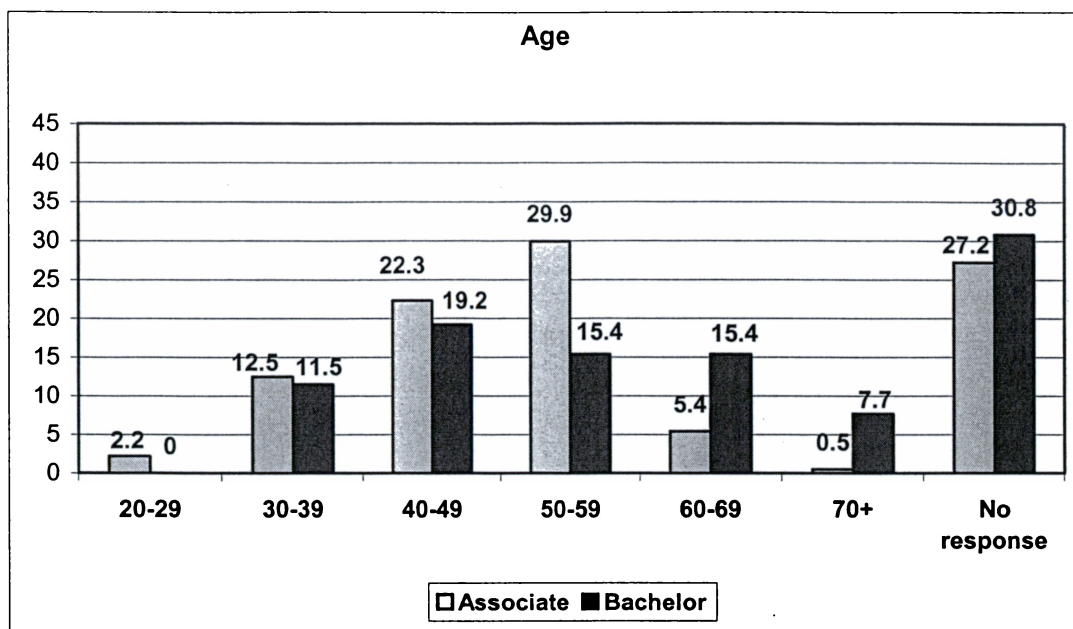


FIGURE 4-8

PERCENTAGE OF PROGRAM COORDINATORS/DIRECTORS IN AGE CATEGORIES REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS – FALL 2000

presents the reported program coordinator/director's age distribution for associate and bachelor programs.

The last two questions asking for information about the program coordinator/director (3-8 and 3-9) focus on salary and education. Question 3-8 prompted respondents to select their annual gross salary from among eight salary ranges. Of the 190 respondents who provided salary information, 43 (22.6 percent) earned over \$70,000, 40 (21.1 percent) earned between \$50,000 and \$59,999, and 33 (17.4 percent) earned between \$40,000 and 49,999. Of the 20 non-responses, sixteen occurred at the associate level and 4 at the bachelor level. Figure 4-9 presents a

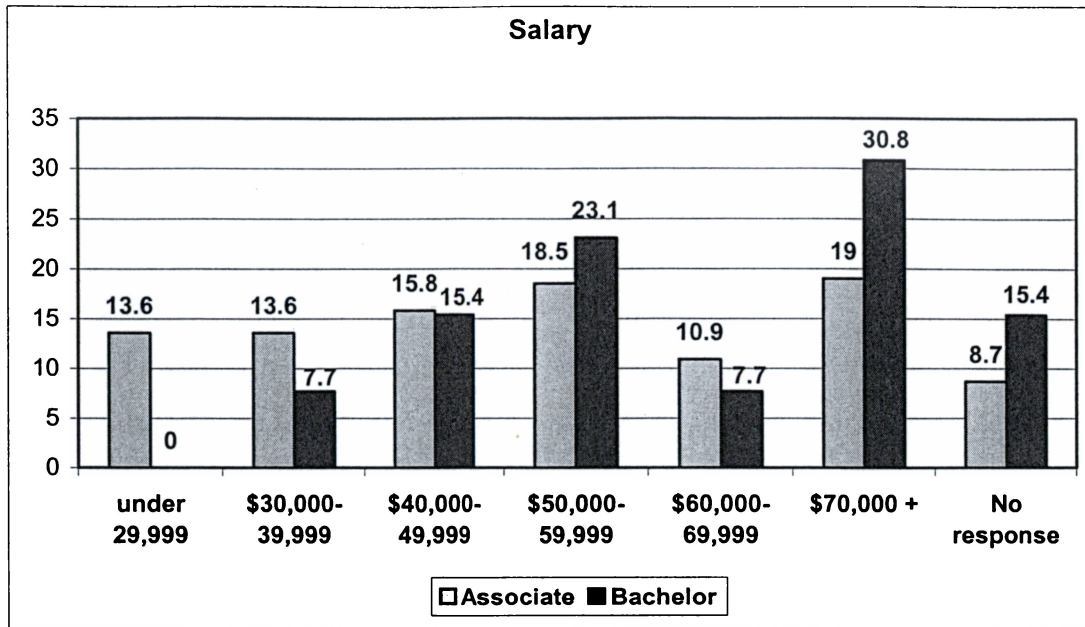


FIGURE 4-9

PERCENTAGE OF PROGRAM COORDINATORS/DIRECTORS IN SALARY CATEGORIES AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS – FALL 2000

comparison of the percentage of respondents within reported salary ranges for associate and bachelor programs.

The purpose of question 3-9 was to gather data relative to the highest level of formal education completed by program coordinators/directors. Two hundred four responses were recorded with all six non-responses occurring at the associate level. The majority of respondents, 77 (36.7 percent), reported earning a master degree with 71 (34.8 percent) earning a bachelor degree and 29 (14.2 percent) earning an associate degree. Respondents from associate programs earned lower levels of formal education than bachelor programs. The majority of respondents at the associate level reported

earning bachelor degrees, 69 (37.5 percent), and master degrees, 64 (34.8 percent), while the majority at the bachelor level reported earning master degrees, 13 (50 percent), and doctorate degrees, 10 (38.5 percent). Figure 4-10 presents the percentage of reported education levels for respondents in associate and bachelor programs. Of the 168 who provided the name of their degree, 50 (23.8 percent) earned a fire related degree, 39 (18.6 percent) earned a degree in education, and 25 (11.9 percent) earned a public administration degree.

The final question in this section (3-10) sought information about part-time and full-time faculty. Respondents were asked to report the number of part-time and full-time faculty in the following sections: age, race, education, and gender. The total number of reported part-time faculty averaged 2,467 among the four sections. Of these, 2,321 (94.08 percent) were with associate level programs and 146 (5.92 percent) were with bachelor programs. The number of reported full-time faculty averaged 198 among the four sections. Of these, 152 (76.89 percent) were with associate programs and 46 (23.11 percent) were with bachelor programs. The average number of part-time faculty per program at the associate level was 15.67 and 8.47 at the bachelor level. For full-time faculty, the average number per program at the associate level was 2.33 and 3.98 for bachelor programs.

Concerning faculty age, the majority of both part-time and full-time faculty were in the “40 to 49” age category. At the associate level, on the average, part-time faculty were younger than full-time faculty. The age distribution for part-time and full-time faculty for bachelor programs was similar. Table 4-11 presents this

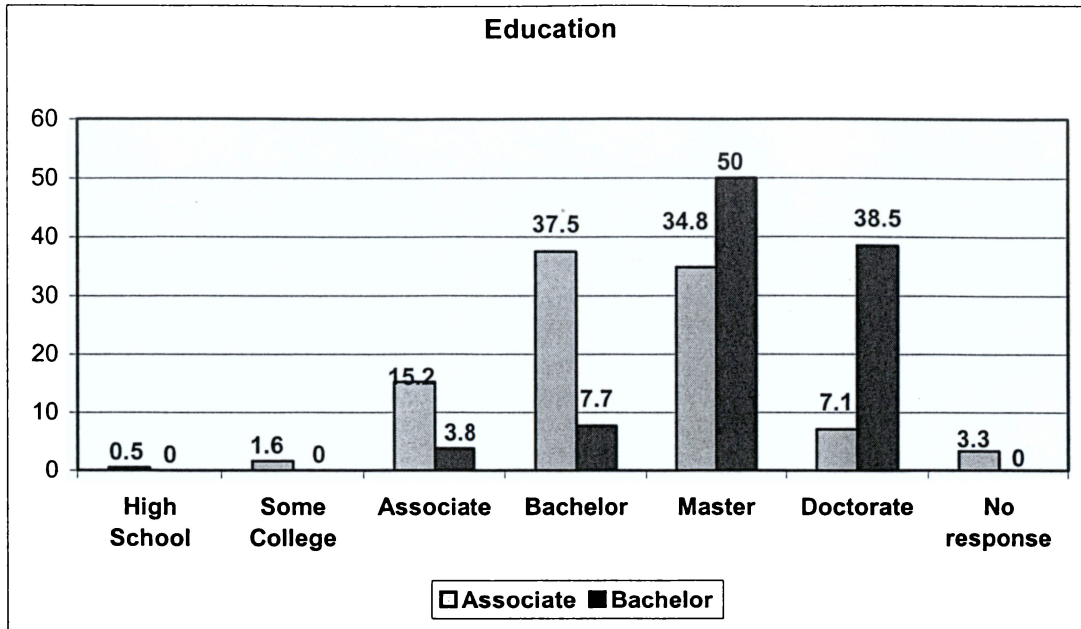


FIGURE 4-10

PERCENTAGE OF PROGRAM COORDINATORS/DIRECTORS EDUCATION
LEVEL AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE
FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS - FALL 2000

TABLE 4-11

AGE OF PART-TIME AND FULL-TIME FACULTY WITHIN INSTITUTIONAL
DEGREE PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND
BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Age	Associate				Bachelor			
	Part-Time		Full-Time		Part-Time		Full-Time	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
29 and under	342	13.12	12	7.55	3	2.24	2	4.55
30 to 39	820	31.45	28	17.61	21	15.67	7	15.91
40 to 49	1019	39.08	61	38.36	54	40.3	17	38.64
50 to 50	370	14.19	49	30.81	46	34.28	15	34.09
60 and over	56	2.15	9	5.66	10	7.46	3	6.82
Totals	2607	100	159	100	134	100	44	100

information.

With regard to education levels, the majority of part-time faculty, 996 (42.32 percent), had an associate degree and the majority of full-time faculty, 64 (33.51 percent) had a master's degree. For associate programs, the majority of part-time faculty had an associate degree while the majority of full-time faculty had a master's degree. For bachelor programs, the majority of part-time faculty had master's degree while the majority of full-time faculty had a doctorate. Table 4-12 presents this information.

The race for the majority of part-time faculty, 2,026 (84.49 percent), and full-time faculty, 168 (85.28 percent), was reported to be white. Similar results occurred at both the associate and bachelor level. Table 4-13 presents this information.

