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**Polygraph Examiners in the United States:
Who Are They, What Do They Practice,
And What Are Their Views About Their Field?**

presented by

Brian Patrick Carroll

has been accepted towards fulfillment
of the requirements for

Master of Science degree in **Criminal Justice**

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POLYGRAPH EXAMINERS IN THE UNITED STATES:
WHO ARE THEY, WHAT DO THEY PRACTICE,
AND WHAT ARE THEIR VIEWS ABOUT THEIR FIELD?

By

Brian Patrick Carroll

A THESIS

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ABSTRACT

POLYGRAPH EXAMINERS IN THE UNITED STATES: WHO ARE THEY, WHAT DO THEY PRACTICE, AND WHAT ARE THEIR VIEWS ABOUT THEIR FIELD?

By

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The purpose of this study was to describe polygraph examiners' characteristics, practices and opinions on a range of issues related to polygraph testing in the United States. A questionnaire was mailed to a population of 3,654 persons, whose names were drawn from available mailing lists of private and public sources affiliated with the polygraph testing field. The original and follow-up mailings produced 1,396 (38%) usable returns, 945 (51%) from members of the American Polygraph Association (APA) and 451 (28%) from non-members. The respondents were overwhelmingly white (91%) and male (95%); their average age was 48. Other findings indicated that the majority of the respondents (65%) had at least a baccalaureate degree, had been practicing polygraphy for at least six years (78%), and had investigative experience (88%) prior to entry in the polygraph testing field. There was very high agreement on a number of important issues among the respondents; for example: Over 95% favored licensure of examiners, continuing education requirements and participation in a supervised internship program. A majority of respondents favored a baccalaureate degree requirement for entry into the field. Statistical

analysis revealed that the category of employment, that is whether a State, Private or Federal examiner, was generally related to differences in practices and opinions. The use of control variables, including education (degree/no degree), membership in the APA, and experience (high, moderate, low) suggested that in some cases these variables were more important than the category of employment in explaining differences between respondents. Respondents were in agreement on the three issues of greatest importance to the field: Basic training, credentials of those seeking training, and research.

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Chapter I

Statement of the Problem

In the literature on occupations and professions there are numerous articles highlighting the qualities and characteristics of individuals within certain work groups. These traits or characteristics are defined in an attempt to build a theoretical model with which occupational groups can be analyzed. This knowledge is crucial in both understanding the similarities and differences between occupations and in differentiating occupations from professions.

It has been recognized for decades that an occupation is best understood by understanding those individuals who make it up (Millerson, 1964). The polygraph field is not an exception. Unfortunately, very little is known about the members of this occupation. With this lack of information, it is very difficult to increase professionalism within the polygraph field. Once the characteristics and backgrounds of polygraph examiners are known, the field can attempt to change its position on one or more dimensions of the occupation-profession continuum, moving toward professional status.

This is the first survey that attempts to provide systematic information about polygraph examiners in the United States. In the past, extensive research has focused on technical issues dealing with polygraph testing, yet little attention has been devoted to the backgrounds, attitudes, and beliefs of individual examiners. Gaining a

better understanding of polygraph examiners will serve as a catalyst in understanding this field. This, in turn, will provide a better perception of where the polygraph field fits in with other occupations.

Need for the Study

In the United States professionalism has grown rapidly. Many occupations in the twentieth century, including the polygraph field, are systematically attempting to gain professional status. The common theme surrounding these occupations seems to be a high degree of technical competence in the members of the occupation (Dingwall and Lewis, 1983).

When studying the polygraph field, the competency level of examiners is very important. Because of this, much emphasis needs to be placed on the qualities and characteristics of polygraph examiners. Almost all observers agree that the qualities and characteristics of polygraph examiners are the most important considerations in assessing the accuracy of polygraph testing (Reid and Inbau, 1966; Graham, 1986; Nagle, 1993). Because the polygraph instrument cannot itself detect deception, a polygraph examination requires a competent examiner who infers deception or truthfulness based on the process and results of the polygraph examination.

The accuracy of polygraph testing can be influenced in a variety of ways. The competent polygraph examiner, however, is the most influential factor to an effective examination. Ferguson (1966) mentions that the success or failure of the

examination does not depend on the actual polygraph instrument used. The polygraph, by itself, is said to account for an approximate 10% of the total examination effectiveness. Instead, the characteristics and qualities of the examiner and the testing process are estimated to be 90% responsible for a successful conclusion. With these points in mind, it is important that data be collected on polygraph examiners to gain more insight into this field. More specifically, attention should be devoted to understanding who polygraph examiners are, what they practice, and what their views are about the polygraph field.

Employee Protection Polygraph Act

The most damaging blow to the polygraph field was a result of the passage of the Employee Polygraph Protection Act (EPPA). When this act became law on December 27, 1988 it established guidelines and restrictions for most private employers. Local, state, and federal governmental agencies were not affected by the law, nor were public agencies, such as correctional institutions or school systems (EPPA, 1988).

In general, businesses cannot require a job applicant to take a pre-employment polygraph examination or require a current employee to take an examination. A business can request a current employee to take a polygraph examination, but certain conditions must be satisfied. If the employee refuses a request, the employer cannot discipline or discharge the employee based on the refusal to take the polygraph examination (EPPA, 1988).

There are some exemptions in EPPA for certain private businesses. For example, some businesses under contract with the Federal Government involving specific activities may be exempt. Also, companies that manufacture, distribute, or dispense controlled substances are also not affected by EPPA. The same holds true for security personnel who have a significant impact on the safety of society. Security personnel in a nuclear power plant or toxic waste disposal site would fit into this category. Lastly, businesses involved in security alarm systems or those which provide armored car personnel are also exempt (Cross, 1989).

Despite allegations of the inaccuracy and unreliability of the polygraph, there is evidence that polygraph examinations are accurate and reliable (Department of Defense, 1984). EPPA implicitly recognizes this by exempting both public employers and some private businesses from its prohibitions (Cross, 1989). Many feel that EPPA may have been prevented if there had been a clearer understanding of the polygraph field.

Public Opinion

Critics, who often do not understand polygraph testing, often make exaggerated claims. Some critics charge that most examiners are unqualified and incompetent. Other opponents argue that there is a lack of reliability and validity pertaining to polygraph testing. Some simply feel that polygraph testing is offensive, due in part to an invasion of privacy. An example of such strong opposition was seen during

the Watergate hearings when Senator Sam Ervin rejected a suggestion that witnesses be polygraphed, saying that the "contraptions are nothing more than 20th century witchcraft" (Elmore, 1981, p. 99).

Proponents point out that when properly carried out, polygraph testing is valid and reliable. These individuals feel that it is not an infringement on personal rights. The general public as well as those who have taken polygraph examinations are in greater agreement with the proponents. For example, in a national survey of a representative sample of 1,512 persons in the United States, 65% of the respondents reported that they did not object to taking a polygraph examination in an employment setting, even if it were mandatory. In addition, 81% felt that there should be polygraph testing to screen individuals in sensitive positions, such as those that have access to classified information (Horvath, 1987).

There have been similar findings in surveys that examined the attitudes of persons who have actually taken a polygraph examination in commercial settings (Horvath and Phannenstill, 1987). In these surveys, 82% of the individuals reported that they thought that polygraph screening was fair and a similar percentage reported that the test was both not objectionable and not an invasion of their privacy. Eighty-four percent of the respondents also agreed to take a polygraph examination again to gain employment. Similar findings were found by Putnam (1978) on applicants who took a

polygraph examination for police work. Finally, in another study of applicants for the National Security Agency, 74% of the individuals surveyed reported that polygraph screening was fundamental in protecting security and a great majority, 91%, agreed to take further testing if required (Department of Defense, 1984).

In summary, polygraph testing is not generally viewed by the public as an unfair or offensive practice. On the contrary, the available research indicates considerable public support for polygraph testing. Polygraph testing is also positively viewed by those who have taken a polygraph examination.

Despite both the considerable public support for polygraph testing and the literature supporting the accuracy of polygraph testing, there continues to be nationwide controversy surrounding the field. Many individuals and groups, including those with significant political power, continue to voice their opposition. With the exception of EPPA, the polygraph field has been able to overcome these opponents. Being able to withstand such severe and rigorous opposition for so long, is one indicator of the strength and determination of the polygraph field.

In a recent decision in *United States v. Scheffer* (1998) the Supreme Court upheld a ban on the use of polygraph results in the military courts. This decision by the court was damaging, at least in part, to the polygraph field. Even though opponents of polygraph testing will certainly argue

that this opinion suggests that polygraph testing is unreliable, this apparently was not the intention of the court. The majority of justices in the concurring opinion and the dissent indicate that a blanket exclusion of polygraph evidence in the military courts may not be a wise decision. Either way, persons on both sides of the issue will continue to debate their reasoning, leading to continued controversy surrounding polygraph testing.

In order for polygraph testing to continue to be a much needed and useful tool, a slightly different approach needs to take place in studying this field. There needs to be a systematic effort in understanding those individuals who make up the field (Horvath, 1995). This effort, then, is the beginning in an attempt to gain insight into the polygraph field providing for a better understanding of this occupation. The results of such a report may be utilized by researchers, the legislatures, and the courts to address the conflicting and controversial issues surrounding polygraph testing. Those who may benefit most are the polygraph examiners themselves. This study will be of value to them in describing and understanding the practices of their colleagues. It is hoped that this study will provide the interest needed to trigger future research endeavors.

Purpose of the Study

The purpose of this study is four-fold:

- (1) To describe the personal and professional characteristics of polygraph examiners in the United States.

(2) To provide a description of the different categories of examiners (federal, state, private) and how they differ in regards to their personal and professional characteristics.

(3) To describe the various attitudes, opinions, and beliefs of polygraph examiners on various issues dealing with polygraph testing.

(4) To explore the effect of examiner education, experience, and APA membership on these attitudes, opinions, and beliefs.

Study Overview

In Chapter II, after a brief discussion of the polygraph instrument and testing process, the available literature concerning the variables in this study will be reviewed. In Chapter III, the survey methodology used in this study will be discussed. An analysis of the findings of the survey questionnaire will be set forth in Chapter IV. Chapter V will discuss the study results and consider the implications for future research.

Chapter II

Review of the Literature

This chapter is divided into five sections. In the first section, a brief overview will be given regarding three general issues on polygraph testing. This section begins with the historical development of the polygraph instrument, followed by an explanation of the polygraph instrument, and concludes with a discussion of the examination process.

The second section will review polygraph examiner training. The Department of Defense (DoD) training program will be described, along with the requirements of the program. This will be explored to gain insight into some of the issues that will be investigated in chapter IV, results of the study. Quality control and issues relating to the audio and video recording of the polygraph examination will also be discussed.

Following this, examiner licensure and the examiner as an expert witness, will be investigated in order to gain more of an understanding into some of the issues that will be raised in chapter IV. More specifically, the following issues will be explored: The historical development of licensing laws, descriptions of current licensing law requirements, the debate over judicial acceptance of polygraph evidence, and the qualifications of examiners testifying in court.

In the fourth section, model policies of the International Association of Chiefs of Police, the American

Psychological Association, and the American Polygraph Association (APA) will be reviewed. There will also be a brief discussion pertaining to the APA's membership requirements.

Finally, in the fifth section, studies found in the literature specifically reporting on the differences in the ability to diagnose truth and deception between experienced and inexperienced examiners will be reviewed.

Throughout this study it is important to keep in mind that this is the first in-depth, systematic analysis of polygraph examiners. As a result, this chapter attempts to provide the reader with more insight into the polygraph field. This background will be helpful in understanding the issues that are raised throughout the remainder of the study.

Section A - Polygraph Testing

Historical Developments

In 1895, Cesare Lombroso made the earliest attempt to utilize a scientific instrument to detect deception. The Italian psychiatrist conducted several experiments on actual criminal suspects. Lombroso attempted to determine the offender's truthfulness or deception on the basis of blood pressure and pulse changes by using an instrument which he had developed called the hydrosphygmograph (Nardini, 1987).

The hydrosphygmograph was invented for medical purposes and was not originally intended to be used for the detection of deception. This instrument basically consisted of a small water filled tank. The subject's hand was placed into the

tank and the tank was sealed across the top. Changes in pulse rate and blood pressure in the subject's hand were transferred to the water and changes in the water level were then carried over into a tube leading to a revolving smoked drum (Reid and Inbau, 1966).

Lombroso reported successful results with this instrument, but did not continue his research in detection of deception. Further experiments did not take place until twenty years later when William Moulton Marston began his research. Marston, a student of Hugo Munsterberg (a Harvard psychology professor), used a sphygmomanometer for detecting deception. A sphygmomanometer was the same instrument that physicians used to record blood pressure. In detecting deception, Marston reported a 96 percent accuracy rate using blood pressure as the only measure (Ben-Shakhar and Furedy, 1990).

In 1914, Vittorio Benussi focused his research on respiration changes for the detection of deception. In test cases, Benussi measured recorded respiratory tracings. He found that the length of inspiration and the length of expiration varied depending on the truthfulness of the subject. Another pioneer in the field, Harold Burt, improved upon Benussi's techniques (Reid and Inbau, 1966).

In 1921, John Larson developed an instrument capable of recording blood pressure, pulse, and respiration. Larson used his instrument to test a number of criminal suspects while he was employed by the Berkeley Police Department. He

reported a high percentage of success in his results (Matte, 1980).

