

## **CHAPTER III**

### **METHOD**

This chapter presents the methods and procedures used in the collection and analysis of the data for this research. Specifically, this chapter discusses the research sample, the selection of the research subjects for the study, the survey instrument, the research design, data collection procedures, data analysis, limitations, and a summary.

#### **Overview**

This research used descriptive and evaluative methods to answer the research questions. The literature review focused on two broad sources: federal training agencies and academic programs. The research method was to conduct individual interviews with each of the NFA Program Chairs to develop information about their perception of the problems, if any, that they have dealt with that had program delivery implications, and their projected potential solutions. In addition, the study included a written census survey of all of the approximately 500 existing NFA resident program contract instructors. According to L.R. Gay the census survey seeks to acquire data from all members of a population (1987, p. 192).

As the survey instrument was being developed contract instructor input was solicited on two occasions: in the development of the issues asked about in the instrument, and later in the pilot test of the instrument. After their pilot test review this survey instrument was presented to the NFA Research Coordinator, Dr. Burton Clark, for suggested changes, as required by the NFA contract. Rossett indicated that there are two types of pilot testing: intimate and expanded. Intimate pilot testing uses the opinions of other training professionals, such as Dr. Clark; while expanded pilot testing uses representatives from the actual population that will ultimately complete the instrument (Rossett, 1987, p. 220). This expanded pilot test was completed by two different groups of NFA contract instructors who were on campus during two different two-week periods. After the pilot test the survey instrument was revised, and was then mailed, beginning in February, 1997, to each of the resident contract instructors at the address provided by the NFA Procurement Division.

### **Research Sample**

The population of this study was comprised of the National Fire Academy's resident program contract instructors. No prior attempt had been made to survey these personnel. The researcher made no attempt to include the field program instructors in the study since this was outside of the scope of the federal contractual agreement that he had with the NFA. Initial estimates were that this group of resident contract instructors could number as many as 550. However, their actual number, provided to the author by the NFA, on pre-printed mailing labels, was 536. All 536 of these were included in the research sample. This represented 100% of the NFA's resident contract instructors.

### **Selection of Subjects**

Having chosen the research sample to be examined in this study, next the survey participants were selected. Initially, due to mailing expenses, it was intended that only a portion of the total number of contract instructors was to be surveyed. However, the researcher felt that the survey should be sent to all 536 contract instructors to get a more comprehensive view of their beliefs. Thus, this was done, using the NFA-provided pre-printed mailing labels.

### **Survey Instrument**

A literature review in the field was also conducted to facilitate the development of the survey. It was determined that no such question battery existed for this specific type of study. As a result the researcher developed his own survey from scratch. Paul and Bracken believe that such custom-designed surveys can yield invaluable organization-specific information (1995, p. 49).

Meeting off-campus, but in the town of Emmitsburg, MD, with six instructors in early December, 1996, a first draft instrument was developed. The instructors were provided with research questions 1, 2, and 3. They were then asked to describe examples of survey questions and answers that addressed major concerns associated with these research questions. Later, the researcher designed the demographic portion of the survey. The resulting first draft questionnaire was tested once in the field with a group of seven different contract instructors, who were on campus in Emmitsburg, MD, during January, 1997. This was done to help insure content validity

of the instrument. It took the field test contract instructors approximately eight minutes to complete the instrument. This first draft instrument is included as Appendix B.

Although this expanded pilot test (Rossett, 1987) was completed by a non-random convenience sample the result was a revision of the instrument. In particular, the instrument's format was changed to improve understanding of the questions. In addition, apparent ambiguities were excluded from the questions. Finally, additional questions were inserted, the response scale was modified and the instrument was printed. This final version of the survey, included as Appendix C, consisted of two separate parts: one dealing with demographic data, and the other with needs perception. The survey was placed on the front and back of plain bond paper, and was designed to be completed in approximately ten minutes.

Part One of the survey, "Your demographic data", consisted of four items designed to profile participating contract instructors according to age, primary NFA teaching area, years of experience in primary NFA teaching area, and number of years that they have taught at NFA.

Part Two of the questionnaire, "Perception of your needs", included five items, each of which dealt with an area of concern, plus an additional unstructured final item. The five areas of concern were:

"The types of instructional problems encountered while contracting with the NFA",

"Administrative support services necessary for orientation of new instructors",

"Administrative support services necessary to assist instructors in program delivery",

"Administrative support services necessary to help instructors with evaluation processes, student testing, program evaluation, etc.", and

"Administrative support services necessary to assist instructors with their professional development as it specifically relates to NFA programs".