TABLE 4-12

EDUCATION LEVEL OF PART-TIME AND FULL-TIME FACULTY WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Education	Associate				Bachelor			
	Part-Time		Full-Time		Part-Time		Full-Time	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
High School	335	15.19	16	10.67	1	0.007	0	0
Associate	990	44.9	24	16	6	4.03	2	4.88
Bachelor	608	27.57	48	32	43	28.86	8	19.51
Master	256	11.61	49	32.67	84	56.38	15	36.59
Doctorate	16	0.007	13	8.67	15	10.07	16	39.02
Totals	2205	100	150	100	149	100	41	100

TABLE 4-13

RACE OF PART-TIME AND FULL-TIME FACULTY WITHIN INSTITUTIONAL
DEGREE PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND
BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Race	Associate				Bachelor			
	Part-Time		Full-Time		Part-Time		Full-Time	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
White	1,890	84.11	126	86.9	136	90	42	80.77
African American	131	5.83	11	7.59	5	3.31	2	3.85
Hispanic American	184	8.19	4	2.76	6	3.97	2	3.85
Asian American	29	1.29	1	.0069	2	1.32	1	1.92
Native American	12	.0053	3	.21	2	1.32	2	3.85
Other	1	.00045	0	0	0	0	3	5.77
Totals	2247	100	145	100	151	100	52	100

With reference to gender, the majority of part-time, 2123 (89.39 percent), and full-time, 161 (80.1 percent), faculty was reported to be male. At the associate level, a higher percentage of females were reported in full-time faculty positions, 35 (22.58 percent), than in part-time positions, 229 (10.29 percent). Table 4-14 presents this information.

Section 4 - Distance Education

This section sought information concerning the extent to which distance education methods were used in fire service programs. Of the 205 responses to question 4-1, "Does your program currently offer fire service courses using distance education methods?" 134 (63.8 percent) reported they do not offer fire service distance education courses and 71 (33.8 percent) indicated they did offer fire service distance

TABLE 4-14

GENDER OF PART-TIME AND FULL-TIME FACULTY WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Gender	Associate				Bachelor			
	Part-Time		Full-Time		Part-Time		Full-Time	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	1996	89.71	120	77.42	127	84.67	41	89.13
Female	229	10.29	35	22.58	23	15.53	5	10.87
Totals	2225	100	155	100	150	100	46	100

education courses. Similar results were recorded at the associate level. However, at the bachelor level only 9 (34.6 percent) reported that they do not offer fire service distance education courses while 16 (61.5 percent) indicated they do offer distance education fire service courses.

For the 71 that did offer distance education fire service courses, 67 responded to question 4-2, "What is the main reason for using distance education methods for course delivery?" The majority of responses, 26 (38.81 percent), generally referred to "access" as the primary reason for offering fire service distance education courses. Others were more specific indicating meeting the unique scheduling needs of the fire service, 15 (22.39 percent), or reaching students distant from the college, 14 (20.9 percent), as the primary reason.

Those that did not offer distance education courses were asked to go to question 4-5, "Do you have plans to deliver fire service courses using distance education methods?" Of the 134 programs that did not offer distance education

courses, a total of 50 (37.3 percent) indicated they do not have plans to offer fire service distance education courses while 84 (62.7 percent) indicated they do have plans. Similar results occurred at both the associate and bachelor levels. The reasons provided for not offering distance education courses are presented in Table 4-15.

Question 4-3 prompted respondents to list up to three of their most popular distance education fire service courses and identify the type(s) of technology used to deliver them. Table 4-16 provides a listing of the top ten reported courses. See Table A-2 (Appendix I) for a complete listing of courses.

Regarding the method of delivery for these courses, 43.51 percent were offered through synchronous methods while 56.49 percent were offered through asynchronous methods. However, differences were noted between the two levels regarding distance

TABLE 4-15

MAIN REASON FOR NOT OFFERING FIRE SERVICE COURSES USING
DISTANCE EDUCATION METHODS AS REPORTED BY ASSOCIATE DEGREE
AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

	Frequency	Percent
Lack of support & resources	21	58.33
Philosophical disagreement or not feasible	8	22.22
Lack of demand	3	8.33
Too costly, time consuming, or difficult	2	5.56
Lack of knowledge	1	2.78
Provided by another institution	1	2.78
Total	36	100

TABLE 4-16

MOST POPULAR DISTANCE EDUCATION FIRE SERVICE COURSES AS
REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE
SERVICE PROGRAM COORDINATORS/DIRECTORS - FALL 2000

Distance Education Courses	Frequency	Percentage
Management (Emergency, Fire Service, Personnel)	14	10.69
Fire Prevention (Fundamentals, Introduction)	11	8.4
Administration (Business, Fire, Fire Service)	10	7.63
Fire Investigation (Arson)	10	7.63
Building Construction	8	6.11
Hazardous Materials	8	6.11
Instructional Methodology, Instructor	8	6.11
Introduction to Fire Protection	7	5.34
Fire Protection Systems (Detection, Suppression)	5	3.82
Strategy & Tactics	5	3.82
All Others	45	34.35
Total	131	100

education delivery methods. Associate programs used synchronous methods, 48 percent, and asynchronous methods, 52 percent, about equally. At the bachelor level, synchronous methods, 24 percent, were used less often than asynchronous methods, 76 percent. Respondents were also asked to identify technology methods used to support the delivery of these courses. The most widely used methods among these courses were “Email” (25.68 percent), “Telephone” (18.92 percent), “Snail Mail” (14.19 percent), and “Internet” (13.85 percent). Table 4-17 presents this information.

Question 4-4 requested respondents to explain why they selected the distance education methods and technologies reported in question 4-3. This open-ended question resulted in a wide variety of answers. Some respondents misinterpreted the

TABLE 4-17

TECHNOLOGY METHODS USED TO DELIVER DISTANCE EDUCATION FIRE
SERVICE COURSES AS REPORTED BY ASSOCIATE DEGREE AND
BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Technology Methods	Frequency	Percent
Email	76	25.68
Telephone	56	18.92
Snail Mail	42	14.19
Internet	41	13.85
Compressed Video	26	8.78
Video Tape Distribution	24	8.11
Cable TV	21	7.09
Other (Fax, CD, workbooks, computer lab)	10	3.38
Total	296	100

question and provided reasons they offer distance education courses as in question 4-2.

Others used it as a means to provide additional information, such as name brand, about the technology they use for distance education. Of the 26 usable responses for this question, the top three responses were “equipment was available,” 11 (40.74), “best method or technology,” 9 (33.33), and “ease of use,” 3 (11.11).

As previously mentioned, 84 (62.7 percent) of the programs reported that they were planning to offer fire service distance education courses. The most common courses they plan to start with were introductory type courses. The complete list of courses they plan to start with is presented in Table 4-18.

Section 5 – Program Coordinators/Directors Perceptions

The first two questions in this section ask respondents about challenges facing fire service degrees and about changes they will be making to their programs. The first question (5-1) prompted respondents to list “the top five challenges facing fire service degree programs.” The open-ended question format resulted in a wide range of reported “challenges.” The 749 reported challenges were coded into five categories: “institution,” 218 (29.11 percent); “curriculum,” 212 (28.30 percent); “students,” 162 (21.63 percent); “recognition,” 97 (12.95 percent); and “other,” 60 (8.01 percent). Table 4-19 presents the complete list of coded responses.

The second question (5-2) asked, “What changes will you be making in the degree program over the next three years?” The open-ended format allowed multiple responses to this question. The 174 who responded to the question identified a total of

TABLE 4-18

FIRE SERVICE COURSES THAT ARE PLANNED TO BE OFFERED THROUGH
DISTANCE EDUCATION METHODS WITHIN INSTITUTIONAL DEGREE
PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR
DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS –
FALL 2000

Course Title(s)	Frequency
Introductory courses, Fire Science, Fire Protection	17
Administration, Management, and Law courses	12
Hazardous Materials	4
Fire Prevention, Codes and Enforcement, Inspection	4
Fire Officer, Fire Service Leadership, Supervision	4
Fire Protection Systems	3
Instructional Methodology	3
Fire Suppression, Firefighter I & II	3
Building Construction	3
Fire Command, ICS, Fire Service Tactics	3
Fire Protection Organization	2
Introduction to Fire Service, Fire Technology	3
Master Planning, Advanced Master Planning	2
Academy Track courses, Special Topics courses	2
Fire Service Organization, Fire Services Operations	2
Cognitive based courses, Report writing for firefighters	2
EMS in-service education courses (CEUs), First Responder	2
Fire Behavior & Combustion	1
Research Methods and Analysis	1
Fire Planning	1
Investigation	1
Introduction to Technical Rescue	1
Emergency Services, Introduction	1
Apparatus Purchase & Specification	1
Environmental Regulations I & II	1
Total	79

TABLE 4-19

CHALLENGES FACING FIRE SERVICE DEGREE PROGRAMS AS REPORTED
BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE SERVICE
PROGRAM COORDINATORS/DIRECTORS - FALL 2000

Challenges	Frequency	Percentage
Institution, 218 (29.11 percent)		
Finding quality instructors, adequate pay, prof. development	59	7.88
Funding	54	7.21
Resources, Equipment/Facilities, Maintaining technology	44	5.87
Support, Initiative, Recognition (department/institution)	24	3.20
Cost of Tuition	13	1.74
Competition with other programs, Increased delivery	9	1.20
Transcript evaluation (non-credit, NFA, life experience)	8	1.07
State control of education	7	0.93
Curriculum, 212 (28.30 percent)		
Updating curriculum (maintaining quality)	63	8.41
Develop distance education/Alternative delivery methods	50	6.68
Standardization/Accreditation of courses and programs	44	5.87
Articulation (2yr/4yr)	18	2.40
More four year degree programs, Lacking research	13	1.74
Updated textbooks	9	1.20
Additional hands-on training needed	8	1.07
Balancing career preparation with advancement	7	0.93
Students, 162 (21.63 percent)		
Increasing enrollment (recruiting, marketing...)	76	10.15
Job placement (employment and co-op opportunities)	27	3.60
Attracting quality students	23	3.07
Increase diversification of students (recruiting minorities)	12	1.60
Retention, graduating students	12	1.60
Student time (work vs. study)	12	1.60
Recognition, 97 (12.95 percent)		
Fire departments require degree for entrance/promotion	52	6.94
National recognition, Increase professionalism	28	3.74
Fire service personnel enrolling/completing degree	17	2.27
Other	60	8.01
Total	749	100

216 program changes. These changes were recoded into six broad categories. The top three categories included “Revising Existing Curriculum,” 66 (32.04 percent), “New Curriculum Initiatives,” 47 (21.76 percent), and “Distance Education Initiatives,” 46 (21.3 percent). Table 4-20 presents the complete list of coded responses.