Leonarde Keeler, who was then a high school student, assisted Larson with his polygraph technique at Berkeley. Keeler went on to study psychology and in 1926 he modified Larson's instrument so that it was compact enough to be portable. Keeler was not only the first to manufacture the polygraph instrument, but he also founded the first polygraph school. In 1931, he added a galvanometer to his instrument which records what is known as the galvanic skin reflex (Reid and Inbau, 1966).

In 1945, John Reid developed a measure of muscular movements in order to detect the use of countermeasures by the subjects being examined. His instrument, the Reid Polygraph, recorded muscular activity along with changes in blood pressure, pulse, respiration, and galvanic skin reflex. Additionally, he can be credited with establishing the guilt complex test and the control question technique, both of which enhanced the accuracy of polygraph testing (Abrams, 1989).

The Polygraph Instrument

The word polygraph literally means "many writings" (Horvath, 1986). The polygraph instrument records on a moving chart the subject's physiological reactions to questions administered by an examiner. A change in the physiological responses measured by the polygraph components is transmitted to a pen and then recorded onto a chart (Reid

and Inbau, 1966).

There are three basic components to the polygraph. The first is the pneumograph tube, which measures respiration. The pneumograph tube, with the aid of a beaded chain, is fastened around the subject's chest or abdomen. This tube is attached to the polygraph instrument by a rubber hose. The inhalation and exhalation of the subject causes the tube to expand and contract; when this occurs it causes a pen on the polygraph chart to go up for inhalation or down during exhalation (Matte, 1980).

The second component is the galvanometer. The galvanometer measures small changes in skin resistance to electricity. The galvanic skin response (GSR) pen works in the same fashion as the pneumograph pens. The GSR pen sits higher in its cradle and is longer than the other pens so that it may ride over the others without colliding into them (Matte, 1980).

The last component is called the cardiosphygmograph. This device, which is similar to the medical blood pressure cuff, measures changes in blood volume and heart rate. A fourth and final pen records the actions of the cardiosphygmograph onto the chart (Matte, 1980). From this brief explanation of the components of the polygraph, it becomes easy for one to readily accept the Greek terminology of the polygraph as meaning "many writings."

The Examination Process

The polygraph examination usually consists of a pretest

interview, the polygraph test, and an analysis of the polygraph data. The pretest interview may last up to several hours, but on average it is about thirty minutes in length (Krapohl and Heckman, 1984). The pretest interview may vary depending on the purpose of the polygraph examination. In general, during the pretest interview, the polygraph examiner explains to the examinee the nature of the polygraph instrument, and what the polygraph instrument measures and how it records (Matte, 1980).

The examiner also discusses the purpose of the examination and the pertinent issues surrounding the examination process. The subject's attitudes towards the examination may be determined at this time. This may provide an outlet for the subject to release any anxieties that may be present concerning the testing process (Mullenix and Reid, 1982).

During the pre-test interview, the examiner also reviews the test questions with the subject. Along with this review, the examiner may ask questions focusing specifically on the subject's background. For example, the examiner may ask about the subject's employment history, educational background, family matters, or issues concerning alcohol or drug use. Focusing on the individual's background is beneficial in the preparation of test questions. It is essential that the examiner remain impartial and nonaccusatory during the interview (Mullenix and Reid, 1982).

The testing procedure is the second component of the

examination process. The measuring devices of the polygraph are placed on the examinee, usually at the conclusion of the pretest interview. Before the first question is asked, the examiner records the initial physiological levels. This lasts about ten to fifteen seconds and is used to get a "baseline" recording of the individual's respiration, GSR, and heart rate. During the examination the examiner waits about fifteen to twenty seconds between each question to allow for the physiological responses from the previous question to return to the "baseline" (Reid and Inbau, 1966). Upon completion of the first series of questions, the examiner may review the polygraph charts. After the review the examiner may continue to test the subject. Two or three more charts may be produced in the same fashion (Reid and Inbau, 1966).

Following the testing procedure, the review and analysis of the polygraph data is carried out. There are a number of methods for doing this. These methods depend on such things as the type of examination at hand, the testing procedure used, and the training orientation of the examiner. In any event, the examiner looks at the physiological changes which occurred with respect to the different questions asked by the examiner. The examiner then makes a determination regarding the truthfulness of the subject (Meesig, 1994). At times the examiner's review of the polygraph data may be carried out by another examiner or a supervisor as a quality control measure. This will be examined in more detail in the

following section.

Section B - Training and Quality Control

In recognition of the importance of experience, training has been a high priority both within and outside government agencies which conduct polygraph examinations and by state legislatures and polygraph examiner groups. Training is fundamental in order to increase examiner competence. Proper training needs to take place at a recognized polygraph training facility. A significant number of examiners will have been trained at a reputable polygraph school accredited by the American Polygraph Association. Additionally, these examiners may also receive refresher training to aid in retaining proficiency and adhering to specific standards and procedures. FBI examiners, for example, must undergo refresher training or in-service training at intervals not to exceed two years in order to retain their certification. They are also encouraged to conduct a minimum of forty-eight examinations per year (Furgerson, 1989).

The U.S. Army training facility was founded in 1951. The Army first began instructing its agents in polygraph testing in 1948. At that time the only polygraph school in existence was the Keeler Institute in Chicago, Illinois. The Army's training needs became so great that the Army established its own training facility at Fort Gordon, Georgia. In 1975, the polygraph school was moved to Fort McClellan, Alabama (Ansley and Garwood, 1989).

Today, one of the most recognized polygraph training

facilities is the Department of Defense (DoD) Polygraph Institute. All federal agencies train their examiners at the DoD Polygraph Institute. The school also allows state and municipal examiners to participate in advanced training courses (Department of Defense, 1996).

The DoD requires all examiners to complete 80 hours of continuing education every 2 years. The DoD encourages examiners to get involved in seminars, lectures, and short courses. Also, many DoD examiners are involved in a regional or state polygraph association. Lastly, all polygraph examiners in the DoD are college graduates, experienced investigators, U.S. citizens, and are at least twenty-five years of age (Ansley and Garwood, 1884).

The DoD also has specific training for examiners in a specially developed program in quality control. Quality control reviews are useful in the assessment of polygraph results. In the quality control review, a well-qualified and senior level polygraph examiner conducts a "blind" analysis of the polygraph charts and related documentation of another examiner. In the review, the quality control examiner checks to make sure that he/she is in agreement with the original testing examiner's conclusion as to truth and deception (Ferguson, 1989).

Quality control reviews can also consist of an analysis of the selection and construction of test questions (Higginbotham, 1990). Various operational procedures and the technique used by the original examiner can also be reviewed.

Not only does this promote consistency in the procedures used, but it also guarantees that the chart interpretations follow established standards. Lastly, the quality control review guards against examiner "contamination". This is important because it ensures the examiner's integrity (Furgerson, 1987).

In 1965, the DoD did a comprehensive study on the "blind" analysis of polygraph charts and related documentation done by other examiners. The results from this study concluded that the blind analysis was helpful in increasing the quality of polygraph examinations. This research eventually led to the formation of the polygraph quality control program that is currently being used throughout the DoD (Ansley and Garwood, 1984).

Under this program, supervisory examiners review every polygraph examination that is completed within their respective agencies. The following areas are reviewed by the supervisory examiner: Pretest interview, test and question construction, chart patterns and markings, post-test interrogation, length of the examination, and the polygraph report. Before final approval, the final polygraph report is checked for format and grammatical errors (Ansley and Garwood, 1984).

Under the topic of quality control the issue of audio and video recordings of the polygraph examination is of importance. Policy concerning the audio and/or video recordings of criminal specific polygraph examinations can

vary. Some agencies may require all examinations of this nature to be recorded or may only require a recording when examining an individual of the opposite sex. Other agencies may leave the option of recording up to the discretion of the examiner or they may not record examinations at all.

At the National Security Agency (NSA) every case is tape recorded. During the quality control process the supervisor will read the examiner's final report and then will listen to the tape to check for accuracy. There is a similar review in all Air Force counterintelligence and security examinations. The only difference between the Air Force and NSA is that both audio and video recordings are made within the Air Force (Ansley and Garwood, 1984).

Section C - Examiner Licensure

Because accurate analysis of polygraph records requires a knowledge base from several fields of study, including psychology and physiology, ideally an examiner should have a college education and some field experience (Reid and Inbau, 1966). Unfortunately, some examiners do not meet these minimum standards of competence (Reid and Inbau, 1966; Nagle, 1983; Gardner, 1984). Efforts to improve examiner competence through state and self-regulation have improved with time. Nevertheless, strides still may need to be taken to increase the professional standards of the polygraph examiner. Moreover, many feel that there is inconsistent agreement about this area in the field.

With the invention of the modern polygraph and

throughout his career, Leonarde Keeler mentioned the importance of licensing polygraph examiners. "Some day, it is hoped, the state will license--but keep free from politics--medico-legal technicians just as it licenses lawyers and physicians today" (Keeler, 1994, p. 82). The field has made considerable advances since Keeler made this claim in 1940. Currently there are twenty-nine states and three counties which have laws requiring licensure or certification for polygraph examiners (American Polygraph Association, 1996).

In 1971, there were eleven states that had polygraph licensing statutes. In 1962, Kentucky, through the Detection of Deception Examiner Act, was the first state to require examiner licensing. One year later Illinois and New Mexico had polygraph licensing statutes. The first eleven states to license examiners had several requirements in common. All the states would issue an examiner's license for a one year period if the applicant was a U.S. citizen, had not been convicted of a crime, paid the application fee, and was at least twenty-one years of age. The only exception to the age requirement was in Kentucky and New Mexico where the applicant had to be at least eighteen years of age and twenty-five years of age, respectively (Romig, 1971).

In the mid-sixties the requirements for obtaining a license were not very high. Four states had no provisions for internship licenses. Three states had no formal education requirements. Two states required a minimum of a

high school diploma, one state required a college degree, and five states required experience as an investigator in lieu of a college degree. Ten of the eleven states required the applicant to attend a polygraph school, but in five states the actual polygraph school attendance could be waived under certain conditions. Basically, if the applicant had experience or served an internship, the polygraph school could be waived. Additionally, only one state gave a list of the schools that were approved for a license. The others just required "any school acceptable to the licensing authority" (Romig, 1971).

The examination of state licensing requirements shows that early polygraph legislation was insufficient. This lack of high standard licensing was seen as a threat to the polygraph field. Interestingly, the courts, the professions, the public, and even the polygraphists themselves believed in high professional standards (Romig, 1971). It was not until the more recent model policies and legislation did the requirements become more stringent in the states requiring licensing. As a result, the increased qualifications reflect a growing professionalism in the field.

Illinois, for example, empowers the State's Department of Regulation and Education and the Department's director to oversee the licensing and regulation of polygraph examiners. To receive an examiners license, an applicant must register with the Department, pass an approved six-month course of instruction, and have a Bachelor's degree from an accredited

school. Lastly, the applicant must pass an examination that is conducted by an examination committee (Graham, 1986).

The state of Michigan has similar licensing requirements. In 1972 the Forensic Polygraph Examiners Act was passed. Act 295 of 1972 states that to be qualified to receive an examiner's license, an applicant must be eighteen years of age, be a United States citizen, not been under sentence for the commission of a felony within five years, and have a bachelor's degree that is related to specialization as an examiner. Lastly, the applicant must complete an internship training program or have training experience equivalent to an internship program.

Most laws are similar to the ones just described. They require formalized instruction, an internship training period, and successful completion of a licensing examination. The same holds true for the model polygraph licensing acts that have been proposed (Furgerson, 1989; Matte, 1980; Romig, 1971; Reid and Inbau, 1966). Most licensing statutes also require the applicant to be of good moral character (APA, 1996). The formal education requirement is possibly the most critical of all the prerequisites. Therefore, one could argue that as the requirement for a Bachelor's degree continues to increase, the professionalization of the polygraph field rises respectively.

The Examiner as an Expert Witness

In order for polygraph evidence to be admitted in the courts, the field must have competent examiners that qualify

as expert witnesses. The Federal Rule of Evidence (FRE) 702 allows an expert to offer testimony in the form of an opinion, if the expert's scientific, technical, or other specialized knowledge will assist a jury or judge in the understanding of the facts in a case. Under FRE 702 an individual is recognized as an expert in the federal courts by virtue of his or her knowledge, skill, experience, training, or education (Honts and Perry, 1992).

It is essential to have an expert witness when polygraph evidence is admitted in the courts. The expert witness is needed to dispel any myths about the polygraph. The public is often not informed properly and is usually given inaccurate information by both the media and critics of the polygraph. The expert witness can communicate to the judge or jury the necessary information needed to make an educated decision.

It is clear in the Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals* (1993) that the Federal Rules of Evidence permit expert testimony whenever the expert testimony is based on valid science, is relevant to the specific issue in dispute, and would be helpful to the jury. The trial judge takes these facts into consideration when deciding on the necessity of a witness. It was also mentioned in *Daubert* that the judge has a lot of discretion in deciding when a witness possesses enough experience, training, and education to qualify as an expert (Dripps, 1996).

In 1953, Reid and Inbau mentioned that the field of polygraphy was not yet ready for judicial acceptance, but in 1966 they indicated that examinations completed by a competent examiner should be admitted into evidence (Abrams, 1989). In 1964, Inbau testified before a congressional subcommittee that "only about twenty percent of the individuals who hold themselves out as examiners possess, in our opinion, the training and skill required for competency in the field" (Abbell, 1977, p. 38). Unfortunately, many of the examiners in the United States may still be unqualified. Many feel that this may be due in part to the large number of examiners practicing in states that do not require licensing, that is these examiners may not have the basic qualifications that are required of a licensed examiner (Elmore, 1981). It should also be recognized that just because a state has a licensing law requirement, does not indicate that examiners practicing in that state are competent. There may be incompetent examiners in many states, regardless of licensing law requirements.