For each of these five areas of concern there were three listed items, where participants could check only one of three boxes for each: "agree", "neutral", or "disagree." In addition, participants could write in comments for each area of concern, in the section titled "Other (please

specify).” The last item, Question #10, “Other related comments and recommendations”, provided space for the participants to write in any final comments.

### **Research Design**

This study was descriptive in nature in that it sought the perceptions and opinions of NFA contract instructors regarding their concerns about instructional problems that they have encountered and the administrative support services that they view as necessary. The contract instructors examined, via the questionnaire, were categorized according to personal/professional factors and teaching areas.

The NFA contractual agreement with the researcher allowed personal interviews of the ten Program Chairs. They were queried to determine the answer to research question 4, “What are the problems, if any, that Program Chairs have dealt with that have implications for effective program delivery?”

Irving Seidman recommends a three interview series: focused life history, details of the experience and reflection on the meaning. Ideally, each interview would be held on a separate occasion. This allows the interviewer and the participant, who have never met before, to develop a context for the interview process (1998, p. 11). The NFA Program Chairs and the researcher, however, have not only met before but four of the ten Program Chairs have worked extensively with the researcher over a period of at least 15 years. As a result the researcher met individually with each of the Program Chairs on one occasion. Using a 10 question instrument (Appendix F), the researcher briefly inquired about each Program Chairs’ professional life history at NFA (questions 1 and 2) and details of their experience with NFA contract instructors (questions 3 thru 8). The Program Chairs were then provided with Tables 1 thru 21, which are included in Chapter IV. Each Program Chair had an opportunity to review the tables, which report on the survey results of 245 NFA resident contract instructors. Several asked questions about the data contained in the tables. They were then asked to reflect on the meaning of the tables, and if necessary to amend their earlier answers (questions 9 and 10).

## **Data Collection Procedures**

### **Surveys**

The permission to collect the data from the resident contract instructors was provided by the Superintendent of the NFA, Dr. Denis Onieal, and formalized in a written no-cost contract between the government (NFA) and the researcher. After development of a draft survey, with contract instructor input and a field test, the NFA's research coordinator, Dr. Burton A. Clark, reviewed the instrument as required in the no-cost contract. Then, the final version was prepared and distributed, by mail, to all of the resident contract instructors. This was accomplished via the government-provided pre-printed mailing labels. Each survey form, consisting of two pages was placed in a stamped envelope along with a return self-addressed stamped envelope and a cover letter. The cover letter explained the purpose of the study, provided information on how to complete the survey, promised anonymity, requested cooperation in the completion and return of the survey, and offered to send an executive summary of the results to those requesting one. The cover letter asked for the survey to be returned by no later than March 8, 1997. The cover letter is included as Appendix D.

The surveys were sent via the U.S. Postal Service, commencing on February 1, 1997. Survey mailing was completed on February 8, 1997. Of the 536 questionnaires mailed to the resident contract instructors, 245 were returned to the researcher, all of which were usable. Due to apparent address changes, forwarding order expiration, and other mail delivery problems eight envelopes were returned by the U.S. Postal Service as undeliverable. The return rate of usable questionnaires was 45 percent.

### **Interviews**

The interviews of the NFA Program Chairs were conducted after the analysis of the survey data. There are ten Program Chairs. The researcher attempted to interview all ten. However, given the fact that they must be available for training, temporary and disaster duty assignments, which sometimes causes them to be in the field for several weeks, it was only feasible to interview eight of them.

The interviews were conducted individually with each Program Chair on April 30, 1998, and proceeded by asking about the problems perceived in his/her working relationship with

contract instructors. The responses were recorded. Then, the researcher shared the results of the contract instructor survey data with the Program Chair. Finally, the researcher solicited the Program Chair's additional or amended comments, after he/she had an opportunity to review the contract instructor survey data. The results of each interview were categorized and summarized. The resulting information was used in two ways: 1) to provide data to answer research question 4, and 2) to support and add richness to the data derived from research questions 1-3.