The next four questions (5-3, 5-4, 5-5, and 5-6) requested respondents to evaluate statements and indicate their level of agreement. A Likert scale was used with the following categories: “Strongly Disagree,” “Disagree,” “Agree,” “Strongly Agree.” A total of 203 responses were recorded for each of the four questions. Seven non-responses were recorded for this question, five at the associate level and two at the bachelor level. For the 203 responses, the frequency and percentage for each question is presented in Table 4-21. Similar trends were noted for all but one question when comparing associate and bachelor level responses. For question 5-5, “Professors teaching in fire service degree programs have limited access to fire service related professional development opportunities,” the majority of associate level programs (59.3 percent) strongly disagreed or disagreed with this statement while only 41.7 percent of bachelor level programs strongly disagreed or disagreed.

The final two questions (5-7 and 5-8) sought to determine if respondents agreed with the concept of developing a “national model curriculum” for two-year and four-year degree programs. In connection with the development of a model curriculum for two-year degree programs, of the 195 responses 55 (26.2 percent) disagreed while 140 (66.7 percent) agreed. A total of fifteen non-responses were reported with thirteen occurring at the associate level and two at the bachelor level.

TABLE 4-20

PLANNED CHANGES TO INSTITUTIONAL DEGREE PROGRAMS AS
REPORTED BY ASSOCIATE DEGREE AND BACHELOR DEGREE FIRE
SERVICE DIRECTORS/COORDINATORS – FALL 2000

	Frequency	Percentage
Revising Existing Curriculum, 66 (30.55 percent)		
General updating and revising activities	51	23.61
Revising to meet state requirements	10	4.63
Revising to meet NFPA standards	5	2.31
New Curriculum Initiatives, 47 (21.76 percent)		
Adding new courses	28	12.96
Adding new concentrations, certifications, programs	19	8.8
Distance Education Initiatives	46	21.3
Working with Others, 22 (10.19 percent)		
Articulation initiatives	15	6.94
Seeking or investigating program accreditation	7	3.24
Institutional/Funding Initiatives, 20 (9.26 percent)		
Acquiring resources, training facilities	9	4.17
Additional advertising/marketing	6	2.78
Need full-time faculty, increase faculty pay	5	2.31
No Changes/Unsure	15	6.94
Total	216	100

TABLE 4-21

VIEWS OF PROGRAM COORDINATORS/DIRECTORS WITHIN INSTITUTIONAL
DEGREE PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR
DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS - FALL 2000

		Strongly Disagree	Disagree	Agree	Strongly Agree
5-3	My institution provides adequate funding for the fire service degree program.	14 6.9 percent	62 30.5 percent	100 49.3 percent	27 13.3 percent
5-4	The primary goal of a fire service two-year degree program is to prepare students for employment in the fire service.	15 7.4 percent	65 32.0 percent	89 43.8 percent	34 26.7 percent
5-5	Professors teaching in fire service degree programs have limited access to fire service related professional development opportunities.	34 16.7 percent	82 40.4 percent	66 32.5 percent	21 10.3 percent
5-6	Increasingly, higher education is being accepted in the fire service.	4 2.0 percent	24 11.8 percent	108 53.2 percent	67 33.0 percent

Relating to the development of a model curriculum for four-year degree programs, of the 173 responses 65 (31 percent) disagreed while 108 (51.4 percent) agreed. A total of 37 non-responses were reported with 35 occurring at the associate level and two at the bachelor level. When comparing associate and bachelor level responses, both agreed with the development of a model curriculum for two-year programs. However, their views differed about the development of a model curriculum for four-year degree programs. The majority of associate level programs, 52.7 percent, agreed while only 42.3 percent of bachelor level programs agreed.

Analysis of Data

This study was conducted to gather descriptive information concerning fire service degree programs offered at two-year and four-year level institutions in the United States. Ten research questions were developed as part of the study. These research questions will be used to organize data analysis.

Research Question 1 “*Of the institutions offering fire service degrees, what percent are associate degrees and bachelor degrees and are these programs evenly distributed across the United States between the two levels or are there regional patterns or trends?*”

The population for this study included 248 institutions offering fire related degrees. Of the 248 programs identified in this study, 222 (89.52 percent) were associate degrees and 26 (10.48 percent) were bachelor degrees. Of the 222 associate

programs, 184 (82.88 percent) responded. All 26 (100 percent) of the bachelor level programs participated in the study.

To determine the distribution of programs in the United States, institutions were first grouped within their respective federal regions. Because the distribution of bachelor level programs among the federal regions would allow several programs to be recognized, the institutions were regrouped into four general geographical regions to protect their identity.

Overall, degree programs were evenly distributed across the United States. However, differences were noted between the two levels. Associate programs were most heavily concentrated in regions 2 and 4 while bachelor programs were more heavily concentrated in regions 1 and 2. Table 4-22 presents this information. Although region 2 had the highest concentration of associate programs, enrollment and graduation rates were highest in region 4. For bachelor programs, region 1 had the highest enrollment while region 2 had the highest graduate rate.

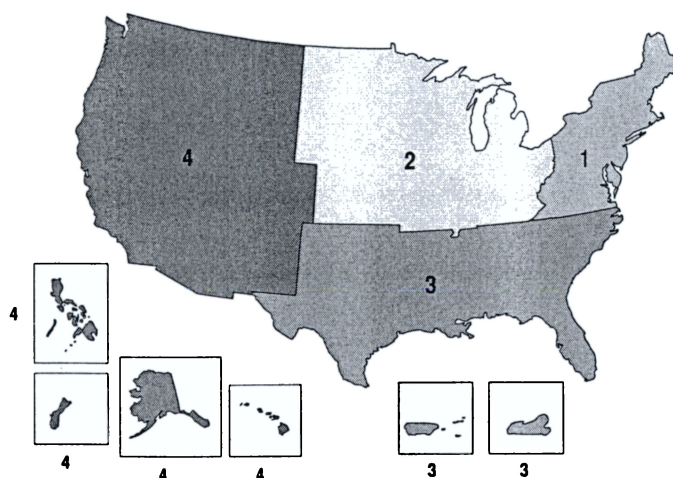
Research Question 2 “*Are there differences within each degree level concerning degree name and between the levels concerning enrollment, graduation, and purpose?*”

Although there were differences within each degree level related to degree name, there was less of a difference within associate programs than within bachelor programs. The four most common associate degree names represented 81.5 percent of

TABLE 4-22

DISTRIBUTION OF FIRE SERVICE DEGREE PROGRAMS AMONG THE
RESEARCH REGIONS – FALL 2000

Research Regions	Federal Regions	States	Associate	Bachelor	Total
1	I, II & IV	MA, ME, NH, VT, CT, RI, NY, NJ, DE, PA, VA, WV, MD, DC	33 (17.9 percent)	9 (34.6 percent)	42 (20 percent)
2	V, VII & VIV	IL, IN, MI, MN, OH, WI, IA, KS, MO, NE, CO, MT, ND, SD, UT, WY	55 (29.9 percent)	8 (30.8 percent)	62 (30 percent)
3	IV & VI	TN, AL, FL, GA, KY, MS, NC, SC, AR, LA, NM, OK, TX	44 (23.9 percent)	4 (15.4 percent)	48 (22.9 percent)
4	IX, X	AZ, CA, HI, NV, AK, ID, OR, WA,	52 (28.3 percent)	5 (19.2 percent)	57 (27.1 percent)
TOTALS			184 (100 percent)	26 (100 percent)	210 (100 percent)



all degree names within the level. In reference to bachelor level programs, the four most common degree names only represented 57.7 percent of all degree names. Table 4-23 presents the number and percent of the four most common degree names for associate and bachelor programs. See Table 4-2 (page 39) for a complete list of all associate and bachelor degree names.

With regard to enrollment, the obvious difference was that associate programs reported greater enrollment than bachelor programs. The enrollment minimum and maximum values reported for associate programs was much wider than for bachelor programs. Associate programs reported a wider spread between full-time and part-time students and average enrollment per program than did bachelor programs. Compared to associate level programs, bachelor programs had a higher full-time average enrollment per program and a lower part-time average enrollment per program. Table 4-24 presents this information. In addition, bachelor level programs reported experiencing a slightly higher increase in enrollment over the past three years and expect a slightly higher increase in enrollment for the next three years than did associate programs. Associate programs reported a higher level of “no change” in enrollment for both the previous three years as well as the next three years. See Figure 4-2 (page 49) for a presentation of this information.

In connection with graduation, associate programs graduated more students from their programs than did bachelor programs. However, bachelor programs reported a higher average graduation rate than did associate programs. In 1999, associate programs graduated an average of 13.98 students while bachelor programs

TABLE 4-23

FIRE SERVICE DEGREE PROGRAM NAMES AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

Associate Program Degree Names	Frequency	Percent
Fire Science	55	29.9
Fire Science Technology	49	26.6
Fire Protection Technology	24	13
Fire Technology	22	12
Others (26 different names)	34	18.5
Total	184	100

Bachelor Program Degree Names	Frequency	Percent
Fire Science	6	23.1
Fire Administration	3	11.5
Fire Science Administration	3	11.5
Fire Services Administration	3	11.5
Others (10 different names)	11	42.3
Total	26	100

TABLE 4-24

SPRING/FALL FULL-TIME AND PART-TIME ENROLLMENT TOTALS WITHIN
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE PROGRAM
COORDINATORS/DIRECTORS - FALL 2000

		Average Spring/Fall Enrollment	Average Enrollment Per Program	Minimum/ Maximum Reported Values
Associate	Full-Time	9,668	71.61	0 to 1,250
	Part-Time	14,177	89.16	0 to 1,600
Bachelor	Full-Time	1,590	79.53	1 to 300
	Part-Time	1,599	79.95	0 to 300

graduated an average of 23.95 students. The minimum and maximum values reported for associate programs was wider than for bachelor programs. Table 4-25 presents this information. Slight differences were recorded for graduation trends between associate and bachelor programs. Associate programs reported a slightly higher percentage of “increased graduation” over the past three years compared to bachelor programs and reported a slightly lower percentage of “no change” in graduation than did bachelor programs. Associate programs projected a slightly lower percentage of “increase” and a slightly higher expectation that graduation will “not change” than did bachelor programs.

Research Question 3 “What are the directors’ and instructors’ characteristics concerning highest earned degree, salary, and number of full-time/adjunct instructors?”

The coordinator/directors for associate programs earned lower level degrees than at the bachelor level. At the associate level, coordinators/directors most often earned a bachelor degree, 69 (37.5 percent), followed by a master’s degree, 64 (34.8 percent), and then an associate degree, 28 (15.2 percent). For bachelor level programs, coordinators/directors more often earned a master’s degree, 13 (50 percent), followed by a doctorate degree, 10 (38 percent), and finally a bachelor degree, 2 (7.7 percent). See Figure 4-10 (page 60) for this information. This trend of lower level of degrees in associate programs continued for part-time and full-time faculty. For associate programs, part-time faculty most often had an associate degree, 44 percent, while full-

TABLE 4-25

GRADUATION TOTALS FOR 1999 WITHIN INSTITUTIONAL DEGREE
PROGRAMS AS REPORTED BY ASSOCIATE DEGREE AND BACHELOR
DEGREE FIRE SERVICE PROGRAM COORDINATORS/DIRECTORS –
FALL 2000

	1999 Totals	1999 Average	Minimum/ Maximum
Associate	2,237	13.98	0 to 112
Bachelor	527	23.95	1 to 65

time faculty most often had a master's degree, 49 percent. At the bachelor level, part-time faculty most often had a master's degree, 56.38 percent, and full-time faculty most often had a doctorate degree, 30.02 percent.