Reid and Inbau suggest that before permitting the results of polygraph examinations into evidence the courts should require the polygraph examiner possess a college degree, have at least five years experience in the field, and have at least six months internship training under an experienced, competent examiner (1966). Criticisms have been raised that many examiners today do not meet these qualifications. Moreover, there is evidence that there is

very limited and spotty professional and state control over the qualifications and training of competent examiners (Honts and Perry, 1992; Abrams, 1989; Matte, 1980; Abbell, 1977; Reid and Inbau, 1966). Because of these reasons, courts must be especially careful to set particularly high standards of qualification for the polygraph examiner.

Section D - Model Policies

Besides state licensing acts, there have been other attempts to increase the professionalization of polygraph examiners. The International Association of Chiefs of Police (IACP) established a model policy on polygraph testing. This model policy is helpful in explaining the various procedures entailed in the use of the polygraph, but there is only one small section devoted to the professional development of the examiner. This particular model encourages the polygraphist to participate in career development opportunities and in professionally recognized annual in-service training (Motsinger, Bartlett, and Rakes, 1996).

The American Psychological Association also has a policy position on the polygraph. It feels that those giving polygraph tests often have limited training and expertise in psychology and in the interpretation of psychophysiological measures. It goes on to mention that the polygraph test should be based on adequate "psychological training and sophistication" and the use of the polygraph by psychologists should be consistent with the ethical principles of psychologists (Abeles, 1986).

The American Polygraph Association (APA) is an international association which represents the polygraph field. There are approximately 2,000 members in this association, of which the majority are in the United States. The APA encourages the development of various standards such as those involving ethical practice, techniques, instruction, and training in the polygraph (APA, 1996).

APA members are required to maintain a high level of professional conduct. Because of this, the requirements to become a full member in the APA are fairly extensive. A member must have both a Bachelor's degree and have graduated from an APA accredited polygraph training school. In addition to the formal education requirement, the practicing examiner must also have experience in the field. This experience includes a minimum of 200 actual polygraph examinations. Lastly, the applicant must also hold a current and valid license if it is required by his/her state of residence.

Along with these requirements, the APA has a code of ethics and a section highlighting the necessary standards of practice. Both of these sections encourage the examiner to maintain a high level of moral, ethical, and professional conduct. Unlike other associations, the APA concentrates a great deal on the professional development of the polygraph examiner. This can be seen in the APA's constitution which states, "we stand squarely behind the programs to improve the capabilities of our membership through meaningful education, shared experience, progressive research and advanced

training" (APA, 1996). From this description of the APA, it is understandable why the APA is regarded as the leader in increasing the professional standards in the field.

Section E - Experienced vs Inexperienced Examiners

The accurate diagnosis of deception depends on the examiner's ability to interpret the test results accurately. Many studies relating to the reliability and validity of polygraph methodology can be found scattered throughout the professional journals. Only a select few, however, have examined the differences in the ability to diagnose truth and deception between experienced and inexperienced examiners.

Leonarde Keeler, the inventor of the modern polygraph, mentioned the importance of an experienced examiner. "Almost anyone can operate a polygraph...,but only individuals with training and long experience can interpret the resultant recorded curves. The inexperienced operator cannot diagnose deception with a polygraph any more than he can diagnose a cardiac murmur with a stethoscope" (Keeler, 1940, p. 82). Perhaps Keeler went a bit too far in discrediting the inexperienced examiner, but his discussion on competent examiners and experience is of importance.

Horvath and Reid (1971) were the first to address the issue of experience on polygraph examiner's diagnosis. In this study, seven experienced examiners and three inexperienced examiners evaluated polygraph records independently and without looking at any information beyond the polygraph records themselves. The seven experienced

examiners had been engaged in polygraph testing for more than one year. The remaining inexperienced examiners had been engaged in polygraph testing from four to six months and were still participating in an internship training program.

The examiners evaluated forty sets of charts. Twenty sets of charts were from verified deceptive subjects and twenty sets were obtained from verified innocent subjects. Horvath and Reid reported that the judgements of the inexperienced examiners were less accurate and consistent than the judgements made by the experienced examiners. The experienced examiners made correct decisions in 91.4 percent of the cases where as the inexperienced examiners were successful in 79.1 percent of their diagnoses.

Hunter and Ash (1973) were the second to address the issue of experience on polygraph examiner's diagnosis. In this study, seven polygraph examiners evaluated ten sets of verified truthful and ten sets of verified deceptive charts. Six of the subjects had been examiners for at least one year; the remaining polygraph examiner had been engaged in polygraph testing for four and one half months and was still in an internship training program.

This study did not have an adequate sample of experienced and inexperienced examiners, but the results somewhat support Horvath and Reid's findings in 1971. The results showed that the examiner with the least experience had the poorest consistency out of all the examiners in the study. The examiner with the most experience had the best

consistency out of all the examiners. The consistency score for the inexperienced examiner was seventy-five percent as compared to an overall consistency score of eighty-five percent. The examiner with the most experience had an overall consistency of ninety percent.

In addition to several other variables, Horvath (1977) compared the accuracy scores of five highly-experienced examiners and five low-experienced examiners. The high-experienced had more than three years experience and the five low-experienced examiners had less than three years experience. The cases were selected from the files of a large police agency, and they were conducted by several examiners (Horvath, 1983; cited by Yankee, Powell, and Newland, 1985) rather than just one examiner as was the case in previous studies. The results exhibited no significant difference between the high-experienced and low-experienced examiners. The overall accuracy score for the high experienced examiners was 63.6 percent. The low experienced examiners had 62.7 percent accuracy score. In this study, Horvath went on to explain that once an examiner completes his or her internship requirements and a minimum level of experience is acquired, the influence of experience on the outcome of chart interpretation is slight.

Another study which addressed the issue of experience on polygraph examiner's diagnosis was that of Yankee, Powell, and Newland (1985). Similar to the study of Horvath (1977), Yankee et al. selected cases from the files of a large police

agency which were originally conducted by several examiners.

The major difference in this study compared to Horvath (1977) was in the length of training that the inexperienced had at the time of the study. Unlike Horvath, the four inexperienced examiners were in their seventh and eighth weeks of an eight-week training program. The experienced examiners had at least one year of experience.

The results of this study demonstrated that experienced examiners were significantly more accurate than trainees in their decisions. In verifying truthful charts the inexperienced examiners reached a correct level of sixty-nine percent as compared to ninety percent for the experienced examiners. This difference between the inexperienced and experienced examiners is in agreement with both the Horvath and Reid (1971) and Hunter and Ash (1973) studies, but in disagreement with the Horvath (1977) study.

In the Yankee et al. (1985) study there was no significant difference between the two groups of examiners in respect to the consistency of decisions. For example, on the verified truthful and deceptive charts the inexperienced examiners agreed 99% with each other. The experienced examiners agreed 100% with each other. Even though there was consistency among the two groups of examiners, there was a difference between the experienced and inexperienced examiners with respect to the accuracy of their decisions. The experienced examiners were more accurate than trainees in their decisions.

Kleinmuntz and Szucko (1982) also examined the differences between experienced and inexperienced examiners in a laboratory. These researchers concluded that experienced polygraph examiners were not more accurate than the inexperienced polygraph trainees with six months of experience. Their results demonstrate that greater experience does not contribute to greater accuracy.

In a critique of this study, Elaad and Kleiner (1990) mention that these results may have occurred because of the laboratory setting used in this study. They mention that there is a substantial difference between the laboratory setting and the real-life test. In the laboratory setting the examinee, for the most part, is not concerned with the outcome of the test. The guilty subject usually does not have much at stake, and will be released from further questioning after the polygraph test.

The final study which addressed the issue of experience on polygraph examiner's diagnosis was that of Elaad and Kleiner (1990). In this study the experienced examiners consisted of five polygraph examiners with at least three years of experience. The five inexperienced examiners were in their seventh and eighth months of a ten-month training program.

Elaad and Kleiner (1990) concluded that there was not a significant difference in accuracy between the inexperienced and experienced examiners when scoring the galvanic skin response and cardiovascular tracings. However, the

experienced examiners had a much better detection rate than the inexperienced examiners when they scored the respiration channel.

The majority of these studies support the claim that the accuracy of the experienced examiner is significantly better than the accuracy of the inexperienced examiner (Horvath and Reid, 1971; Hunter and Ash, 1973; Yankee et al, 1985; Elaad and Kleiner, 1990). Horvath (1977) was the only field study that did not exhibit a significant difference between the high-experienced and low-experienced examiners. In this study the low-experienced examiners had up to three years of experience. The examiners had considerably more experience compared to the other studies where the inexperienced examiners were still in an internship/training program.

These studies indicate the value of practical experience in qualifying the polygraph examiner as an expert. Since the experienced examiner can diagnose truth and deception with greater accuracy, the level of experience should be addressed in policies on polygraph testing. The data from these studies appear to support the claim that once an examiner acquires a minimum level of experience, polygraph chart diagnoses is very accurate and consistent.

Chapter III

Methodology

Planning for this study began in late 1993. The primary interest was in learning the backgrounds, views, and attitudes of polygraph examiners in the United States. This chapter begins with a description of the four major research questions investigated in this study. Following this, the independent and dependent variables are identified. Next, the design of the instrument, the population under study, and the data collection techniques will be described in detail. Lastly, the statistics used throughout this study will be reviewed.

Research Questions

The four major research questions investigated in this study are as follows:

- (1) What are the personal and professional characteristics of polygraph examiners in the United States?
- (2) To what extent do the different categories of examiners (federal, state, private) differ with respect to their personal and professional characteristics?
- (3) What are the attitudes, opinions, and beliefs of polygraph examiners on various issues surrounding the polygraph field?
- (4) What is the effect of examiner education, experience, and APA membership on these attitudes, opinions, and beliefs?

Variables

Based on these research questions the following four independent variables were identified and included in this study: Type of polygraph examiner, education of the polygraph examiner, experience of the polygraph examiner, and whether or not the polygraph examiner is a member of the American Polygraph Association. The attributes of each of these independent variables have been identified below:

(1) Type of Polygraph Examiner (Q 24)

- Federal: This includes examiners at the federal law enforcement level, examiners at the federal intelligence level and/or security level, and examiners in the military services.

- State and/or local: This includes examiners at the state or local law enforcement level.

- Private: This includes all private and commercial polygraph examiners.

Survey question number 24 was recoded in order to establish the three attributes for this variable. For the federal category, options two, three, and four on the survey were combined. Option one, state or local law enforcement, and option five, private and commercial practice, remained the same. Sixty-four (4.8%) questionnaires were received from respondents who chose option six, "other". This option allowed the respondents to specify the nature of their work. For example, respondents who were retired polygraph examiners specified this in the "other" category. When situations like these occurred, the examiners were placed in either the state, federal, or private category depending on the type of practice the examiners were engaged in at the time of

retirement.

Throughout Chapter IV when necessary the state and federal examiners were merged into one category. This was done because, at times, there were inadequate cell sizes for analysis, especially when controlling for certain variables. For example, because there are very few federal examiners that do not hold a college degree, it was not possible to control for education by category of examiner. It was decided to combine the federal and state examiners because, even though it is known that there are differences between them, their work is generally similar in nature. That is, both state and federal examiners work for government agencies and, unlike private examiners, they are not driven by commercial interests, which may or may not influence their views on some issues. When the state and federal examiners are combined into one category, they will be referred to as "public" examiners.

(2) Membership in the American Polygraph Association (Q 73a)

- Yes: This includes all examiners that hold membership in the American Polygraph Association.

- No: This includes all examiners that do not hold membership in the American Polygraph Association.

(3) Education of the Polygraph Examiner (Q 4)

- No Degree: This includes all examiners that have less than a Bachelor's Degree. Included in this group are examiners with a high school diploma, some college credits, and those with Associates Degrees.

- Degree: This includes examiners with a Bachelor's Degree, examiners with some graduate course work, but no degree, and examiners with the following degrees: MA/MS, Ph.D, LLB/JD.

Survey question number four was recoded in order to establish the two attributes for this variable. Options one, two, and three on the survey were combined into the first category, "no degree". Options four, five, six, seven, and eight were combined into the second category, "degree". Similar to the first variable described, type of examiner, respondents also had an "other" option to chose from. Two questionnaires (.2%) were received where the examiners specified their level of education in this "other" category. In both situations, the examiners were placed in the "degree" category. Inspection of their backgrounds showed that they had the equivalent of a college degree.

(4) Experience of the Examiner (Q 16)

- High Experience: This includes examiners with 15 or more years of experience.

- Moderate Experience: This includes examiners with at least six years of experience, but not greater than 14 years of experience.

- Low experienced: This includes examiners with five or fewer years of experience.

Survey question number 16 was recoded in order to establish the three attributes for this variable. In this survey question the respondents listed the year that they completed their initial polygraph training. This year was subtracted from 1995, the year that the respondents completed the questionnaire. The differences between these dates established the amount of experience in years for the respondents. It is also noteworthy to mention that one of the reasons why the experience of the examiner was recoded

into these three categories was because of cell sizes. Very few private examiners have little experience. In order to get a large enough cell size to perform statistical analysis, the low experience category had to include those examiners with five or fewer years of experience.