### **Data Analysis**

The returned, usable questionnaires were analyzed, both quantitatively and qualitatively. The quantitative items (survey questions 1-9) were analyzed by using descriptive statistics including central tendency and frequency distributions, and inferential statistics using the Chi Square Test of Comparison. The multiple choice items of the questionnaire were coded numerically and then transcribed for analysis. Contract instructors' responses to the open-ended questions were categorized and coded for analysis. The most recent version of the *Statistical Package for the Social Sciences* (SPSS) (Norman Nie and Associates, 1994) was used to develop computerized quantitative data. The research questions and the analysis approaches are described below.

1. What are the problems, if any, that NFA contract instructors have had that have implications for effective program delivery?  
Analysis Approach: This research question was analyzed using frequency distributions of the responses to each of the three parts of survey question #5, which deals with problems encountered by NFA contract instructors. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of the problems that may have implications for effective program delivery? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the number and type of problems encountered by contract instructors that have implications for program delivery. The results were analyzed using the Chi Square Test of Comparison.

2. What are the administrative support services, if any, that should be provided to contract instructors in the areas of:

A. Orientation of new instructors?

Analysis Approach: This research question was analyzed using frequency distributions of the responses to each of the three parts of survey question #6, which deals with the administrative support services necessary for orientation of new instructors. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of the need for an orientation program for new instructors? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the contract instructors perception of the need for an orientation program for new instructors. The results were analyzed using the Chi Square Test of Comparison.

B. Program delivery?

Analysis Approach: This research question was analyzed using frequency distributions of the responses to each of the three parts of survey question #7, which deals with the administrative support services necessary to assist instructors in product delivery. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of the administrative support services needed for product delivery? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the number and type of administrative support services needed for product delivery by contract instructors. The results were analyzed using the Chi Square Test of Comparison.

C. Evaluation processes?

Analysis Approach: This research question was analyzed using frequency distributions of the responses to each of the three parts of survey question #8, which deals with the administrative support services necessary to help contract instructors with evaluation processes, student testing, program evaluation, etc. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of the administrative support services needed for evaluation processes? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the number and type of administrative support services needed to help contract instructors with evaluation processes. The results were analyzed using the Chi Square Test of Comparison.

D. Professional development?

Analysis Approach: This research question was analyzed using frequency distributions of the responses to each of the three parts of survey question #9, which deals with the administrative support services necessary to assist instructors with their professional development as it specifically relates to NFA programs. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of the administrative support services needed to assist instructors with their professional development as it specifically relates to NFA programs? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the number and type of administrative support services needed to assist instructors with their professional development as it specifically relates to NFA programs. The results were analyzed using the Chi Square Test of Comparison.

3. What other administrative support services, if any, would assist contract instructors in providing instructional services?

Analysis Approach: This research question was analyzed using frequency distributions of the responses to survey question #10, which is an open-ended question that provides space for respondents to add any other comments which they believe to be pertinent. These comments were categorized and coded with respect to the types of support services indicated. A related question was: do certain personal and professional characteristics of NFA contract instructors influence their perceptions of other administrative support services that would assist instructors in providing instructional services? To answer this related question selected personal and professional factors, extracted from the survey's demographic section, were analyzed to determine their effect, if any, on the number and type of administrative support services, if any, that would assist instructors in providing instructional services. The results were analyzed using the Chi Square Test of Comparison.

4. What are the problems, if any, that Program Chairs have dealt with that have implications for effective program delivery?

Analysis Approach: The Program Chairs' answers to the interview questions were classified into different categories and the results summarized.

### **Limitations**

This research only dealt with the NFA contract instructor faculty that conduct resident programs on campus. The needs of the contract instructors that conduct field programs were beyond the scope of the research. Since these personnel do not offer classes at the Emmitsburg campus their administrative support requirements, procedures and professional development may be different. Also, the research was only concerned with the management needs of the resident program contract instructors after they have been selected as such. Thus, the proposed research did not deal with procurement regulations or selection procedures.

A further limitation is that the generalizability of the research findings to other civilian federal, state and local training agencies, who also use contract instructors, must be undertaken

with great care. Other civilian federal, state and local training agencies will have different organizational cultures, missions, goals and objectives, and operational policies. However, there are elements -- such as methods of performance assessment, instructional delivery, training program management -- that cut across institutional lines and have pertinence for any training organization.

### **Summary**

This chapter presented the methods and procedures used in the collection and analysis of the data for this research. Specifically, this chapter included an introduction, then discussed the research sample, the selection of the research subjects for the study, the survey instrument, the research design, data collection procedures, data analysis, limitations, and a summary.