The majority of coordinator/directors earned over \$70,000 per year for both associate and bachelor level programs, but the percentage of coordinators/directors in this range was higher for bachelor program (30.8 percent) than for associate programs (19 percent). Associate level programs had a greater percentage at the lower end of the salary scale than did bachelor level programs. See Figure 4-9 (page 62) for a presentation of this information.

Associate degree programs reported a higher number of part-time faculty and a lower number of full-time faculty than bachelor programs. For associate programs, the average number of part-time faculty was 15.67 and full-time faculty was 2.33. For bachelor programs, the average number of part-time faculty was 8.47 and full-time faculty was 3.98.

Research Question 4 “What is the percentage of technical and general education courses, and who controls the curriculum?”

Associate programs concentrated more on technical courses than on general education courses, while the opposite was true for bachelor programs. At the associate level, general education courses represented 40.04 percent and technical courses represented 58.92 percent of all courses within the degree. For bachelor programs, general education courses represented 55.38 percent and technical courses represented 44.04 percent of all courses within the degree. The most common technical courses in associate programs were suppression related while supervision courses were the prominent technical courses in bachelor programs. At both the associate and bachelor level, the program coordinator/director reported having the most control over fire service courses within the degree.

Research Question 5 “To what extent do degree granting institutions accept transfer credit other than college courses such as national certificates and/or Academic Council on Education (ACE) recommendations for National Fire Academy (NFA) courses.”

The vast majority of associate and bachelor level programs accepted technical courses from other accredited institutions. In addition, most of the programs accepted transfer credit from sources other than college courses. The Academic Council on Education (ACE) recommendations for college credit was accepted in 78 percent of associate programs and 76 percent of bachelor programs. State certification was more

often accepted than national certification for both associate and bachelor level programs. Table 4-4 (page 43) presents the number of programs accepting transfer credit for associate and bachelor level program.

Research Question 6 “How many and what percent of fire service degree programs use distance learning methods to deliver courses?”

Overall, 134 (63.8 percent) did not offer fire service distance education courses while 71 (33.8 percent) reported that they did offer fire service courses through distance education methods. The percentage of programs using distance education to offer fire science courses was lower at the associate level, 55 (29.9 percent), than at the bachelor level, 16 (61.5 percent). The main reason cited for using distance education methods to deliver courses was providing access of courses to students working typical emergency service shifts or students geographically remote from the institution. Lack of support and resources was reported as the main reason for not offering distance education fire service courses. Of those programs not offering distance education courses, the majority (62.7 percent) reported that they plan to offer fire service distance education courses in the future. Developing distance education courses was the second most reported change coordinators/directors plan to make in the next three years.

Research Question 7 “What are the types of distance learning delivery methods used and what courses are offered through distance learning methods?”

For those programs that used distance education, associate programs used synchronous methods, 48 percent, and asynchronous methods, 52 percent, about equally. At the bachelor level, synchronous methods, 24 percent, were used less often than asynchronous methods, 76 percent. The most widely reported technology used to support distance education among fire service distance education courses were email (25.68 percent), telephone (18.92 percent), snail mail (14.19 percent), and the Internet (13.85 percent). See Table 4-17 (page 70) for a complete listing of technology methods used to deliver fire service distance education courses. The most common fire service distance education courses were reported in the subjects of management, fire prevention, administration, and fire investigation. Coordinators/directors indicated that the majority of courses they plan to offer through distance education included fire and emergency introductory courses, administration courses, management courses, and law courses.

A second purpose of this study was to identify perceptions of fire service degree program directors/coordinators concerning current and future issues affecting fire service degree programs. The remaining three research questions focus on perceptions of directors/coordinators.

Research Question 8 “What do coordinators/directors consider to be current challenges facing fire service degree programs?”

Coordinators/directors listed a total of 749 challenges facing fire service degree programs. These challenges were recoded for organization and reporting purposes. The ten most frequently identified challenges facing fire service degree programs represent 66.35 percent of all listed challenges. Increasing enrollment topped the list and included recruiting new students, marketing the program, and program growth. Updating curriculum was the second most often listed challenge and included keeping curriculum current, maintaining quality curriculum, and general revisions and additions. The third most reported challenge focused on finding quality instructors and include issues such as providing adequate pay, finding degreed instructors, and professional development. Fourth on the list of most reported challenges included funding and was sometimes imbedded in other challenges such as lack of equipment and technology. Recognition of degree as an entrance requirement or promotional prerequisite was the fifth most listed challenge. The ten most frequently identified challenges are presented in Table 4-26. A complete list of the challenges is presented in Table 4-19 (page 73).

Research Question 9 “What degree program changes are planned?”

A total of 216 program changes were reported by program coordinators/directors. As with the previous research question, the program changes listed by coordinators/directors were recoded for organization and reporting purposes.

TABLE 4-26

TEN MOST FREQUENTLY IDENTIFIED CHALLENGES FACING
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE
COORDINATORS/DIRECTORS – FALL 2000

	Frequency	Percentage
Increasing enrollment (recruiting, marketing the program...)	76	10.15
Updating curriculum (maintaining quality)	63	8.41
Finding quality instructors, adequate pay, professional development	59	7.88
Funding	54	7.21
Getting fire departments to require degree for entrance/promotion	52	6.94
Develop distance education/alternative delivery methods	50	6.68
Resources, equipment/facilities, maintaining technology	44	5.87
Standardization/accreditation of courses and programs	44	5.87
National recognition, increase professionalism	28	3.74
Job placement (employment and co-op opportunities)	27	3.60

The five most frequently planned changes account for 73.61 percent of all required changes. The four planned changes most often reported by coordinators/directors all focus on curriculum and courses within the program. Working on articulation initiatives was the fifth most listed planned change. The ten most reported degree program changes planned for the next three years are presented in Table 4-27.

TABLE 4-27

TEN MOST FREQUENTLY IDENTIFIED PLANNED CHANGES TO
INSTITUTIONAL DEGREE PROGRAMS AS REPORTED BY ASSOCIATE
DEGREE AND BACHELOR DEGREE FIRE SERVICE
COORDINATORS/DIRECTORS – FALL 2000

	Frequency	Percentage
General updating and revising curriculum	51	23.61
Working on distance education initiatives	46	21.3
Adding new courses	28	12.96
Adding new concentrations, certifications, programs	19	8.8
Working on articulation initiatives	15	6.94
Revising curriculum to meet state and NFPA standards	15	6.94
Acquiring resources such as training equipment and facilities	9	4.17
Seeking or investigating program accreditation	7	3.24
Additional advertising and marketing of program	6	2.78
Seek full-time faculty and increased faculty pay	5	2.31

Research Question 10 *“What are the views of coordinators/directors toward program funding, purpose of degree programs, acceptance of higher education in the fire service and the development of a model fire service curriculum?”*

When asked about funding, almost half of the coordinators/directors felt that their institution provided adequate funding for their program. This was clearly not the case for some programs in that “funding” was the fourth most reported challenge facing fire service degree program. In general, coordinators/directors indicated that the primary goal of a fire service two-year degree program was to prepare students for employment in the fire service. The primary purpose of bachelor degree programs was

reported to be advancement within the fire service. The vast majority of responses agreed or strongly agreed that “increasingly, higher education is being accepted in the fire service.”

Overall, the majority of respondents indicated that they support the idea of a national curriculum for two-year and four-year degree programs. When comparing views of respondents at the associate and bachelor level, both agreed with the development of a model curriculum for two-year degree programs. However, the majority of respondents at the associate level agreed with the development of a model curriculum for four-year degree programs. The majority of respondents at the bachelor level disagreed with the idea of model four-year degree program.

Summary of Chapter IV

This study sought to determine the current status of fire service degree programs in the United States. Of the 248 institutions identified as offering two-year and four-year fire service degree programs, a total of 210 institutions returned a survey resulting in an 84.68 percent return rate. This chapter presented the findings of the study based on the format of the survey instrument. In addition, this chapter presented data analysis for the ten research questions. The next chapter presents the summary, conclusions, and recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of the study's purpose, literature review, methods and procedures, and findings and analysis. Next, conclusions and recommendations drawn from the literature review and findings are presented.

Summary

Purpose

The primary purpose of this study was to gather descriptive information concerning fire service degree programs offered at two-year and four-year accredited institutions in the United States. A second purpose of this study was to identify the perceptions fire service degree program coordinators/directors hold concerning current and future issues affecting fire service degree programs. The information obtained through this study can help the National Fire Academy, the International Fire Chief's Association, coordinators/directors of fire service degree programs and other local, state, and national fire service organizations work toward increasing the acceptance and use of higher education in the fire service. In turn, a better-educated fire service may begin to meaningfully affect the staggering number of fires in the United States.

Literature Review

A review of the literature on fire service higher education revealed three critical time frames for fire service degree program development and research. The

first period (1900s to 1950s) included the initial development of fire service degree programs. During this time, fire service degree programs experienced limited growth. Fire service degree programs expanded rapidly during the second period (1960s to 1970s). The majority of research on fire service degree programs occurred during this period. The National Fire Prevention and Control Administration sponsored the most recent national study on fire service degree programs in 1975. The final period (1980s to 1990s) was characterized by a shift from a national focus to a local or regional focus. The majority of attention and support during this time was provided by the National Fire Academy in the form of sponsoring meetings and conferences.

Methods and Procedures

The population for this study included all accredited higher education institutions in the United States offering associate and/or bachelor level fire service degree programs. A survey instrument was developed, pilot tested by national experts, and then mailed to the coordinators/directors of fire service degree programs for each of the institutions. Respondents were provided the opportunity to return completed surveys in the traditional paper format or through an electronic version located on the Internet. The survey was designed to provide information on five different areas: Degree Program Information, Student Information, Faculty Information, Distance Education Information, and Program Directors/Coordinators Perceptions. Of the 248 institutions identified for this study, 210 responded to the survey resulting in an 84.68 percent return rate. Basic descriptive statistics, frequencies, percentages, ranges, and averages were used for data analysis. Tables and charts were used to display the data.

Findings and Analysis

Of the 248 institutions identified for this study, 222 (89.52 percent) were associate level programs and 26 (10.48 percent) were bachelor level programs. A total of 210 institutions responded, 184 (82.88 percent) at the associate level and 26 (100 percent) at the bachelor level, resulting in an 84.68 percent return rate. Overall, degree programs were evenly distributed across the United States.

The coordinators/directors were asked to provide a variety of basic information on their fire service degree programs. The most common degree name reported at both levels was “Fire Science.” The most common technical courses in associate programs were suppression related while supervision courses were the prominent courses at the bachelor level. The vast majority of associate and bachelor programs indicated the primary purpose of their program was either advancement or a combination of advancement and pre-employment. Most programs accepted a wide range of transfer credit with technical courses from other institutions and ACE recommendations being the two most often reported. The majority of programs indicated that the program coordinator/director had the most control over changes made to the program. Table 5-1 provides additional basic information on fire service degree programs.