The following is a list of the dependent variables that were used in this study. These variables are categorized according to three separate concepts; professional development, views and opinions, and testing practices and experiences.

Professional Development

Fourteen different dependent variables were used to measure this concept. The first six variables have two attributes; "yes" and "no". The survey question number is given with each variable. They are as follows: Membership in a national professional or scientific association besides those in the polygraph field (Q 70), membership in the APA (Q 73a), attendance at an annual APA seminars (Q 72a), attendance in the past five years at an officially scheduled state or regional polygraph association sponsored seminar (Q 75), spoken by invitation to any professional or scientific organization about polygraph testing within the past five years (Q 11), attendance at national training programs (Q 18).

The next eight variables have six attributes (0 = don't know, 1 = none, 2 = some, 3 = moderate, 4 = substantial, 5 = major). Zero values were eliminated from all statistical analysis. The survey question number is given with each variable. They are as follows: Basic training curriculum improvements (Q 90a), examiner certification improvements (Q 90d), offering advanced training programs (Q 90f), research activities (Q 90l), securing state licensing statutes (90m), weeding out incompetent examiners (Q 90n), weeding out unethical examiners (Q 90o), working for admissibility in court (Q 90p).

Views and Opinions about the Field

Twenty four different variables were used to measure this concept. The first six variables have three attributes; "yes", "no", and "undecided". All "undecided" responses were excluded from statistical analysis. The survey question number is given with each variable. They are as follows: The need for polygraph examiners to have law enforcement or other investigative experience before being admitted to a formal polygraph training school (Q 54), requirement for a supervised internship before administering polygraph examinations alone (Q 56), favor the development of a national certification program (Q 57), should polygraph examiners be licensed (Q 58), should examiners be required to attend continuing education programs to maintain and/or increase technical proficiency (Q 59), should examiners be required to take proficiency exams on a periodic basis (Q 60).

The next five variables have six attributes (0 = don't know, 1 = none, 2 = some, 3 = moderate, 4 = substantial, 5 = major). Zero values were eliminated from all statistical analysis. The survey question number is given with each variable. They are as follows: Challenging voice stress usage (Q 90b), defending police applicant screening (Q 90c), fostering relations with other associations (Q 90e), overturning EPPA (Q 90g), promoting foreign polygraph usage (Q 90h).

The last thirteen variables have six attributes (1 = none, 2 = minor, 3 = some, 4 = moderate, 5 = serious, 6 = very serious). The survey question is given with each variable. They are as follows: Background credentials of persons who are trained (Q 68a), basic training of examiners (Q 68b), inadequate licensing legislation (Q 68c), inadequate polygraph instruments (Q 68d), lack of court acceptance of results (Q 68e), lack of general admissibility as evidence (Q 68f), lack of professionalism in the field (Q 68g), lack

of standardized testing procedures (Q 68h), lack of understanding of what polygraph testing involves (Q 68i), low ethical standards of examiners (Q 68j), not enough "in-service" training (Q 68k), not enough adequate research supporting polygraph (Q 68l), and poor public relations (Q 68m).

Testing Practices and Experiences

Eight different dependent variables were used to measure this concept. The first seven variables have two attributes; "yes" and "no". The survey question number is given with each variable. They are as follows: Do you have a polygraph examiner's license (Q 8), prior to initial polygraph training were you a sworn officer for a public law enforcement agency or one of the military or intelligence services (Q 12), do you know how to use a computerized polygraph instrument or had training in the use of one (Q 31), have you testified in court with regard to a polygraph examination (Q 37), do you or your employer conduct examinations off-site (away from your office) (Q 41), do you have another polygraph examiner score or review (quality control) your polygraph charts in specific issue testing (Q 42), does your employer have a policy with respect to how exams are conducted, how they are handled internally, and how the results are reported (Q 44a,b,c). The last dependent variable is found in survey question number 21. This also has two attributes; "full-time" and "part-time". This question asks the examiners if they regularly conduct polygraph examinations on a full-time or part-time basis (Q 21).

Design of the Instrument

The questionnaire used for this study was a self-administered, mailed survey instrument. The questionnaire consisted of 147 major questions which were divided into six topical areas:

- Personal Characteristics
- Professional Training and Background Characteristics
- Testing Practices and Experiences
- Views on Polygraph Testing: General
- Association Memberships and Attitudes
- Views on Polygraph Testing: Scientific Issues

The sixth area "Views on Polygraph Testing: Scientific Issues" was excluded in this study because it dealt with technical issues unrelated to those in other sections. The results pertaining to respondent views on scientific issues were prepared for a conference presentation at an annual seminar of the American Polygraph Association (Horvath, 1997).

The American Polygraph Association Research Center staff

prepared an initial draft questionnaire consisting of items of interest to APA members and the APA's Board of Directors. This draft went through more than 10 major and a number of minor revisions over a 9 month period. Various draft versions were reviewed and altered by a number of practicing polygraph examiners, the APA Board of Directors, members of the Board of Directors of other polygraph-related organizations, and graduate students at Michigan State University. The final version of the questionnaire, prepared by Dr. Frank Horvath, Director of the APA Research Center on Detection of Deception and approved by the APA Board of Directors, was very extensive and detailed, requiring about 30 to 60 minutes to complete.

Population Under Study

In early 1994 a comprehensive listing of every polygraph examiner that could be identified was developed. This was accomplished by contacting every state, regional, and national polygraph organization as well as all state licensing boards. A request was submitted to these organizations to provide a listing of the names and addresses of their membership. Polygraph instrument manufacturers and all other organizations and associations that seemed appropriate were also contacted. These manufacturers and organizations also provided names and addresses for the mailing list. In general, most of these requests were met with a favorable response.

From these listings, all duplicate names and addresses

were eliminated. Once this task was accomplished, a master list was prepared; it consisted of 3,474 persons. These individuals were primarily residents of the United States, but there were also some who resided in Canada and other foreign countries. Of the 3,474, 88 were from countries other than the United States. All individuals placed on the master list were either active polygraph examiners or persons closely linked to the field as researchers or as training instructors.

Data Collection

The staff of the American Polygraph Association Research Center, School of Criminal Justice, Michigan State University, collected the data used for this study by mailing the questionnaire accompanied by a letter of transmittal explaining the purpose and need for the study. This letter was signed by the current APA President, Eric Holden, and the Director of the APA Research Center, Dr. Frank Horvath. A self-addressed, stamped envelope for returning the questionnaire was also included. The letter assured that all individual responses would be held in confidence and that the results would be described only in a collective manner. Lastly, the letter explained that each of the questionnaires was numbered solely for the purpose of reducing costs associated with follow-up mailings. A copy of both this letter and the questionnaire are presented in Appendix A.

Questionnaire Distribution

The initial mailing to the 3474 individuals on the

master list was made in June, 1994. A second follow-up mailing to all non-respondents was made in September, 1994 and a planned final, third mailing was made in December, 1994. After 3 mailings of the questionnaire, it was noted that in the time between the compilation of the mailing list and the time that data entry was being made, 180 individuals applied to the APA for membership. A fourth mailing took place in early 1995 to these "new" APA members. In all, 3654 questionnaires were mailed.

Questionnaire Return Time

After the first mailing, 851 (63%) questionnaires were returned to the School of Criminal Justice at Michigan State University. After the second mailing, an additional 310 (20%) questionnaires were returned. Following the third mailing there were 160 (12%) additional questionnaires returned. An additional 75 (5%) questionnaires were returned after the fourth mailing to the "new" APA members. In all, 1396 usable questionnaires were mailed back, an overall response rate of 38%.

It should also be noted that the response rate for members of the American Polygraph Association was considerably higher than for non-members. The response rate for members of the APA was 51%. Non-members had a 28% response rate. As noted earlier there was a fourth, one-time mailing of the questionnaire to 180 persons who applied for membership to the APA. These 180 "new" members had a response rate of 42%. Lastly, the "foreign" examiners had a

response rate of 39%.

Out of the total number of questionnaires returned, 35 were from countries other than the United States. Nineteen questionnaires were received from polygraph examiners in Canada, 7 from Israel, and 2 from both South Africa and Korea. One questionnaire was received from examiners in each of the following countries: Taiwan, Australia, Italy, Jamaica, and the Philippines.

Since the main purpose of this study was to determine the backgrounds, attitudes, and opinions of polygraph examiners in the United States, the 35 responses from "foreign" examiners were excluded in all statistical analysis. This was done because the study focused on issues pertaining to examiners in the United States. For example, the historical development of the polygraph instrument, the examination process, examiner training, licensing laws and requirements, court admissibility of polygraph evidence, and various model policies pertaining to professional development all focused specifically on issues related to examiners in the United States.

Statistical Analysis

Cramer's V and the Phi coefficient were used throughout this study to measure the strength of a relationship between nominally measured variables. The range of these statistics is from 0 (no association) to 1.00 (perfect association). In this study a Phi or Cramer's V value of .0 to .25 indicated a weak relationship, .26 to .50 indicated a moderate

relationship, and a value greater than .50 indicated a strong relationship.

The Phi coefficient is a Chi-square-based measure of association appropriate for 2 X 2 tables. For tables that are greater than 2 X 2, Phi has an upper limit that can exceed 1.00. Since this makes Phi difficult to interpret, the Crammer's V statistic was used for tables that are greater than 2 X 2. Cramer's V has an upper limit of 1.00 for any size table and, similar to Phi, can be interpreted as an index that measures the strength of the association between variables (Healey, 1993).

A t-test was used in this study to examine the significance of the difference between two sample means. If there were three or more sample means, an Analysis of Variance (ANOVA) was used. A significant ANOVA indicates that there is a difference between the means under analysis. In order to pinpoint which means were different from each other, the Scheffe test was used. This test was selected for use in this study because it may be used when there are unequal cell numbers and it can also be used when the variances of the cells are not equal. It is also noteworthy to mention that this test is conservative in nature when compared to other paired comparison procedures (Healey, 1993).

There were situations in this study when there was analysis involving variables measured at different levels. An example of this was when experience of the examiner, ratio

level, and category of the examiner, nominal level, were analyzed. When examples like this occurred, the measure of association appropriate for the lower of the two levels of measurement was selected. In the example provided, the measure of association appropriate at the nominal level was used. An alpha level of .05 was used for all statistical tests.

Chapter IV

Results

In this chapter the results are presented in five separate sections; personal characteristics, professional characteristics, testing practices and experiences, professional development, and views and opinions. Throughout this chapter the examiners are divided into three different categories. These categories were defined according to the type of practice the respondent indicated on the survey. For example, an examiner was labeled as State, if he or she practiced at the state or local law enforcement level. A Federal examiner included examiners employed in a federal law enforcement agency, a federal intelligence agency, or in one of the military service agencies. Lastly, the Private category included those who were currently working as private or commercial polygraph examiners.

In the tables displayed in this chapter a combined column was shown to present data representing all survey respondents; it also provided a convenient way to organize responses. This was especially helpful when issues were rank ordered within tables.

Section A - Personal Characteristics

Table 1 sets forth a description of the personal characteristics of the respondents. The number and percentages are given for the variables gender, race, and education. For the quantitative variable age, the mean and standard deviation are shown. This same format will be

followed throughout this chapter. The examiners, across all categories, are overwhelmingly white (91%), male (95%), and average 48 years of age. Analysis showed that there was a significant difference by category of examiner regarding educational level [$X^2=113.7$, $p=.0001$, Cramer's $V=.29$]. Thus, the category of polygraph examiner is moderately related to education level. Federal examiners are more likely to have a degree (97%), followed by private examiners (69%), and then state examiners (56%).

Analysis also showed that there was a significant relationship between category of examiner and age [$F(2,1315)=92.82$, $p=.0001$]. On average, private examiners ($M=53.2$, $sd=10$) are 8 years older than the state ($M=45.8$, $sd=8.1$) and federal ($M=45.4$, $sd=8.8$) examiners. Use of the Scheffe test demonstrated that there were significant differences between the state and private examiners ($S=85.6$) and the federal and private examiners ($S=48.1$), but there was not a significant difference between the state and federal examiners.

Table 1

Descriptive Statistics of Personal Characteristics of
Respondents by Category of Examiner

<u>Personal Characteristics</u>	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
<u>Gender</u>								
Male	785	(95)	331	(95)	173	(91)	1289	(95)
Female	37	(5)	18	(5)	17	(9)	72	(5)
<u>Race</u>								
White	732	(92)	317	(92)	166	(89)	1215	(91)
Non-White	60	(8)	34	(8)	21	(11)	108	(9)
<u>Education*</u>								
No Degree	351	(44)	107	(31)	6	(3)	464	(35)
Degree	448	(56)	238	(69)	181	(97)	867	(65)
<u>Age*</u>								
Mean	45.8		53.2		45.4		47.6	
SD	8.1		10.1		8.8		9.4	

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner.

Section B - Professional Characteristics

Table 2 describes the professional characteristics of the respondents. Just under half (48%) of the respondents hold a polygraph examiner's license. Analysis showed that there was a significant, but weak relationship between the category of examiner and whether the examiner holds a license [$\chi^2=69.23$, $p=.0001$, Cramer's $V=.23$]. Most federal examiners (78%) and just over half of the state examiners (52%) do not hold a license. On the other hand, 60% of private examiners do hold a polygraph examiner's license. These results appear

to coincide with current licensing law requirements. There are still 21 states without licensing law requirements and these requirements are also less common at the state and federal level.

There was also a significant, but moderate relationship between category of examiner and amount of examiner experience [$X^2=187.84$, $p=.0001$, Cramer's $V=.26$]. A majority (68%) of private examiners have fifteen or more years of experience. A much smaller percentage of state and federal examiners have this much experience (29% and 23%, respectively). Thirty percent of the federal examiners and 27% of the state examiners have five or fewer years of experience. On the other hand, only 5% of private examiners have five or fewer years of experience. When considering all examiners, 22% of the examiners have five or fewer years of experience, 40% have between six and fourteen years of experience, and 38% have been practicing for fifteen years or more.

Analysis also showed a significant relationship between category of examiner and frequency of performing polygraph examinations [$X^2=59.69$, $p=.0001$, Cramer's $V=.22$]. State examiners and private examiners were similar to each other in regards to conducting examinations on a full-time basis (40% and 42%, respectively). A larger percentage of federal examiners (72%) conduct examinations on a full-time basis. When combining all examiners, just over half (55%) perform exams on a full-time basis.

Examiners were asked if they had been a sworn police officer for a law enforcement agency or one of the military or intelligent services. This question was included on the survey because many feel that prior investigative experience is beneficial to polygraph testing. Analysis showed that there was a significant relationship between category of examiner and having prior investigative experience [$\chi^2=191.52$, $p=.0001$, Cramer's $V=.38$]. Ninety-five percent of the state examiners and 96% of the federal examiners have prior investigative experience. A lower percentage of private examiners (67%) have prior policing experience. When combining the categories of examiners, a great majority (88%) have had prior policing experience.

In sum, private examiners were more likely to hold a polygraph examiner's license and to have 15 or more years of experience, but they were the least likely to have prior policing or investigative experience. The federal and state examiners were similar to each other with respect to years of experience and prior policing experience. The federal examiners were the most likely to conduct examinations on a full-time basis

Table 2

Frequency and Percentage of Professional and Background Characteristics of
Respondents by Category of Examiner

	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
<u>Do you have a license? (Q 8)*</u>								
Yes	394	(48)	205	(60)	41	(22)	640	(48)
No	420	(52)	136	(40)	143	(78)	698	(52)
<u>Amount of examiner experience? (Q 16)*</u>								
Low	218	(27)	17	(5)	57	(30)	292	(22)
Moderate	357	(44)	92	(27)	89	(47)	538	(40)
High	243	(29)	234	(68)	43	(23)	519	(38)
<u>How regularly do you conduct examinations? (Q 21)*</u>								
Full-time	309	(40)	137	(42)	126	(72)	572	(45)
Part-time	469	(60)	183	(57)	50	(28)	702	(55)
<u>Were you a sworn officer prior to polygraph training? (Q 12)*</u>								
Yes	779	(95)	223	(67)	181	(96)	1193	(88)
No	42	(5)	115	(33)	8	(4)	165	(12)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner

Section C - Testing Practices and Experiences

Table 3 sets forth a description of several polygraph examiner testing practices and experiences. To begin with, the examiners were asked if they have ever testified in court with respect to a polygraph examination. The majority of examiners surveyed (63%) have testified on at least one occasion. Analysis showed that there was a significant, but weak relationship between category of examiner and testimony [$X^2=23.56$, $p=.0001$, Cramer's $V=.13$]. Private examiners have testified the most (74%), followed by state and federal examiners (61% and 55%, respectively).

Just over half of the examiners (51%) said that they routinely conduct examinations off-site. Off-site was clarified in the survey as meaning away from the examiner's main office or testing location. There was a significant, moderate, difference between category of examiner and whether or not the examiner conducts examinations off-site [$X^2=265.50$, $p=.0001$, Cramer's $V=.45$]. A great majority of examiners at the federal level (86%) conduct exams off-site. Private examiners (76%) were also much more likely to conduct examinations away from their office. On the other hand, only 34% of state polygraph examiners routinely conducted examinations off-site.

Twenty-four percent of the respondents know how to use a computerized polygraph instrument. Analysis showed that there was a significant relationship between category of examiner and familiarity with the usage of a computerized

instrument [$X^2=98.14$, $p=.0001$, Cramer's $V=.27$]. Federal examiners (55%) were the most likely to know how to use a computerized polygraph instrument. A much smaller percentage of state and private examiners know how to use such an instrument (23% and 18%, respectively).

The fourth item in the Table 3 describes how often the respondents have another examiner score or review the original polygraph charts in specific issue testing. This is one form of quality control that was discussed in Chapter II. The examiner chose from the following options: Always, sometimes, only on request, and never. For the purpose of this analysis, sometimes and only on request were combined. The great majority of examiners mentioned that they have another examiner score or review their polygraph charts. Only 7% responded that they never participate in this type of quality control program. Well over half of all the respondents (64%) reported that they sometimes participate in quality control. This includes those examiners that participate in quality control only on request. The rest of the examiners (29%) always have another examiner score or review their polygraph charts in specific issue testing.

Almost all of the federal examiners (93%) report that they always practice quality control. The percentages were significantly lower for state and private examiners (21% and 12%, respectively). The majority of state examiners (72%) and private examiners (79%) mention that they participate in quality control sometimes or only on request.

The last section of Table 3 describes the presence of policy on three separate issues. The first describes if the examiner's employer has a policy on how polygraph examinations are to be conducted. Half of the examiners reported to have such a policy. There was a significant, moderate, relationship when category of examiner was taken into consideration [$X^2=161.48$, $p=.0001$, Cramer's $V=.37$]. The federal examiners (94%) were much more likely to have a policy on how examinations are to be conducted. A much smaller percentage of private and state examiners had such a policy (40% and 43%, respectively)

Sixty-six percent of the examiners mentioned that their employer had a policy on how polygraph examination results are handled internally. Similar to the first policy issue, there was also a significant, moderate, relationship when category of examiner was taken into consideration [$X^2=110.43$, $p=.0001$, Cramer's $V=.30$]. Again, federal examiners (95%) were much more likely to have this policy, followed by state and private examiners (65% and 47%, respectively).

Sixty-five percent of the examiners mentioned that their employer had a policy on how results are to be reported. Federal examiners (97%) were also more likely to have such a policy, followed by state and private examiners (63% and 48%, respectively).

In sum, federal examiners were much more likely to participate in quality control programs, to have policies on how examinations are to be conducted, how results are handled

internally, and on how examination results are reported. Federal examiners were also more likely to conduct examinations off-site and to be familiar with a computerized polygraph instrument. Private examiners were the most likely to testify in court, followed by state examiners, and then federal examiners.

Table 3

Frequency and Percentage of Polygraph Testing Practices and
Experiences by Category of Examiner

	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
<u>Have you ever testified in court with regard to a polygraph examination? (Q 37)*</u>								
Yes	488	(61)	249	(75)	102	(55)	839	(63)
No	315	(39)	89	(25)	84	(45)	488	(37)
<u>Do you routinely conduct examinations off-site? (Q 41)*</u>								
Yes	266	(34)	242	(76)	154	(86)	662	(51)
No	526	(64)	75	(24)	25	(14)	626	(49)
<u>Do you know how to use a computerized polygraph instrument? (Q 31)*</u>								
Yes	182	(23)	60	(18)	103	(55)	345	(26)
No	621	(77)	280	(82)	85	(45)	986	(74)
<u>Do you participate in quality control? (Q 42)^a</u>								
Always	167	(21)	38	(12)	168	(93)	373	(29)
Sometimes	570	(72)	261	(79)	10	(6)	841	(64)
Never	58	(7)	31	(9)	2	(1)	91	(7)
<u>Does your employer have a policy on how exams are to be conducted? (Q 44a)*</u>								
Yes	329	(43)	102	(40)	167	(94)	598	(50)
No	433	(57)	154	(60)	11	(6)	598	(50)
<u>Does your employer have a policy on how results are handled internally? (Q 44b)*</u>								
Yes	500	(64)	117	(47)	169	(95)	786	(66)
No	267	(35)	134	(53)	8	(5)	409	(34)
<u>Does your employer have a policy on how results are to be reported? (Q 44c)*</u>								
Yes	483	(63)	121	(48)	172	(97)	776	(65)
No	279	(37)	132	(52)	6	(3)	417	(35)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner.

^aCell size is too small to do statistical analysis on this variable.

Section D - Professional Development

Table 4 describes the frequency and percentage of six items pertaining to the professional development of the polygraph examiner. Table 4 begins with a description of examiners who have been a registered participant at a state or regional polygraph association sponsored seminar. Fifty-seven percent of the respondents have participated in such a seminar in the past five years. When category of examiner was taken into consideration, there was a significant, but weak, relationship between participation at these seminars and category of examiner [$X^2=68.06$, $p=.0001$, Cramer's $V=.23$]. Private examiners (65%) were the most likely to participate, followed by state and federal examiners (59% and 29%, respectively).

Thirty-seven percent of the examiners have spoken by invitation to a professional or scientific organization about polygraph testing in the past five years. When taking category of examiner into consideration, there was a significant, but weak, relationship with respect to speaking to these organizations [$X^2=19.31$, $p=.0001$, Cramer's $V=.12$]. Just under half (44%) of the private and federal examiners have spoken to these organizations. A significantly smaller percentage of state examiners (32%) have done the same.

The examiners were asked if they had attended any national training session since completion of their initial polygraph training. The questionnaire specified national training to include programs, seminars, or short courses

related to polygraph testing. The majority of examiners (82%) have attended some type of national training course since completion of their initial polygraph training. Federal and private examiners (89% and 88%, respectively) were more likely than state examiners (78%) to participate in these programs. This was a significant, but weak relationship [$X^2=23.47$, $p=.0001$, Cramer's $V=.13$].

The next two items in Table 4 refer to association memberships. Thirty-eight percent of the examiners responded that they were a member of a professional or scientific national association not in the polygraph field. Analysis showed that there was a significant, but weak relationship between category of examiner and membership in a non-polygraph professional association [$X^2=42.10$, $p=.0001$, Cramer's $V=.18$]. Only 33% of state and federal examiners and just over half of private examiners (53%) belong to such associations.

The second item in Table 4 refers to membership in professional polygraph associations. This item was taken from question number 73 on the survey. The original survey question had the following options to chose from: American Polygraph Association (APA), American Association of Police Polygraphists (AAPP), a specific state or regional association, or an "other" category. Only the first option, APA membership, was included in Table 4. Sixty-seven percent of the respondents were members of the APA. Federal examiners (86%) were more likely to be members, followed by

private and state examiners (72% and 61%, respectively). Analysis showed that this was a significant, but weak relationship [$X^2=51.80$, $p=.0001$, Cramer's $V=.20$].

Next, examiners were asked if they had ever been to an annual seminar sponsored by the APA. Just under half of the respondents (45%) mentioned that they had participated on at least one occasion. Analysis showed that there was a significant, but weak relationship between category of examiner and attendance at these seminars [$X^2=64.42$, $p=.0001$, Cramer's $V=.22$]. Private examiners were the most likely to have attended an APA seminar (61%), followed by federal and state examiners (53% and 36%, respectively).

Table 4

Frequency and Percentage of Examiners Involved in Professional
Development Activities by Category of Examiner

	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
<u>In the past 5 years, have you been to a state/regional polygraph seminar? (Q 75)*</u>								
Yes	477	(59)	219	(65)	55	(29)	751	(57)
No	326	(41)	119	(35)	132	(71)	577	(43)
<u>In past 5 years, have you spoken to prof/scientific organ. about polygraph? (Q 11)*</u>								
Yes	266	(32)	152	(44)	84	(44)	502	(37)
No	555	(68)	193	(56)	105	(56)	853	(63)
<u>Since completion of poly. training, attended any national training programs? (Q 18)*</u>								
Yes	636	(78)	305	(88)	166	(89)	1107	(82)
No	181	(22)	42	(12)	21	(11)	244	(18)
<u>Do you belong to any national prof/scientific associations not in poly. field? (Q 70)*</u>								
Yes	266	(33)	178	(53)	62	(33)	506	(38)
No	534	(67)	157	(47)	126	(67)	817	(62)
<u>Are you a member of the American Polygraph Association? (Q 73)*</u>								
Yes	498	(61)	252	(72)	164	(86)	914	(67)
No	324	(39)	97	(28)	26	(14)	447	(33)
<u>Have you been to an annual seminar of the American Polygraph Association? (Q 72)*</u>								
Yes	287	(36)	203	(61)	99	(53)	589	(45)
No	510	(64)	131	(39)	88	(47)	723	(55)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner.

The Effect of Education

To reiterate, there was a significant difference between all 6 variables in Table 4 and category of examiner. To investigate this issue further, education was controlled in order to determine if it was associated with the differences between the three categories of examiners. Table 5 differentiates between those examiners that have a degree and those that do not. The state and federal examiners were combined into the "public" category because of the small number of federal examiners that do not hold a degree.

The results shown in Table 5 demonstrate that private examiners are more likely to be a member of a non-polygraph professional association and are more likely to attend annual APA seminars regardless of their education level. In contrast, the amount of education did appear to be associated with explaining the differences between public and private examiners with respect to attendance at state/regional polygraph seminars, whether the examiner has spoken to any professional organizations about polygraph testing, attendance at national training in polygraph, and membership in the APA.

When compared to public examiners with a degree, private examiners that have a degree were significantly more likely to participate in each of the professional development activities. The highest Phi value between public and private examiners who hold degrees was in membership in a non-polygraph professional or scientific association. Private

examiners (59%) were more likely to be members than the public examiners (35%) with a degree [$X^2=39.75$, $p=.0001$, $\phi=.22$]. Private examiners with degrees were also more likely to have attended an annual APA seminar than public examiners (63% and 43%, respectively) [$X^2=28.40$, $p=.0001$, $\phi=.18$].