The coordinators/directors were also asked several questions about students within their fire service programs. For both program levels, enrollment was reported to have increased over the past three years and was expected to increase over the next three years. Concerning graduation rates, most associate level programs indicated that the number of students graduated had increased over the past three years while almost half of the bachelor level programs reported either an increase in graduates or that

TABLE 5-1

SUMMARY OF FINDINGS ON BASIC DEGREE PROGRAM INFORMATION
COLLECTED AS PART OF THE NATIONAL SURVEY ON FIRE SERVICE
DEGREE PROGRAMS - FALL 2000

	Associate	Bachelor
Percentage of technical courses in the program	58.92	44.04
Percentage of programs that articulate to a higher degree	61.4	53.8
Percent of programs that provide certification to students as part of the curriculum	64.1	23.1
Percent of programs in public institutions	99.5	73.1
Percent of degree programs that are accredited	33.79	16.7

graduation rates had not changed. For both program levels, graduation rates were expected to increase over the next three years. During 1999, associate level programs reported graduating a total of 2,237 students while bachelor level programs reported graduating a total of 527 students. The overwhelming majority of students in fire service programs were white (81.01 percent). The majority of students were also male (90.66 percent). More students in associate level programs were reported to be in younger age categories than bachelor level students. The most reported age category for associate level students was 20 to 24 and for bachelor level students 35 to 39. Table 5-2 provides additional summary information about students in fire service degree programs.

The study also sought information about the person in charge of the fire service degree program and about faculty. The title most often reported for the person filling this position was "Program Coordinator" followed by "Program Director." For most

TABLE 5-2

SUMMARY OF FINDINGS ON STUDENT INFORMATION COLLECTED AS
PART OF THE NATIONAL SURVEY ON FIRE SERVICE DEGREE PROGRAMS
– FALL 2000

	Associate	Bachelor
Average number of spring/fall full-time students	72.63	79.52
Average number of spring/fall part-time students	89.16	79.95
Average number of 1999 graduates	13.98	23.95
Percentage of degree seeking students in programs	74.84	93.57

programs, this person was not the primary instructor within the program. The majority of coordinators/directors held the position for less than five years and had between five to fourteen years of experience in higher education. Concerning fire service experience, coordinators/directors at the associate level most often selected the “30 and above” year category while bachelor level coordinators/directors selected the “0 to 4” year category. The majority of coordinators/directors as well as part-time and full-time faculty were white males between the ages of 40 and 59. Coordinators/directors for bachelor level programs reported higher annual salaries than their counter parts at the associate level. Both coordinators/directors and faculty at the bachelor level reported earning more advanced degrees than at the associate level. Table 5-3 provides additional summary information on part-time and full-time faculty.

Information on distance education methods used in fire service degree programs was also collected as part of this study. The majority of coordinators/directors at the associate level reported that their programs did not offer

TABLE 5-3

SUMMARY OF FINDINGS ON FACULTY OF FIRE SERVICE PROGRAMS
COLLECTED AS PART OF THE NATIONAL SURVEY ON FIRE SERVICE
DEGREE PROGRAMS - FALL 2000

	Associate	Bachelor
Total number of part-time faculty	2,321	146
Total number of full-time faculty	152	46
Average number of part-time faculty per program	15.67	8.47
Average number of full-time faculty per program	2.33	3.98

courses using distance education methods while the majority of coordinators/directors at the bachelor level reported that their programs did offer distance education fire service courses. The primary reason reported for offering fire service distance education courses was “access.” Of those programs that did not currently offer distance education courses, the majority (62.7 percent) indicated that they had plans to offer distance education courses in the future. The major reason reported for not offering fire service courses using distance education methods was lack of support and/or resources. The four most popular fire service distance education courses were reported to be in the subjects of management, administration, fire prevention, and fire investigation. Asynchronous methods supported by email and telephones were most often reported when asked about delivery methods.

Finally, coordinators/directors were asked about their perceptions on various issues related to fire service degree programs. In general, most coordinators/directors felt that their institution provided adequate funding and that higher education was

increasingly being accepted in the fire service. Coordinators/directors for both levels agree with the development of a model curriculum for two-year programs. However, their views differ about the development of a model curriculum for four-year degree programs. The majority of associate level programs, 52.7 percent, agreed while only 42.3 percent of bachelor level programs agreed with the development of a model curriculum for four-year programs. The top five challenges facing fire service degree programs and the top changes planned for their programs are presented in Table 5-4.

Conclusions and Implications

The conclusions and implications of this study were drawn from the review of the literature in Chapter II and from the findings and analysis in Chapter IV.

Historical Trends

The review of related literature revealed early research on fire service degree programs occurred during the 60s and 70s and provided a means to track and trend various aspects of fire service degree programs. However, a void in reported research occurred during the 80s and 90s. This lack of research over the years reduces the ability to identify trends or understand patterns. For example, a rapid growth in the number of programs can be seen in the early research, see Table 5-5. The last reported research conducted in 1975 reported a total of 240 institutions offering a fire service degree in 44 states. The research conducted as part of this study identified a total of 248 institutions offering a fire service degree in 47 states. It is interesting that the reported totals are similar and that the increase in the number of bachelor programs

TABLE 5-4

SUMMARY OF FINDINGS FROM SECTION V OF THE NATIONAL SURVEY
ON FIRE SERVICE DEGREE PROGRAMS - FALL 2000

Top Five Challenges	Top Five Changes
Increasing enrollment	Updating and revising curriculum
Updating curriculum	Distance education
Finding quality instructors and adequate pay	Adding new courses
Funding	Articulation initiatives
Getting fire departments to require degree for entrance/promotion	Revising curriculum to meet state requirements

TABLE 5-5

SUMMARY OF ASSOCIATE AND BACHELOR PROGRAM DEVELOPMENT – Fall 2000

Study/Report	Year	Associate	Bachelor	Totals	States
Fire Science Technology Curricula Survey, Favreau	1966	19	2	21	12
Higher Education in the Nation's Fire Service, Favreau	1968	57	2	59	17
A Survey and Historical Developments of Fire Service Education in the United States, Favreau	1971	134	4	138	30
Report on a Survey of the Fire Education and Training Programs within the United States and its Territorial Possession, Consortium Study	1975	223	17	240	44
National Survey on Fire Service Degree Programs	2000	222	26	248	47

(nine) is close to the overall increase in the number of programs (eight). However, because of the lack of research between the last study, conducted in 1975, and this study, conducted in 2000, it is unknown if the number of degree programs are currently increasing, decreasing or remaining constant. The same holds true for most of the information collected as part of this study. The void in research during the 80s and 90s reduces the ability to identify historical trends or patterns.

Survey Return Rate

One interesting aspect of this study was the very high survey return rate. Several factors may have contributed to this high rate of return. First, the close relationship between the study and the respondents was evident and could have positively affected the rate of return. For example, respondents were asked about themselves, their programs, the students in their program, and the faculty that taught in their program. In addition, the study could be related to the primary mission of the fire service, saving lives and property. Second, the use of technology in the study could have aided in increasing the return rate. Because the survey was available electronically over the Internet, respondents may have completed a survey out of either curiosity with the web format or for the ease of completing and returning the survey electronically. In addition, the use of email provided effective follow-up communications as well as an efficient means to get the questionnaire to respondents who inadvertently lost the survey.

Purpose Of The Study

Perhaps most importantly, the primary purpose of the study was achieved. Descriptive information concerning fire service degree programs offered at two-year and four-year level institutions in the United States was gathered. The secondary purpose, identifying the perceptions fire service degree program coordinators/directors hold on various issues affecting fire service degree programs, was also achieved. The data collected provides an in-depth snapshot of the current status of fire service degree programs in the United States. The information collected as part of this study can be used in a variety of ways from benchmarking among fire service degree programs to assistance and support with policy formation at the local, state, and federal level.

Diversity

One of the more glaring findings of this study was the lack of diversity in gender and race for coordinators/directors, faculty, and students. In most cases, males represented over 85 percent of coordinators/directors, faculty, and students. The race for over 80 percent of coordinators/directors, faculty, and students was reported to be white. In several cases, the higher percentages were reported for both gender and race. For example, 90.66 percent of students were reported to be male and 85.28 percent of full-time faculty were reported to be white. This was apparently not a big issue in that only twelve coordinators/directors listed recruiting minorities as one of the top five challenges facing fire service degree programs.

Pressing Issues

The second purpose of this study was to identify the perceptions fire service degree program coordinators/directors hold concerning current and future issues affecting fire service degree programs. Their more compelling issues and concerns are presented here. It is interesting to note that each of these issues and concerns were also identified as major issues and concerns in the 70s and 80s.

Enrollment

One issue of concern to coordinators/directors was enrollment. Despite the reported positive trends in enrollment, “increasing enrollment” was identified as the most important challenge facing fire service degree programs. The importance of increasing enrollment was further strengthened by the fifth most important challenge, the need for fire departments to require a degree for entrance/promotion. Other reported challenges related to increasing enrollment were attracting quality students, retention of students, and developing distance education courses to reach additional students. It is interesting to note that enrollment was also considered an important problem during the 70s. Bryan reported that the lack of incentives for students to earn a degree is one of the principal problems facing fire related education programs (1977).

Funding

Another issue of concern to coordinators/directors was funding. Although the majority of coordinators/directors indicated that their institution provided adequate

funding for their fire service degree program, “lack of funding” was the fourth most frequently reported challenge facing fire service degree programs. The importance of this issue could also be seen in several related challenges identified by coordinators/directors. For example, adequate pay for professors, the need for resources such as equipment and facilities, and the need to upgrade technology were all prominently reported as important challenges facing fire service degree programs. The concern for funding was also an issue in the 70s. The Statistical Analysis of the National Survey on Fire Education and Training Programs indicated that the third most reported educational need for fire related degree programs was financial assistance for program operation and development (Ford, et. al, 1977).

Curriculum

Perhaps one of the most pressing issues facing program coordinators/directors relates to curriculum. Not only was curriculum the second most reported challenge reported by program coordinators/directors it was also the most frequently reported change coordinators/directors plan on making within their programs. In fact, each of the top five planned changes reported by coordinators/directors relates directly to curriculum issues. The most frequently identified planned change was simply reported as general updating and revising of curriculum. The second most frequently identified planned change related to distance education. It was apparent that although most programs were not offering fire service distance education courses, they were planning on doing so in the near future. Other frequently identified planned changes related to curriculum were: adding new courses and programs, working articulation

initiatives, and revising curriculum to meet state and National Fire Protection Association standards. Interestingly, the two curriculum issues of uniformity/standardization of curriculum and articulation/accreditation of programs stand out as important issues in this study as well as in the 70s (Bryan, 1977, Ford, et.al.).

Recommendations

Based on the review of the literature and the findings and analysis of this study, two broad areas emerged as deserving attention: the need for further research and the need for national collaboration.