When comparing public and private examiners without degrees there was a significant finding for only two of the six issues. Private examiners without degrees (41%) were more likely than public examiners (29%) to be a member of a non-polygraph professional or scientific association [$X^2=4.67$, $p=.0307$, $\phi=.102$]. Private examiners without degrees (56%) were also more likely to have attended an annual APA seminar than public examiners (34%) [$X^2=16.61$, $p=.001$, $\phi=.193$].

Table 5

Frequency and Percentage of Public and Private Examiners Involved in
Professional Development Activities by Education Level

Educational Level	Public (N=1171)		Private (N=349)	
	n	(%) ¹	n	(%) ¹
<u>Degree</u>				
<u>During past 5 years have you participated at a state/regional polygraph seminar? (Q 75)*</u>				
Yes	306	(50)	149	(64)
No	310	(50)	83	(36)
<u>In past 5 years have you spoken to any prof/scientific organizations about poly.? (Q 11)*</u>				
Yes	224	(36)	117	(50)
No	404	(64)	119	(50)
<u>Since completion of initial poly.training attended any national training in poly? (Q 18)*</u>				
Yes	506	(81)	211	(89)
No	116	(19)	25	(11)
<u>Are you a member of any non-polygraph professional/scientific association? (Q 70)*</u>				
Yes	215	(35)	134	(59)
No	404	(65)	94	(41)
<u>Are you a member of the American Polygraph Association? (Q 73a)*</u>				
Yes	438	(70)	185	(79)
No	184	(30)	49	(21)
<u>Have you ever attended an annual American Polygraph Association seminar? (Q72A)*</u>				
Yes	261	(43)	144	(63)
No	353	(57)	84	(37)

<u>No Degree</u>				
<u>During past 5 years have you participated at a state/regional polygraph seminar? (Q 75)</u>				
Yes	213	(61)	67	(66)
No	135	(39)	35	(34)
<u>In past 5 years have you spoken to any prof/scientific organizations about poly.? (Q 11)</u>				
Yes	117	(33)	35	(33)
No	239	(67)	70	(67)
<u>Since completion of initial poly. training, attended any national training in poly? (Q 18)</u>				
Yes	275	(77)	91	(85)
No	81	(23)	16	(15)
<u>Are you a member of any non-polygraph professional/scientific association? (Q 70)*</u>				
Yes	101	(29)	42	(41)
No	242	(71)	61	(59)

Table 5 (cont'd)

Are you a member of the American Polygraph Association? (Q 73a)

Yes	193	(55)	60	(58)
No	158	(45)	44	(42)

Have you ever attended an annual American Polygraph Association seminar? (Q72A)*

Yes	116	(34)	57	(56)
No	230	(66)	45	(44)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner

In sum, the results shown in Table 5 demonstrate that the amount of education did appear to be associated with explaining the differences between public and private examiners with respect to attendance at state/regional polygraph seminars, whether the examiner has spoken to any professional organizations about polygraph testing, attendance at national training in polygraph, and membership in the APA. On the other hand, education did not seem to be associated with explaining the differences between categories of examiners with respect to membership in a non-polygraph professional association and in attendance at annual APA seminars.

Effect of APA Membership

Table 6 displays findings regarding involvement in professional development activities when membership in the American Polygraph Association is controlled. The results indicate that APA membership did seem to be associated with explaining the differences between public and private examiners with respect to attendance at state/regional polygraph seminars, whether the examiner has spoken to any

professional organizations about polygraph testing, attendance at national training in polygraph, and membership in non-polygraph professional associations. On the other hand, APA membership did not seem to be associated with explaining the differences between public and private examiners with respect to attendance at annual APA seminars. Private examiners were more likely to have attended an annual APA seminar regardless of membership in the APA.

There were significant differences between public and private examiners that were APA members with respect to each of the activities in Table 6. Private examiners who were members of the APA were more likely to participate in these professional development activities. The highest Phi value between public and private examiners who were members of the APA was in membership in non-polygraph associations that are professional or scientific in nature. Private examiners (59%) in the APA were more likely than public examiners (33%) to be members of these non-polygraph associations [$X^2=47.61$, $p=.0001$, $\phi=.23$]. Private examiners (69%) in the APA were also more likely than public examiners (47%) to have ever attended an annual APA seminar [$X^2=34.25$, $p=.0001$, $\phi=.20$].

With the exception of one activity in Table 6, the public and private examiners that are non-members of the APA did not significantly differ from each other. Non-member, private examiners (37%) were more likely to attend an annual APA seminar than were the non-member, public examiners (24%) [$X^2=6.38$, $p=.0115$, $\phi=.12$].

Table 6

Frequency and Percentage of Public and Private Examiners Involved in Professional Development Activities Presented by Membership in the American Polygraph Association

	Public (N=1171)		Private (N=349)	
	n	(%) ¹	n	(%) ¹
<u>Member APA</u>				
During past 5 years have you participated at a state/regional polygraph seminar? (Q 75)*				
Yes	346	(53)	166	(67)
No	303	(47)	80	(33)
In past 5 years have you spoken to any prof/scientific organizations about poly.? (Q 11)*				
Yes	239	(36)	126	(51)
No	422	(64)	123	(49)
Since completion of initial poly. training, attended any national training in poly? (Q 18)*				
Yes	531	(81)	223	(89)
No	125	(19)	28	(11)
Are you a member of any non-polygraph professional/scientific association? (Q 70)*				
Yes	216	(33)	144	(59)
No	431	(67)	101	(41)
Have you ever attended an annual American Polygraph Association seminar? (Q72A)*				
Yes	307	(47)	171	(69)
No	344	(53)	77	(31)

<u>Non-Member APA</u>				
During past 5 years have you participated at a state/regional polygraph seminar? (Q 75)				
Yes	186	(54)	53	(58)
No	155	(45)	39	(42)
In past 5 years have you spoken to any prof/scientific organizations about poly.? (Q 11)				
Yes	111	(32)	26	(27)
No	238	(68)	70	(73)
Since completion of initial poly. training, attended any national training in poly? (Q 18)				
Yes	271	(78)	82	(85)
No	77	(22)	14	(15)
Are you a member of any non-polygraph professional/scientific association? (Q 70)				
Yes	112	(33)	34	(38)
No	229	(67)	56	(62)

Table 6 (cont'd)

Have you ever attended an annual American Polygraph Association seminar? (Q72A)*

Yes	79	(24)	32	(37)
No	254	(76)	54	(63)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner

In sum, membership in the APA does appear to be associated with explaining the differences between public and private examiners with respect to attendance at state/regional polygraph seminars, whether the examiner has spoken to any professional organizations about polygraph testing, attendance at national training in polygraph, and membership in non-polygraph professional associations. On the other hand, APA membership did not seem to be associated with explaining the differences between public and private examiners with respect to attendance at annual APA seminars.

What is Important

Respondents who were members of the APA were asked how much effort and resources the APA should devote to certain activities surrounding the polygraph field. If the examiner was not a member of the APA, he/she was instructed to skip this survey question. Several activities were identified, but this section will focus on the issues pertaining to the professional development of polygraph examiners. In a later section, the other issues will be examined.

APA members were asked to indicate, based on their experience, how much emphasis should be given to each item using the following scale: 0=Don't Know, 1=None, 2=Some,

3=Moderate, 4=Substantial, 5=Major. The results are reflected in Table 7 by the mean score of examiner responses to each issue. For the purpose of this analysis, the "Don't Know" value of 0 was eliminated.

Table 7

Opinions of APA Members, by Category, on the Amount of Effort
the APA Should Devote to Issues Presented by Mean Score

Issue	State (N=487)	Private (N=248)	Federal (N=161)	Combined (N=896)
	<u>M¹</u> <u>Rank</u>	<u>M¹</u> <u>Rank</u>	<u>M¹</u> <u>Rank</u>	<u>M¹</u> <u>Rank</u>
Weeding Out Unethical Examiners (Q 90o)	4.61 1	4.68 1	4.70 1	4.65 1
Weeding Out Incompetent Examiners (Q 90n)	4.38 2	4.49 2	4.50 2	4.43 2
Research Activities (Q 90l)	4.10 4	4.20 3	4.25 3	4.15 3
Offer Advanced Training Programs (Q 90f)	4.11 3	4.06 4	4.01 4	4.08 4
Examiner Certification Improvements (Q 90d)	3.75 5	3.75 6	3.97 5	3.79 5
Working for Court Admissibility (Q 90p)*	3.71 6	3.89 5	3.58 6	3.73 6
Securing State Licensing Statutes (Q 90m)*	3.64 7	3.66 7	3.37 8	3.60 7
Improvement in Basic Training Curriculum (Q 90a)	3.56 8	3.54 8	3.51 7	3.57 8

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=some, 3=moderate, 4=substantial, 5=major.

*Significant differences based on category of examiner.

As shown in Table 7, the four issues that received the highest mean scores when combining the survey respondents were: Weeding out unethical examiners (M=4.65), weeding out incompetent examiners (M=4.43), research activities (M=4.15), and offering advanced training programs (M=4.08). These activities each received a score of four or more, indicating that the survey respondents felt that the APA should place a

substantial to major emphasis on these activities. The other four activities received scores under four. Even though these activities were considered less important than the first four, the respondents still felt that the APA should place a moderate to substantial emphasis on them.

There were two significant differences between category of examiner and the issues presented in Table 7. There was a significant difference between category of examiner and the issue of working for court admissibility [$F(2,886)=3.41$, $p=.0335$]. Use of the Scheffe test indicated that the mean for federal examiners ($\bar{M}=3.58$, $sd=1.3$) was significantly lower than the mean for private examiners ($\bar{M}=3.89$, $sd=1.2$). On the other hand, the mean for state examiners ($\bar{M}=3.71$, $sd=1.2$) was not significantly different from the federal or private examiners.

The second significant relationship in Table 7 dealt with the issue of securing state licensing statutes. There was a significant difference between categories of examiners on this issue [$F(2,869)=3.7$, $p=.0258$]. Use of the Scheffe test demonstrated that the mean for federal examiners ($\bar{M}=3.37$, $sd=1$) was significantly lower than the mean for private examiners ($\bar{M}=3.66$, $sd=1.1$) and the mean for state examiners ($\bar{M}=3.64$, $sd=1.2$). The state and private examiners did not differ significantly with respect to this issue. These respondents considered the issue of securing state licensing statutes to be of more importance than do federal examiners.

Effect of Education

Six of the issues in Table 7 were not significantly related to category of examiner. To investigate this further, education was controlled in order to determine if it was associated with these issues. Since the means for the three categories of examiners were not significantly different on these six issues, the state, federal, and private examiners were combined.

Table 8 displays findings regarding opinion on the amount of effort the APA should devote to certain activities when educational level is controlled. Two significant differences were found. Weeding out incompetent examiners and examiner certification improvements were both significant when education of the examiner was taken into consideration. This was not the case in Table 7 when just the category of examiner was investigated. In other words, those APA examiners that have a degree felt that weeding out incompetent examiners was of more importance than did examiners without a degree ($\bar{M}=4.48$ vs. $\bar{M}=4.32$) [two-tail test, $t=-2.4$, $df=875$, $p=.0164$].

Table 8 also shows a significant difference between examiners with and without degrees on the issue of examiner certification improvements. Those APA examiners that have a degree felt that examiner certification improvement was of more importance than did examiners without a degree ($\bar{M}=3.80$ vs. $\bar{M}=3.57$) [two-tail test $t=-2.81$, $df=881$, $p=.0057$].

Table 8

**APA Members' Opinions on the Amount of Effort the APA Should Devote to
Specified Issues Presented by Education of the Examiner**

Issue	No Degree (N=464)	Degree (N=867)	Combined (N=1331)
	<u>M</u> <u>Rank</u>	<u>M</u> <u>Rank</u>	<u>M</u> <u>Rank</u>
Weeding out unethical examiners (Q 90o)	4.61 1	4.66 1	4.65 1
Weeding out incompetent examiners (Q 90n)*	4.32 2	4.48 2	4.43 2
Research activities (Q 90l)	4.13 3	4.16 3	4.15 3
Offer advanced training programs (Q 90f)	4.12 4	4.05 4	4.08 4
Examiner Certification Improvement (Q 90d)*	3.57 6	3.80 6	3.79 5
Improvement in basic train. curriculum (Q90a)	3.61 5	3.56 5	3.57 6

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=some, 3=moderate, 4=substantial, 5=major.

*Significant differences based on education of the examiner.

In sum, the education level of the examiner was associated with the opinions on the amount of effort and resources the APA should devote to the activities of weeding out incompetent examiners and examiner certification improvements. In both cases, examiners with degrees felt that more of an emphasis should be devoted to each activity than did examiners without degrees.

The Effect of Experience

Table 9 displays findings regarding opinions on the amount of effort the APA should devote to certain activities when experience level is controlled. There were no significant relationships between the issues presented in Table 9 and experience of the polygraph examiner.

Table 9

APA Members' Opinions on the Amount of Effort the APA Should Devote to
Specified Issues Presented by Experience of the Examiner

Issue	Low (N=292)		Moderate (N=538)		High (N=519)	
	<u>M</u> ¹ <u>Rank</u>		<u>M</u> <u>Rank</u>		<u>M</u> <u>Rank</u>	
Weeding out unethical examiners (Q90o)	4.61	1	4.63	1	4.69	1
Weed out incompetent examiners(Q90n)	4.33	2	4.43	2	4.49	2
Research activities (Q 90l)	4.14	3	4.16	3	4.16	3
Offer advanced training programs (Q90f)	4.11	4	4.10	4	4.03	4
Examiner Certif. Improvement (Q 90d)	3.73	5	3.89	5	3.71	5
Improve basic train. curriculum (Q 90a)	3.51	6	3.59	6	3.59	6

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=some, 3=moderate, 4=substantial, 5=major.

In sum, the amount of experience of an APA examiner does not affect the examiners' opinions on the amount of emphasis that should be devoted to these activities.

Section E -Views and Opinions

This section focuses on examiners' views and opinions on polygraph testing. The first two items in Table 10 show views on experience and education necessary for entry into the polygraph testing field. The majority of respondents (69%) felt that polygraph examiners should have policing or other investigative experience before being admitted to a formal polygraph training school. When category of examiner was taken into consideration, there was a significant, but weak relationship with regard to this issue [$\chi^2=45.56$, $p=.0001$, Cramer's $V=.20$]. A great majority of federal examiners (88%) felt that policing or investigative

experience should be a prerequisite to a polygraph training school. A much smaller percentage of state examiners (69%) and over half of private examiners (58%) felt the same.

The second item describes the level of education that the respondents thought one should acquire before being admitted to a polygraph training school. In Table 10 this variable was recoded into two categories; degree or no degree. The attributes for this variable were described in Chapter III. Under half of the respondents (43%) felt that a college degree should be required before being admitted to a basic polygraph training school. There was a significant difference on this issue by category of examiner. [$X^2=134.11$, $p=.0001$, Cramer's $V=.32$]. Only 33% of state examiners and just under half (46%) of the private examiners felt that at least a Bachelor's degree should be required. On the other hand, 79% of federal examiners felt that a degree should be required before admission into a polygraph training school.

Ninety-six percent of the respondents felt that polygraph examiners should be required to serve a supervised internship before administering examinations alone. Federal examiners (99%) were the most likely to be in agreement, followed by private and state examiners (97% and 95%, respectively). Because of small cell sizes, further statistical analysis was not carried out.

Respondents were asked if they thought polygraph examiners should be required to take proficiency examinations on a periodic basis. Under half (45%) of the respondents

responded affirmatively. When category of examiner was taken into consideration, a significant, but weak relationship was found [$X^2=20.99$, $p=.0001$, Cramer's $V=.14$]. Over half of the federal examiners (60%) felt that periodic examinations should be required. A smaller percentage of state and private examiners felt the same (45% and 37%, respectively).

Seventy-one percent of the respondents favored the development of a national certification program. There was a significant, but weak relationship between category of examiner and opinion on the development of a national certification program [$X^2=19.44$, $p=.0001$, Cramer's $V=.14$]. Federal examiners (86%) were the most likely to support this idea. A smaller percentage of state and private examiners (68%) were in agreement.

A great majority (96%) of respondents felt that polygraph examiners should be licensed. Almost all (97%) of the respondents also felt that examiners should be required to attend continuing education programs to maintain and/or increase technical proficiency.

In sum, federal examiners were the most likely to agree with the idea of having investigative experience before being admitted to a polygraph training program, having a college degree to practice polygraph testing, continuing education requirements, internship and proficiency exam requirements, and a national certification program. There was very high agreement, over 95%, among respondents with respect to supervised internship requirements, licensing requirements,

and continuing education requirements.

Table 10

Frequency and Percentage of General Views and Opinions About
Polygraph Testing by Category of Examiner

	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
Should examiners have investigative experience before formal poly. training? (Q 54)*								
Yes	473	(69)	174	(58)	152	(88)	799	(69)
No	216	(31)	126	(42)	21	(12)	363	(31)
What level of edu. should one have before being admitted into training school? (Q 55)*								
No Degree	530	(67)	180	(54)	39	(21)	749	(57)
Degree	259	(33)	151	(46)	148	(79)	558	(43)
Should there be supervised intern requirement before administering exams alone?(Q56)^a								
Yes	734	(95)	312	(97)	182	(99)	1218	(96)
No	36	(5)	9	(3)	2	(1)	47	(4)
Should examiners be required to take proficiency exams on a periodic basis? (Q 60)*								
Yes	274	(45)	100	(37)	90	(60)	464	(45)
No	341	(55)	169	(63)	59	(40)	569	(55)
Do you favor the development of a national certification program? (Q 57)*								
Yes	408	(68)	178	(68)	121	(86)	707	(71)
No	191	(32)	83	(32)	19	(14)	293	(29)
Should polygraph examiners be licensed? (Q 58)								
Yes	674	(95)	309	(98)	154	(96)	1137	(96)
No	39	(5)	7	(2)	6	(4)	52	(4)
Should examiners be required to attend continuing education programs? (Q 59)*								
Yes	776	(98)	308	(93)	183	(98)	1267	(97)
No	18	(2)	22	(7)	3	(2)	43	(3)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner.

^aCell size too small to do statistical analysis on this variable.

The Effect of Education

To reiterate, there was a significant relationship between four of the variables in Table 10, describing general views and opinions about polygraph testing, and category of the examiner. In an effort to determine whether education was associated with these results, tests were completed controlling for education. Table 11 differentiates between those examiners that have a degree and those that do not. Similar to earlier analysis, the federal and state examiners are combined into one category called "public" examiners. The private examiner category remained the same.

The results in Table 11 indicate that the amount of education did appear to be associated with explaining the differences between public and private examiners with respect to the opinion on investigative experience before being admitted into polygraph school and on whether there should be a national certification program. On the other hand, education did not appear to be associated with explaining the differences between the public and private examiners with respect to the opinion on the requirement of proficiency exams on a periodic basis. Regardless of education level, more public examiners felt that examiners should be required to take proficiency exams on a periodic basis.

There was a significant relationship between public and private examiners that have a degree with respect to three of the variables in Table 11. When asked if examiners should be required to have policing experience before being admitted in

polygraph training school, 74% of public examiners with a degree answered "yes". A significantly lower percentage of private examiners (54%) answered the same [$X^2=28.51$, $p=.0001$, $\phi=.20$].

There was also a significant relationship between the responses given by the public and private examiners with degrees pertaining to the requirement of proficiency exams on a periodic basis [$X^2=8.8$, $p=.003$, $\phi=.09$]. Half of the public examiners and 41% of the private examiners with degrees support such a requirement.

A significantly higher percentage of public examiners (98%) with degrees also felt that examiners should be required to take continuing education programs. The majority of private examiners (92%) with degrees also felt this way, but there was a significant difference between the two categories [$X^2=15.79$, $p=.0001$, $\phi=.14$].

Public and private examiners without degrees differed significantly on only one issue displayed in Table 11. Forty-one percent of public examiners without degrees and 28% of private examiners without degrees felt that examiners should be required to take proficiency examinations on a periodic basis [$X^2=4.45$, $p=.0349$, $\phi=.11$].

Table 11

Frequency and Percentage of General views and Opinions on Polygraph Testing
for Public and Private Examiners by Education Level

	Public (N=1171)		Private (N=349)	
	n	(%) ¹	n	(%) ¹
<u>Degree</u>				
Should examiners have policing exper. before admitted into poly. training school (Q54)*				
Yes	405	(74)	112	(54)
No	140	(26)	95	(46)
Should examiners be required to serve internship before conducting exams alone (Q 56)				
Yes	576	(97)	215	(98)
No	17	(3)	5	(2)
Should examiners be required to take proficiency exams on a periodic basis? (Q 60)*				
Yes	245	(50)	77	(41)
No	241	(50)	110	(59)
Do you favor the development of a national certification program? (Q 57)				
Yes	358	(75)	132	(73)
No	117	(25)	48	(27)
Do you think polygraph examiners should be licensed? (Q 58) ^a				
Yes	522	(96)	215	(98)
No	23	(4)	4	(2)
Should examiners be required to take continuing education programs? (Q 59)*				
Yes	596	(98)	207	(92)
No	13	(2)	18	(8)

<u>No Degree</u>				
Should examiners have policing exper. before admitted into poly. training school (Q54)				
Yes	204	(69)	61	(67)
No	91	(31)	30	(33)
Should examiners be required to serve internship before conducting exams alone (Q 56) ^a				
Yes	306	(94)	96	(96)
No	21	(6)	4	(4)
Should examiners be required to take proficiency exams on a periodic basis? (Q 60)*				
Yes	107	(41)	22	(28)
No	154	(59)	57	(72)
Do you favor the development of a national certification program? (Q 57)				
Yes	157	(65)	44	(56)
No	85	(35)	34	(44)

Table 11 (cont'd)

Do you think polygraph examiners should be licensed? (Q 58)^a

Yes	286	(94)	92	(98)
No	19	(6)	2	(2)

Should examiners be required to take continuing education programs? (Q 59)^a

Yes	337	(98)	99	(97)
No	8	(2)	3	(3)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner

^aCell size is too small to do statistical analysis on this variable.

In sum, the results in Table 11 indicate that the amount of education did appear to be associated with explaining the differences between public and private examiners with respect to the opinion on investigative experience before being admitted into polygraph school and on whether there should be a national certification program. On the other hand, education did not appear to be associated with explaining the differences between the public and private examiners with respect to the opinion on the requirement of proficiency exams on a periodic basis.

The Effect of APA Membership

In an effort to determine if membership in the APA is associated with the results in Table 10, statistical tests were conducted controlling for APA membership. Table 12 displays these findings.

These results indicate that membership in the APA is associated with the differences between the public and private examiners with respect to the opinions on having prior investigative experience, the educational level needed

before being admitted into a polygraph school, the requirement of proficiency exams on a periodic basis, and the development of a national certification program. On the other hand, membership in the APA was not associated with explaining the differences between public and private examiners with respect to the opinion on the requirement of continuing education programs. Regardless of APA membership, public examiners, more so than those in the private sector, feel that there should be continuing education requirements for examiners.

Public and private examiners that are members of the APA differed significantly on three issues dealing with polygraph testing. The majority (74%) of public examiners who are in the APA felt that examiners should have policing experience before being admitted into polygraph training school. A significantly smaller percentage (57%) of private examiners in the APA felt the same [$X^2=2.1$, $p=.0001$, $\phi=.16$].

Half of the public examiners in the APA felt that proficiency exams should be required on a periodic basis. A significantly smaller percentage (39%) of private examiners in the APA felt the same [$X^2=6.13$, $p=.0132$, $\phi=.09$].

The last significant relationship between private and public examiners that are APA members dealt with the issue of requiring continuing education programs for polygraph examiners. The great majority (98%) of public examiners in the APA felt that examiners should be required to participate in these programs. The majority (94%) of private examiners in

the APA also agreed with this requirement, but there was a significant difference between the two categories [$X^2=12.87$, $p=.0003$, $\phi=.12$].

Public and Private examiners not in the APA differed significantly on only one variable. The great majority (97%) of public examiners not in the APA felt that examiners should be required to take continuing education programs. The majority (92%) of private examiners not in the APA felt the same [$X^2=4.08$, $p=.0435$, $\phi=.10$].

Table 12

**Frequency and Percentage of General Views and Opinions on Polygraph
Testing for Public and Private Examiners by APA Membership**

	Public (N=1171)		Private (N=349)	
	n	(%) ¹	n	(%) ¹
<u>APA Member</u>				
Should examiners have policing exper. before admitted into poly. training school? (Q54)*				
Yes	425	(74)	125	(57)
No	153	(26)	94	(43)
What edu. level should examiners have before being let into a polygraph school? (Q 55)				
No Degree	196	(30)	63	(25)
Degree	450	(70)	186	(75)
Should examiners be required to serve internship before conduct exams alone? (Q 56) ^a				
Yes	605	(96)	227	(98)
No	22	(4)	4	(2)
Should examiners be required to take proficiency exams on a periodic basis? (Q 60)*				
Yes	252	(50)	76	(39)
No	256	(50)	118	(61)
Do you favor the development of a national certification program? (Q 57)				
Yes	375	(75)	132	(72)
No	124	(25)	52	(28)
Do you think polygraph examiners should be licensed? (Q 58)				
Yes	549	(95)	225	(98)
No	26	(5)	5	(2)
Should examiners be required to take continuing education programs? (Q 59)*				
Yes	640	(98)	225	(94)
No	11	(2)	15	(6)

<u>Non-Member APA</u>				
Should examiners have policing exper. before admitted into poly. training school? (Q54)				
Yes	200	(70)	49	(60)
No	84	(30)	32	(40)
What level of education should examiners have before being let into poly. school? (Q 55)				
No Degree	161	(47)	44	(46)
Degree	179	(53)	52	(54)
Should examiners be required to serve internship before conducting exams alone (Q 56)				
Yes	301	(95)	85	(94)
No	16	(5)	5	(6)

Table 12 (cont'd)

Should examiners be required to take proficiency exams on a periodic basis? (Q 60)

Yes	112	(44)	24	(32)
No	144	(56)	51	(68)

Do you favor the development of a national certification program? (Q 57)

Yes	157	(64)	46	(60)
No	86	(36)	31	(40)

Do you think polygraph examiners should be licensed? (Q 58)^a

Yes	279	(94)	84	(98)
No	19	(6)	2	(2)

Should examiners be required to take continuing education programs? (Q 59)*

Yes	319	(97)	83	(92)
No	10	(3)	7	(7)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

*Significant differences based on category of examiner

^aCell size is too small to do statistical analysis on this variable.