Further Research

It is suggested that additional research is required from two perspectives. First, the information collected as part of this study should be collected in a consistent manner. Caution should be exercised, however, in the amount and frequency of information collected. Several respondents voiced their dismay over the quantity of information requested in this study. It is conceivable that limited data collection could occur more frequently with expanded data collection occurring less frequently. Second, future research needs to expand investigation into several areas of importance to fire service education degree programs. One area is to investigate other related degree programs such as fire protection engineering, emergency management, and emergency medical programs. In addition, future investigation should expand beyond the bachelor level into both graduate and doctoral level programs. Another important

area to research is in the fire service itself. Questions to answer include how many fire departments require a degree for either entrance into or promotion within the department and what incentives are provided for fire department members to pursue advanced degrees.

National Collaboration

It is suggested that fire service program coordinators/directors in cooperation with national fire service organizations such as the National Fire Academy, the International Association of Fire Chiefs, the International Association of Fire Fighters and other organizations work together on the following:

- Seeking ways to provide support for ongoing research related to education in the fire and emergency services.
- Collaborating on the development of a nationally recognized associate level curriculum in both a traditional and distance education delivery format.
- Establishing meaningful incentives for obtaining a fire service degree.
Specifically, working toward requiring an associate degree for entrance into a fire department and requiring a bachelor degree for promotion within a fire department.
- Providing assistance to degree programs in the form of encouragement, participation, and funding.
- Working toward increasing the diversity of students and faculty within fire service degree programs.

REFERENCES

REFERENCES

- Bryan, J. L. (1977). A study of the Relationship of the National Fire Academy to the Fire-Related Education Programs in Colleges and Universities, (Publication No. 240-848). Washington, DC: U.S. Government Printing Office.
- Bryan, J. L. (1979). The academic and research community. In Bryan, J. L. & Picard, R. C. (Eds.), Managing Fire Services. (pp. 115-120). Washington, D.C.: International City Managers Association.
- Carter, H. R. (1989, May). Higher education, more than icing on the cake. Fire Chief, p. 56-58.
- Clark, A. (1996, October). Seniority Alone Does Not a Leader Make. Fire Engineering, 149, p. 10.
- Clark, B. (1993, September). Higher Education and Fire Service Professionalism. Fire Chief, 50-53.
- Coleman, R. J. & Granito, J. A. (Eds.) (1988). Managing Fire Services. Washington, D.C.: International City Managers Association.
- Favreau, D. F. (1966). Fire Science Technology Curricula Survey. Albany:State University of New York at Albany, International Fire Administration Institute.
- Favreau, D. F. (1967). Crisis in the Fire Service, The Educational Dimension. Albany:State University of New York at Albany, International Fire Administration Institute.
- Favreau, D. F. (1968). Higher Education in the Nation's Fire Service, Albany:State University of New York at Albany, International Fire Administration Institute.

- Favreau, D. F. (1971). A Survey and Historical Developments of Fire Service Education in the United States. Albany:State University of New York at Albany, International Fire Administration Institute.
- Ford, I., Gaumnitz, C., Gwynne, J., Johnson, S., Joiner, B., Lamby, W., Martin, R. (1977). Statistical Analysis of the National Survey of Fire Education and Training Programs. Madison:University of Wisconsin, Statistical Laboratory, Department of Statistics. (SL Report 77/5).
- International Association of Fire Chiefs, International Associate of Firefighters, International Society of Fire Service Instructors, National Fire Protection Association. (1975) Report on a Survey of the Fire Education and Training Programs, within the United States and its Territorial Possessions, Washington, DC: National Fire Prevention and Control Administration. US Department of Commerce. Contract # 5-35593.
- Karter, M. (2000, September/October). 1999 U.S. Fire Loss, NFPAJournal, 94, 80-86.
- Karter, M. & LeBlanc P. (1999, November/December). 1998 Firefighter Injuries. NFPAJournal, 93, 46-51.
- Kirtley, E. (1989, August). Higher Education: Meeting Fire Services' Changing Needs. Fire Engineering, 57-58.
- National Commission on Fire Prevention and Control. (1973). America Burning, Washington, (Publication No. O-495-792). DC: U.S. Government Printing Office.
- National Fire Academy. (1999). Fire & Emergency Services Higher Education Conference, (Final Report). Emmitsburg MD: Publications Center.

- National Fire Academy. (1998). The Fire Service and Higher Education: A Blueprint for the 21st Century. (Final Report of the Fire Science Coordinators Meeting). National Fire Academy: Autor.
- Rivenbark, W. C. and McCall, G. H., (2000, September). Promoting Higher Education in the Fire Service. Fire Engineering, 153, 9-13.
- Sa'adah, A. D. (1999). Use of a Survey Instrument to Evaluate the Effectiveness of Program Reform in the Fire Science Administration Degree Program. Unpublished report, University of the District of Columbia.
- United States Fire Administration. (1998, August). Fire in the United States 1986-1995, (Publication No. FA-183). Emmitsburg MD: Publications Center.
- United States Fire Administration. (1990). America Burning Revisited, (Publication No. 724). Washington, DC: U. S. Government Printing Office.
- U. S. Department of Education. (1990). Classification of Instructional Programs, (Publication No. 281-691). Washington, DC: U.S. Government Printing Office.
- Weiger, P. R. (1998, July 27). A Hot Commodity, Firefighters Climbing the Career Ladder With Fire Science Degrees, Community College Week, 10, 6-11.
- Washburn, A. E., LeBlanc, P. R., & Fahy, R. F. (1998, July/August). 1997 Firefighter Fatalities, NFPA Journal, 92, 50-58.
- Wilson, G. (1996, October). Training is Necessary, but not Sufficient. Fire Chief, 22-24.

APPENDIXES

APPENDIX A
SURVEY INSTRUMENT

Survey on Fire Service Degree Programs in the United States

Please forward this survey to the coordinator/director of the Fire Service Degree Program. If your institution does not offer a fire service degree program, please list the name of your institution and your state below and return the survey in the self addressed stamped envelope or go to the survey web site (<http://wtonline.wtamu.edu/eval/fma/>) and complete the "Tracking and Follow-up Information" section to help us gain accurate information on Fire Service Degree Programs in the United States. For the purpose of this study, a "fire service degree program" is defined as a formalized instruction program offered by higher education institutions that prepare individuals for firefighting, fire protection specialist, fire service administration, and related emergency services.

This questionnaire is part of a national survey designed to gather information about fire service degree programs in the United States. Please answer the questions as accurately as possible. If you offer more than one fire service degree on the same level, please answer questions for the most popular of the degree programs. Please fill out a separate survey for programs offered at different levels. Contact information for questions/comments can be found at the end of this survey.

All of your answers will be kept completely confidential and will only be used in aggregate for regional or national totals. Results will be available on the National Fire Academy's Web site at www.usfa.fema.gov/nfa/tr_high.htm. In keeping with the University of Tennessee's regulations regarding the protection of human subjects, your return of the questionnaire will be considered your informed consent to participate in the study.

Section 1: Degree Program Information

This section asks you basic questions about your degree program.

Name of Institution: _____, State: _____

- 1-1 Please list the name of the degree as it appears on the diploma, the level of the program and any concentrations available.

Name of Degree (as it appears on diploma)	Level of Degree: (check one)		Concentrations/Options (if any)
	AS	BS	
	AA	BA	
	AAS	BAA	
	Other, please identify:		

- 1-2 Please identify the percentage of general education courses and technical courses within the degree program:

% _____ General education (courses such as English, speech, math, psychology, history...)
% _____ Technical (courses directly related to field such as fire science courses, EMS courses, hazardous materials...)

- 1-3 Considering just the technical courses in the degree program, approximately what **percentage** of these courses are:

	Municipal	Industrial
Suppression		
Medical		
Rescue		
HazMat		
Supervision/administration		
Other, please list:		

- 1-4 What do you consider the primary purpose of the degree program? (please check one)

_____ pre-employment (prepare students for entry into the emergency service field)
_____ advancement (prepare current emergency service personnel for advancement)
_____ both, if so, what percent of the graduates:
 % _____ pre-employment; % _____ advancement/professional development
_____ other, please explain: _____

Survey on Fire Service Degree Programs in the United States

- 1-5 Which of the following is accepted toward the fire service degree: (check all that apply)
- ☐ other institution's technical college level courses
 - ☐ vocational courses
 - ☐ Academic Council on Education (ACE) recommended courses/hours (military courses, NFA courses...)
 - ☐ life experience, portfolio and/or experiential learning
 - ☐ National certification, which certification?
☐ IFSAC, ☐ ProBoard, ☐ Both, ☐ other; please explain: _____
 - ☐ State certification and/or national certification
 - ☐ Fire Department Courses
 - ☐ other; please explain: _____
- 1-6 Does this degree program articulate with a higher degree?
- ☐ No,
 - ☐ Yes, what degree program(s) does it articulate with? _____
- 1-7 Can students receive state or national certification upon successfully completing any of the fire service courses in the program?
- ☐ No, ☐ Yes, which ones? _____
- 1-8 Excluding the curriculum committee or similar faculty committee, who has the most control over fire service courses such as adding a new course or making changes to existing courses?
- ☐ fire service advisory board or committee
 - ☐ fire service program coordinator/director
 - ☐ state agency, commission, or state training board
 - ☐ other: please explain: _____
- 1-9 This institution is: ☐ Public, ☐ Private
- 1-10 Is your institution regionally accredited?
- ☐ No,
 - ☐ Yes, by which association:
 - ☐ Southern Association of Colleges & Schools (SACS)
 - ☐ New England Association of School & Colleges (NEASC)
 - ☐ North Central Association of Colleges & Schools (NCA)
 - ☐ Northwest Association of Schools and Colleges (NASC)
 - ☐ Middle States Association (MSA)
 - ☐ Western Association of Schools & Colleges (WASC)
 - ☐ Other, please specify _____
- 1-11 Is your fire service degree program accredited?
- ☐ No, are you considering seeking program accreditation? ☐ Yes, ☐ No.
 - ☐ Yes, by which of the following:
 - ☐ Accrediting Board for Engineering and Technology (ABET)
 - ☐ IFSAC Degree Assembly
 - ☐ Other, please list: _____

Section 2: Student Information

2-1 Please provide enrollment estimates (non-duplicated headcount) for the following semesters:

	Spring 1999	Summer 1999	Fall 1999
Estimated number of full-time students in the program:			
Estimated number of part-time students in the program:			

Survey on Fire Service Degree Programs in the United States

		Increased	Decreased	No Change
2-2	Over the <u>past three years</u> , enrollment in your degree program has:			
2-3	For the <u>next three years</u> , enrollment in your degree program is expected to:			
2-4	Over the <u>past three years</u> , the number of students graduating has:			
2-5	Over the <u>next three years</u> , the number of students expected to graduate will:			

2-6 What percentage of students enrolled during 1999 were: (each section should total 100%)

Age Categories	Percent
19 and under	
20 to 24	
25 to 29	
30 to 34	
35 to 39	
40 and over	

Gender	Percent
Male	
Female	

Type of Enrollment	Percent
Degree Seeking	
Non-Degree Seeking	

Race	Percent
White	
African American	
Hispanic American	
Asian American	
Native American	
Other	

2-7 During 1999, how many students graduated from the degree program? _____

2-8 During 2000, how many students are expected to graduate from the degree program? _____

2-9 Which of the following are available to students: (check all that apply)

☐ Explorer Post ☐ Live-in arrangements ☐ recruit training	☐ Co-op experiences ☐ scholarship opportunities ☐ other, please list: _____
--	--

Section 3: Coordinator/Director and Faculty Information

3-1 What is your title? _____,

3-2 Are you the primary instructor in the program ___ Yes, ___ No.

3-3 How many years have you held your current position? _____

3-4 How many years of experience do you have in the fire service excluding higher education experience?

3-5 How many years of experience do you have in higher education? _____

3-6 What is your gender and age? ___ Male, ___ Female, _____ years old as of today.

3-7 What is your racial/ethnic background

___ White	___ African American	___ Asian American
___ Native American	___ Hispanic American	___ Other, please specify: ___

3-8 What is your approximate annual gross salary?

___ Under \$10,000,	___ \$20,000 to 29,999	___ \$40,000 to 49,999	___ \$60,000 to 69,999
___ \$10,000 to 19,999,	___ \$30,000 to 39,999	___ \$50,000 to 59,999	___ \$70,000 or above

3-9 What is the highest level of formal education you have completed?

___ High school Diploma	___ Some College
___ Associate Degree in: _____	___ Bachelors Degree in : _____
___ Master Degree in: _____	___ Doctorate Degree in: _____

Survey on Fire Service Degree Programs in the United States

Now, some information on your faculty...

3-10 For part-time and full-time faculty, please provide the following information:

	Number Part-time	Number Full-time		Number Part-time	Number Full-time
A) Age Categories			C) Race		
19 and under			White		
20 to 29			African American		
30 to 39			Hispanic American		
40 to 49			Asian American		
50 to 59			Native American		
60 and over			Other		
B) Highest Degree Earned			D) Gender		
High school			Male		
Associate			Female		
Bachelors					
Masters					
Doctorate					

Section 4: Distance Education

This section asks questions concerning the extent your program uses distance education. For purposes of this study, distance education refers to courses you offer where the instructor and students are geographically separated and the course occurs in either a synchronous (real-time) or asynchronous (time delayed) manner using one or more technology tools such as video, telephone, internet, cable, etc.

4-1 Does your program currently offer fire service courses using distance education methods?

_____ No, skip to question 4-5
 _____ Yes,

4-2 What is the main reason for using distance education methods for course delivery?

4-3 Please list up to three of your most popular fire service courses designed to be offered using distance education methods and identify the type(s) of technology used:

Course Title	Select only one for each course		Select all that apply						
	Synchronous Instructor and students interact in <i>real-time</i>	Asynchronous Instructor and students interact in a <i>time-delayed method</i>	Telephone	Snail-Mail	Email	Video Tape Distribution	Cable	Compressed Video	Other, please list

4-4 Why did you select the above methods?

Survey on Fire Service Degree Programs in the United States

4-5. Do you have plans to deliver fire service courses using distance education methods?

___ No: main reason for not using distance methods: _____

___ Yes: if yes, which courses will you start with? _____

Section 5: Program Coordinators/Directors Perceptions

5-1 What do you consider to be the top five challenges facing fire service degree programs?

- a. _____ b. _____
c. _____ d. _____
e. _____

5-2 What changes will you be making in the degree program over the next three years?

Please indicate how you feel toward the following:

		Strongly Disagree	Disagree	Agree	Strongly Agree
5-3	My institution provides adequate funding for the fire service degree program.				
5-4	The primary goal of a fire service two-year degree program is to prepare students for employment in the fire service.				
5-5	Professors teaching in fire service degree programs have limited access to fire service related professional development opportunities.				
5-6	Increasingly, higher education is being accepted in the fire service.				

Please answer these questions related to the National Fire Academy (NFA) and academic fire program issues of a national scope:

5-7 I support the idea of a national model curriculum for a fire science or management associate degree program. This model curriculum would include a common course title and description, recommended number of hours and academic level (e.g., 100 or 200 level) for which all fire science associate degree programs could strive. The goal is to facilitate student transfers between schools and create a standard core set of national academic-level competencies.

___ No, I do not support this idea, the main reason being: _____

___ Yes, I support this idea and believe the courses should be:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |
| 7. _____ | 8. _____ |

Survey on Fire Service Degree Programs in the United States

5-8 I support the idea of a national model curriculum for a fire science or management baccalaureate degree program (for the same reasons as above).

____ No, I do not support this idea, the main reason being: _____

____ Yes, I support this idea and believe the courses should be:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |
| 7. _____ | 8. _____ |

5-9 I use NFA hand off courses as part of my degree program.

____ No, why not? _____

____ Yes, please provide the following information:

Fire Science Course Title and Number	NFA Course(s) ("Hand off" or other)	Percentage of NFA course used in Curriculum
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____

5-10 Are you active in the NFA's Fire and Emergency Services Higher Education Consortium (FESHEC)?

____ No, why not? _____

____ Yes

Note: For more information about FESHEC, please contact NFA's Ed Kaplan by phone (800) 238-3358, x 1127 or (301) 447-1127 or e-mail (Ed.Kaplan @fema.gov).

Thank-you for your assistance. Please be sure to **fax** the completed survey to (979) 847-9304 or mail your completed survey in the self addressed stamped envelope.

Thomas B. Sturtevant, Program Manager
TEEX-ESTI, Texas A&M University
301 Tarrow, Suite 138
College Station, TX 77840-7896

Fax: (979) 458-4129
Phone: (979) 458 - 1821
Email: thomas.sturtevant@teexmail.tamu.edu

APPENDIX B

INVITATION LETTER FROM THE NATIONAL FIRE ACCADEMY



Federal Emergency Management Agency
United States Fire Administration
National Fire Academy
Emmitsburg, Maryland 21727-8998



41000

Dear Academic Fire Programs Coordinator:

Last year the U. S. Fire Administration's National Fire Academy (NFA) hosted the first Fire and Emergency Services Higher Education Conference in Emmitsburg, Maryland. The conference signified the beginning of a new national partnership of colleges and universities committed to educating those who respond to emergencies, large and small. A summary of the conference outcomes is enclosed for your information.

We are pleased to announce this year's conference dates and the arrangements you will need for your travel planning. The dates are June 1 - 3 with travel days being May 31 and June 4. A preliminary conference agenda is enclosed for your information. Travel and meal costs (\$50.80) must be borne by the attendees; however, NFA will provide lodging at no charge. Transportation to and from Baltimore-Washington International Airport near Baltimore, Maryland, will be provided on the travel days. You may book your travel plans now, although special attention should be paid to the airport transportation times contained in the enclosed "Specific Course Information" sheet.

I also call your attention to the "Survey on Fire Service Degree Programs in the United States" which is enclosed in this package. We encouraged Mr. Thomas Sturtevant to pursue this survey as part of his doctoral dissertation because it is long overdue and sorely needed. Even if you cannot attend the conference, your participation in the survey will help us in program planning for the future. His survey will be a national database unlike any other for those institutions offering academic fire and emergency service degrees. We will post his results on our web page. You can also complete his survey online at the Texas A&M website provided in Mr. Sturtevant's cover letter.

If you have any questions, please contact Mr. Edward Kaplan on 1-800-238-3358, ext. 1127 or 301-447-1127 or by Email at Ed.Kaplan@fema.gov. We hope you can attend this conference and look forward to seeing you in June.

Sincerely,

Dr. Denis Orical
Superintendent

Enclosures

APPENDIX C
SURVEY COVER LETTER

**Survey on Fire Service Degree Programs
in the United States**

April, 2000

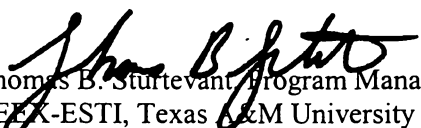
Dear Fire Service Coordinator/Director:

You are being asked to voluntarily participate in a national study focused on two-year and four-year fire service degree programs. The study is being conducted to determine the status of fire service degree programs in the United States. By participating in the study, you will help support recent national efforts to enhance education in the fire service. The last time such a survey was conducted was over twenty years ago.

Please take a moment to complete the Internet version of the survey at <http://wtonline.wtamu.edu/eval/fma/> or fill out and return the attached paper survey. Please see the web site or paper survey for definitions of "Fire Service Degree Program" and actions to take if your institution does not offer such a degree. The questionnaire is coded for follow up purposes only. All of your answers will be kept completely confidential. Presentation and analysis of data will not be institution specific and institutional anonymity will be safeguarded. Results will be available on the National Fire Academy's Web site at http://www.usfa.fema.gov/nfa/tr_high.htm.

Some of the data collected in this study will be used as part of a doctoral dissertation being completed at the University of Tennessee. In keeping with the University of Tennessee's regulations regarding the protection of human subjects, your return of the questionnaire will be considered your informed consent to participate in the study.

Thank you in advance for your participation.


Thomas B. Sturtevant, Program Manager
TEEX-ESTI, Texas A&M University
301 Tarrow, Suite 138
College Station, TX 77840-7896

Phone: (979) 458-1821
Fax: (979) 847-9304
Email: thomas.sturtevant@teexmail.tamu.edu
Home: sturtevant@tca.net

APPENDIX D

EXAMPLE OF INITIAL FOLLOW UP EMAIL

-----Original Message-----

From: Thomas B. Sturtevant [mailto:sturtevant@tca.net]

Sent: Sunday, June 25, 2000 11:01 PM

To: Coordinators/Directors

Subject: Survey on Fire Service Degree Programs in the United States

Please forward this email to the Coordinator/Director of your Fire Science Degree Program. Thanks!

I am conducting a survey on fire related degree programs in support of recent national efforts to enhance higher education in the fire service. I am attempting to contact as many coordinators/directors as possible to encourage them to complete the survey.

We need to know about your program and your thoughts and opinions on fire service related degree programs. Would you please take a few minutes and complete the web version of the survey at (<http://wtonline.wtamu.edu/eval/fms>). I have also attached a Word and PDF version of the survey that you can print and then returned via fax or mailed.

Thank-you in advance for your time and assistance.

Thomas B. Sturtevant
Program Manager
Online Emergency Management Administration Degree
West Texas A & M University
Email: thomas.sturtevant@teexmail.tamu.edu
(979) 458-1821 (Work)
(979) 847-9304 (Fax)



survey1.pdf
(160KB)



Survey1.doc
(130KB)

APPENDIX E

EXAMPLE OF FINAL FOLLOW UP EMAIL

-----Original Message-----

From: Thomas B. Sturtevant [mailto:sturtevant@tca.net]

Sent: Tuesday, August 01, 2000 12:05 PM

To: Coordinators/Directors

Subject: Survey on Fire Service Degree Programs in the United States

I am conducting a national survey on fire service degree programs and am attempting to contact as many coordinators/directors as possible to encourage them to complete the survey.

Would you please forward this email to the Coordinator/Director of your Fire Service Degree Program. If your institution does not offer such a degree, would you kindly reply to this email and I will remove you from the list.

Thank-you for your assistance.

Dear Coordinator/Director,

I am conducting a survey on fire related degree programs in the United States. It is important to realize that a survey like this has not been conducted in over 25 years. Because of this and the national scope of the current study, your thoughts and opinions are important for the information collected to be meaningful and useful.

I know your time is valuable and your schedule hectic... but would you please take a few minutes in the next day or two and complete the web version of the survey at (<http://wionline.wtamu.edu/eval/fma>). The questions were designed to be answered without having to collect information from other sources. Many questions ask you to estimate the number or percentage of something. I have also attached a Word and PDF version of the survey that you can print and then returned via fax or mailed.

As educators, we emphasis the need for research to expand the body of knowledge. As fire service professionals, we strive to reduce the devastating effects of fire on lives and property. Participating in this study will help accomplish both of these goals.

Thank-you in advance for you time and assistance. Have a Great Fire Safe Day!

Thomas B. Sturtevant
Program Manager
Online Emergency Management Administration Degree
West Texas A & M University
Email: thomas.sturtevant@teexmail.tamu.edu
(979) 458-1821 (Work)
(979) 847-9304 (Fax)



surveyr1.pdf
(160KB)



Surveyr1.doc
(130KB)

APPENDIX F

FIRST TWO SECTIONS OF THE SURVEY WEB SITE

**Welcome to the
Survey on Fire Service Degree Programs in the United States
web site!**

This study is being conducted to gather information about fire service degree programs in the United States. If your institution does not offer such a degree program, please complete the "Tracking and Follow-up Information" section to help us gain accurate information on Fire Service Degree Programs in the United States. This survey is intended to be completed by the Coordinator/Director of the program.

Please answer the questions as accurately as possible. If you offer more than one fire service degree on the same level, please answer questions for the most popular of the degree programs. Please fill out a separate survey for programs offered at different levels.

All of your answers will be kept completely confidential and will only be used in the aggregate for your region or for national totals. By completing this survey you give informed consent as required by the University of Tennessee Human Subjects committee.

If you have any questions, [follow this link to contact information.](#)

Tracking and Follow-up Information	
<i>This section asks information for tracking and follow-up purposes only and will be removed at close of data collection.</i>	
i	Please provide the name of your Institution and State: Institution: Select Your State: ▼
ii	Please provide your email:
iii	Does your institution offer a fire service related degree? For the purpose of this study, a "fire service degree program" is defined as a formalized instruction program offered by higher education institutions that prepare individuals for firefighting, fire protection specialist, fire service administration, and related emergency services. ☒ No If no, follow this link to exit. ☐ Yes If yes, please continue with the survey below.

Section 1 Degree Program Information

This section asks you basic questions about your degree program.

1-1	Please provide the following degree program information: Name of degree as it appears on the diploma: Level of degree: AS , specify if other: Please list any concentrations/options:																					
1-2	Please identify the percentage of general education courses and technical courses within the degree program % General education (courses such as English, speech, math, psychology, history...) % Technical (courses directly related to field such as fire science courses, emergency medical courses, hazardous materials...)																					
1-3	Considering just the technical courses in the degree program, approximately what percentage of these courses are: <table border="1"> <thead> <tr> <th></th> <th>Municipal</th> <th>Industrial</th> </tr> </thead> <tbody> <tr> <td>Suppression</td> <td> </td> <td> </td> </tr> <tr> <td>Medical</td> <td> </td> <td> </td> </tr> <tr> <td>Rescue</td> <td> </td> <td> </td> </tr> <tr> <td>Hazmat</td> <td> </td> <td> </td> </tr> <tr> <td>Supervision/administration</td> <td> </td> <td> </td> </tr> <tr> <td>Other, please specify: </td> <td> </td> <td> </td> </tr> </tbody> </table>		Municipal	Industrial	Suppression			Medical			Rescue			Hazmat			Supervision/administration			Other, please specify:		
	Municipal	Industrial																				
Suppression																						
Medical																						
Rescue																						
Hazmat																						
Supervision/administration																						
Other, please specify:																						
1-4	What do you consider the primary purpose of the degree program? (please check one) ☐ pre-employment (prepare students for entry into the emergency service field) ☐ advancement (prepare current emergency service personnel for advancement) ☐ both, if so, what percent of the graduates: % are pre-employment, % are advancement ☐ Other, please explain:																					

1-5	Which of the following is accepted toward the fire service degree: (check all that apply) ☐ other institution's technical college level courses ☐ vocational course ☐ Academic Council on Education (ACE) recommended courses/hours (military courses, NFA courses...) ☐ life experience, portfolio and/or experiential learning ☐ National certification, which certification? ☒ IFSAC, ☐ ProBoard, ☐ Both, ☐ Other; explain: ☐ State certification and/or national certification ☐ Fire Department Courses ☐ other : please explain:
1-6	Does this degree program articulate with a higher degree? ☐ No ☐ Yes, what degree program(s) does it articulate with?
1-7	Can students receive state or national certification upon successfully completing any of the fire service courses in the program? ☐ No ☐ Yes, which ones?
1-8	Excluding the curriculum committee or similar faculty committee, who has the most control over fire service courses such as adding a new course or making changes to existing courses? Please select one from the follow ing: Other/comments:
1-9	This institution is: ☐ Public, ☐ Private
1-10	Is your institution regionally accredited? Please select one from the follow ing: Other/comments:

APPENDIX G

WEB PAGE DISPLAY CONFIRMING SURVEY SUBMISSION

"Thank-you, we have received your information.

The information you provided will help gain a better understanding of fire service degree programs in the United States.

Results of this study will be available on the National Fire Academy's Web site at http://www.usfa.fema.gov/nfa/tr_high.htm.

Have a Fire Safe Day!"

APPENDIX H

TABLE A-1

COMPLETE LISTING OF REPORTED ASSOCIATE AND BACHELOR LEVEL DEGREE NAMES

TABLE A-1

COMPLETE LISTING OF REPORTED ASSOCIATE AND BACHELOR LEVEL DEGREE NAMES

Associate Level Degree Names	Frequency	Percent
Fire Science	55	29.9
Fire Science Technology	49	26.6
Fire Protection Technology	24	13.0
Fire Technology	22	12.0
Fire Technology and Administration	3	1.6
Emergency Services Technology	2	1.1
Fire Command Administration	2	1.1
Fire Protection	2	1.1
Fire Protection Technician	2	1.1
Fire Service Administration	2	1.1
Fire Service Technology	2	1.1
Others (each with a frequency of one)	19	10.33
Emergency Services Fire & Rescue Technology		
Fire Service Officer Fire & Emergency Response		
Fire Science Curriculum Fire & Emergency Services		
Fire Science and Safety Fire Science & Administration		
Fire Protection Science Fire Science Management		
Public Fire Service Fire Science Administration		
Safety Technology Fire Command & Administration		
Fire Protection Engineering Technology		
Fire Science Administration and Technology		
Occupational Safety, Health, and Fire Science		
Protection Services Fire & Rescue		
Technical Studies in Firefighter/ Paramedic		
Total	184	100
Bachelor Level Degree Names	Frequency	Percent
Fire Science	6	23.1
Fire Administration	3	11.5
Fire Science Administration	3	11.5
Fire Services Administration	3	11.5
Fire Science Management	2	7.7
Others (each with a frequency of one)	9	34.62
Fire Protection Science Fire & Emergency Services		
Fire & Safety Technology Public Safety Administration		
Fire Management Administration		
Fire Protection Engineering Technology		
Fire Science and Fire Protection Engineering		
Occupational Safety, Health, and Fire Science		
Technical Education and Training		
Total	26	100

APPENDIX I

TABLE A-2

**COMPLETE LISTING OF THE MOST POPULAR FIRE SERVICE DISTANCE
EDUCATION COURSES**

TABLE A-2

COMPLETE LISTING OF THE MOST POPULAR FIRE SERVICE DISTANCE
EDUCATION COURSES

Distance Education Courses	Frequency	Percentage
Management (Emergency, Fire Service, Personnel)	14	10.69
Fire Prevention (Fundamentals, Introduction)	11	8.4
Administration (Business, Fire, Fire Service)	10	7.63
Fire Investigation (Arson)	10	7.63
Building Construction	8	6.11
Hazardous Materials	8	6.11
Instructional Methodology, Instructor	8	6.11
Introduction to Fire Protection	7	5.34
Fire Protection Systems (Detection, Suppression)	5	3.82
Strategy & Tactics	5	3.82
All Others	45	34.35
Analytic Approaches to Public Fire Protection (2)		
Blueprint Analysis (1), Industrial Hygiene (2)		
Company Officer (1), Leadership/Supervision (1)		
Confined Space (1), Industrial Fire Protection (1)		
Emergency Laws, Standards, and SOPs (1)		
Emergency Service (Introduction, Fundamentals) (4)		
Fire Behavior/Building Design (1)		
Fire Chemistry (2), Fire Technology (2)		
Fire Codes (2), Fire Law (2)		
Introduction to Fire Science (2)		
Fire Suppression Operations (1), EMT (1)		
Firefighting, Essentials, Introduction (2)		
Fireground Tactics (1), Incident Command (4)		
Hydraulics, Fire Service (2), Aircraft Fire Protection (1)		
Industrial Safety & Loss Prevention (1)		
Life and Fire Safety Educator (1)		
Master Planning (1), Risk Management (2)		
Political and Legal Foundations of Fire Protection (3)		
Total	131	100

VITA

Thomas B. Sturtevant was born on February 14, 1960. He grew up in North Gorham, Maine, and was graduated from Gorham High School in 1978. Mr. Sturtevant began his fire-fighting career with four years in the United States Air Force. He then moved to California in 1982 where he continued his fire-fighting career as a Captain and then Battalion Chief of Operations with Southern California Edison's San Onofre Fire Department. In 1987 he moved to Chattanooga, Tennessee, where he spent four years with the Tennessee Valley Authority as Fire Protection Specialist and then Senior Instructor. Mr. Sturtevant earned a bachelor degree from Tusculum College, Greenville, Tennessee, in 1988.

In the summer of 1989, Mr. Sturtevant began working for Chattanooga State Technical Community College (CSTCC) as the Coordinator of Fire Science Technology. In 1993 he earned a Master Degree in Public Administration from the University of Tennessee at Chattanooga. In 1997, the author began a doctoral program with the University of Tennessee, Knoxville. After ten years with CSTCC he left in 1999 as a tenured Associate Professor and the Interim Dean of Distance Education. Mr. Sturtevant is currently with the Emergency Services Training Institute responsible for managing and teaching in the Emergency Management Administration online bachelor degree at West Texas A & M University.

Mr. Sturtevant lives with his wife Karen and their three children, Rachel, Hannah, and James.