In sum, these results indicate that membership in the APA is associated with explaining the differences between the public and private examiners with respect to the following opinions: Prior investigative experience before formal polygraph training, the educational level needed before being admitted into a polygraph school, the requirement of proficiency exams on a periodic basis, and the development of a national certification program. On the other hand, membership in the APA was not associated with explaining the differences between public and private examiners with respect to the opinion on the requirement of continuing education programs.

Pre-Employment Polygraph Screening

Table 13 displays opinions on pre-employment polygraph screening. The examiners were asked if they thought

polygraph testing should be used to screen prospective employees for work in the private sector, in law enforcement agencies, and in government intelligence agencies. On the questionnaire the respondents were given three options to choose from; yes, no, and undecided. For the purpose of this analysis the "undecided" responses were excluded.

A great majority of the respondents support pre-employment polygraph screening in law enforcement and government intelligence agencies (98% and 99%, respectively). A smaller percentage of respondents (78%) support pre-employment polygraph screening in the private sector. There was a significant, but weak relationship between category of examiner and opinion on pre-employment polygraph screening in the private sector [$X^2=22.99$, $p=.0001$, Crammer's $V=.15$]. Private examiners (83%) were the most likely to agree to pre-employment polygraph screening in the private sector, followed by state and federal examiners (79% and 63%, respectively).

Table 13

Frequency and Percentage of Views and Opinions on Pre-Employment
Polygraph Screening by Category of Examiner

	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
Should the polygraph be used to screen employees for work in private sector? (Q 62a)*								
Yes	479	(79)	247	(83)	84	(63)	810	(78)
No	125	(21)	49	(17)	49	(37)	223	(22)
Should the polygraph be used to screen employees for work in policing? (Q 62b)								
Yes	760	(98)	316	(97)	172	(97)	1248	(98)
No	15	(2)	10	(3)	6	(3)	31	(2)
Should the polygraph be used to screen employees in gov't intelligence? (Q 62c) ^a								
Yes	765	(99)	319	(98)	178	(99)	1262	(99)
No	10	(1)	7	(2)	2	(1)	19	(1)

¹Corrected for missing data. Percentages rounded to nearest whole number.

*Significant differences based on category of examiner.

^aCell size too small to do statistical analysis on this variable.

Admissibility of Polygraph Evidence

Table 14 displays respondents' opinion on admissibility of polygraph examination results in criminal trials. Twenty percent of the respondents feel that polygraph examination results should be admitted in all cases and 10% feel that examination results should not be admitted under any circumstances in criminal trials. The majority of respondents (70%) feel that polygraph examination results should be admitted in criminal trials if certain conditions are met. For example, 43% percent responded that polygraph examination results should be admitted only when there is a stipulation. Another 25% felt that polygraph results should

be admitted only when there is an independent review of the polygraph charts. Lastly, only 2% mentioned that examination results should be admitted only when the results show truthfulness.

Table 14

Frequency and Percentage of Examiner Opinion On Admissibility of Polygraph Results In Criminal Trials by Category of Examiner

Opinion	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	n	(%) ¹	n	(%) ¹	n	(%) ¹	n	(%) ¹
Admitted only when there is a stipulation	360	(460)	129	(40)	55	(31)	544	(43)
Admitted only with independent chart review	189	(23)	87	(27)	64	(36)	340	(25)
Admitted in all cases	146	(19)	78	(24)	29	(16)	252	(20)
Should not be admitted	81	(10)	16	(5)	30	(17)	127	(10)
Admitted only if results show truthfulness	3	(1)	15	(5)	2	(1)	20	(2)

¹Corrected for missing data. Percentages rounded to nearest whole percent.

Amount of Emphasis by the APA

Respondents who held membership in the APA were asked to rate how much effort and resources should be devoted to certain activities. Similar analysis was shown in Table 7 for activities dealing with professional development. In Table 15 activities do not focus on professional development, but on more general issues. Specifically, respondents expressed the amount of effort and resources that they believed should be placed on: Challenging voice stress

analysis, defending police applicant screening, fostering relations with other associations, overturning the Employee Polygraph Protection Act (EPPA), and promoting foreign polygraph usage.

As shown in Table 15, the three issues that received the highest combined mean score values were defending police applicant screening ($\bar{M}=4.08$), overturning EPPA ($\bar{M}=3.71$), and fostering relations with other associations ($\bar{M}=3.34$). There was a significant difference between category of examiner and the issue of defending police applicant screening [$F(2,883)=10.95$, $p=.0001$]. Use of the Scheffe test showed that the mean for federal examiners ($\bar{M}=3.76$, $sd=1$) was significantly lower than the means for both the state ($\bar{M}=4.18$, $sd=.9$) and private examiners ($\bar{M}=4.08$, $sd=1.1$). The state and private examiners were not significantly different from each other. Compared to federal examiners, state and private examiners felt that more emphasis should be placed on defending police applicant screening.

There was also a significant relationship between category of examiner and the issue of overturning EPPA [$F(2,812)=12.85$, $p=.0001$]. Use of the Scheffe test showed that federal examiners ($\bar{M}=3.25$, $sd=1.3$) had a mean that was significantly lower than both the state ($\bar{M}=3.72$, $sd=1.3$) and private ($\bar{M}=3.97$, $sd=1.4$) examiners. The state and private examiners were not significantly different from each other. Compared to federal examiners, state and private examiners felt that more emphasis should be placed on overturning EPPA.

The final significant relationship in Table 15 deals with the issue of promoting foreign polygraph usage [$F(2,793)=7.40$, $p=.0007$]. Use of the Scheffe test showed that private examiners ($M=2.84$, $sd=1.3$) had a significantly higher mean than both the state ($M=2.53$, $sd=1.1$) and federal ($M=2.41$, $sd=1.1$) examiners. There was not a significant relationship between the state and federal examiners. When compared to state and federal examiners, private examiners felt that more emphasis should be placed on promoting foreign polygraph usage.

Table 15

APA Members' Opinions on the Amount of Effort the APA Should Devote to General Issues in the Polygraph Field Presented by Mean Scores

Issue	State (N=487)		Private (N=248)		Federal (N=161)		Combined (N=896)	
	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>
Defending police app.screening (Q 90c)*	4.18	1	4.08	1	3.76	1	4.08	1
Overturing EPPA (Q 90g)*	3.72	2	3.97	2	3.25	3	3.71	2
Fostering relations with other assoc(Q90e)	3.33	3	3.35	3	3.37	2	3.34	3
Challenging Voice Stress (Q 90b)	3.11	4	3.25	4	3.09	4	3.15	4
Promoting foreign polygraph use (Q90h)*	2.53	5	2.84	5	2.41	5	2.60	5

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=some, 3=moderate, 4=substantial, 5=major.

*Significant differences based on category of examiner.

The Effect of Education

In an effort to determine whether education was associated with these results, statistical tests were completed controlling for education. Table 16 differentiates between those examiners that have a degree and those that do

not. Similar to earlier analysis, the state and federal examiners were combined into one category called "public" examiners. The category for private examiners remained the same.

The results in Table 16 indicate that the amount of education did appear to be associated with explaining the differences between categories of examiners with respect to defending police applicant screening, overturning EPPA, and promoting foreign polygraph usage. On the other hand, education was not associated with the findings of fostering relations with other associations and challenging voice stress analysis.

Public and private examiners that do have a degree differed significantly in opinions on the amount of emphasis that should be given to overturning EPPA and promoting foreign polygraph usage. Private examiners ($\bar{M}=3.94$) had a significantly higher group mean than the public examiners ($\bar{M}=3.57$) with respect to overturning EPPA [two-tail test, $t=-3.01$, $df=559$, $p=.0027$]. Private examiners ($\bar{M}=2.87$) also had a significantly higher group mean than the public examiners ($\bar{M}=2.52$) in regards to promoting foreign polygraph usage [two-tail test, $t=-3.41$, $df=553$, $p=.0007$]. Public and private examiners with no degree did not differ significantly from each other on the issues presented in Table 16.

Table 16

APA Members' Opinions on the Amount of Effort the APA Should Devote to General Issues in the Polygraph Field Presented by Education of the Examiner

Education	Public (N=1171) <u>M¹</u> <u>Rank</u>		Private (N=349) <u>M¹</u> <u>Rank</u>	
<u>No Degree</u>				
Defending police applicant screening (Q 90c)	4.15	1	4.24	1
Overturing EPPA (Q 90g)	3.37	2	4.06	2
Fostering relations with other assoc. (Q 90e)	3.39	3	3.37	4
Challenging voice stress (Q 90b)	3.09	4	3.54	3
Promoting foreign polygraph usage (Q 90h)	2.47	5	2.73	5
<u>Degree</u>				
Defending police applicant screening (Q 90c)	4.04	1	4.01	1
Overturing EPPA (Q 90g)*	3.57	2	3.94	2
Fostering relations with other assoc. (Q 90e)	3.31	3	3.33	3
Challenging voice stress (Q 90b)	3.10	4	3.15	4
Promoting foreign polygraph usage (Q 90h)*	2.51	5	2.87	5

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=some, 3=moderate, 4=substantial, 5=major.

*Significant differences based on category of examiner

In sum, education was associated with explaining the differences between the categories of examiners with respect to three of these issues; defending police applicant screening, overturning EPPA, and promoting foreign polygraph usage.

Issues of Greatest Importance

The surveyed examiners were given a list of concerns that have been expressed about polygraph testing, polygraph examiners, and the "polygraph examiner community" in the United States. The examiners were asked to indicate their

views of importance on a six-point scale, where 1 indicated that the item was of no importance as a "problem" facing the polygraph field to a 6 that indicated that the item was a very serious problem. The results are reflected in Table 17 by the mean score of responses to each issue; the issues are rank ordered according to the "combined" mean score values.

As shown in Table 17, the three issues that received the highest mean score values, in order, for the combined column were: Basic training of examiners ($\bar{M}=4.93$), poor public relations ($\bar{M}=4.79$), and background credentials of persons who are trained ($\bar{M}=4.66$). The respondents reported that these items are very important as "problems" facing the polygraph field.

There was a significant relationship between category of examiner and 6 of the 13 issues shown in Table 17. To begin with, there was a significant relationship between category of examiner and opinion as to how much of a problem poor public relations is on the polygraph field [$F(2,1329)=14.6$, $p=.0001$]. Use of the Scheffe test showed that state examiners ($\bar{M}=4.65$, $sd=1.2$) had a significantly lower mean than both the private ($\bar{M}=5.05$, $sd=1.2$) and federal ($\bar{M}=4.92$, $sd=1.2$) examiners. Federal and private examiners did not differ significantly with respect to this issue.

The same holds true pertaining to the issue of lack of professionalism in the field [$F(2,1329)=7.7$, $p=.0005$]. Use of the Scheffe test demonstrated that state examiners ($\bar{M}=4.37$, $sd=1.3$) had a significantly lower mean than private

examiners ($\bar{M}=4.66, sd=1.2$). On the other hand, federal examiners ($M=4.62, sd=1.1$) did not differ significantly from private or state examiners.

There was also a significant relationship between category of examiner and the issue of lack of standardized testing [$F(2,1330)=5.07, p=.0064$]. Use of the Scheffe test showed that state examiners ($\bar{M}=4.36, sd=1.3$) had a significantly lower mean than federal examiners ($\bar{M}=4.69, sd=1.2$). Private examiners ($\bar{M}=4.47, sd=1.3$), on the other hand, did not differ significantly from state or private examiners.

Another concern that has been expressed about polygraph testing is inadequate licensing legislation. There was a significant difference between category of examiner and opinion as to how much of a problem this issue is on the polygraph field [$F(2,1322)=6.09, p=.0023$]. Use of the Scheffe test demonstrated that private examiners ($\bar{M}=4.67, sd=1.3$) had a significantly higher mean than both the state ($\bar{M}=4.38, sd=1.4$) and federal ($\bar{M}=4.39, sd=1.3$) examiners. The state and federal examiners, on the other hand, did not significantly differ from each other on this issue.

Respondents were asked to rate the degree of importance pertaining to the issue of lack of understanding of what polygraph testing involves. There was a significant difference between category of examiner and opinion on this issue [$F(2,1324)=8.02, p=.0003$]. Use of the Scheffe test demonstrated that state examiners ($\bar{M}=4.22, sd=1.3$) had a

significantly lower mean than private examiners ($\bar{M}=4.54, sd=1.3$). On the other hand, federal examiners ($\bar{M}=4.38, sd=1.2$) did not differ significantly from the state or private examiners.

The sixth and final significant relationship in Table 17 pertains to the issue of not enough in-service training programs. There was a significant difference between category of examiner and opinion as to how much of a problem this issue is on the polygraph field [$F(2,1326)=9.9, p=.0001$]. Use of the Scheffe test demonstrated that state examiners ($\bar{M}=4.21, sd=1.2$) had a significantly higher mean than both federal ($\bar{M}=3.86, sd=1.1$) and private ($\bar{M}=3.94, sd=1.3$) examiners. Federal examiners, on the other hand, did not differ significantly from private examiners.

It is noteworthy to mention that the mean scores for all the issues ranged between moderately important (4) and of serious importance (5), indicating that, on average, the respondents agreed that each issue was of importance as a "problem" facing the polygraph field. The only exception to this was the issue pertaining to inadequate polygraph instruments ($\bar{M}=3.39$). Examiners felt that this item was of lesser importance than other "problems" facing the polygraph field.

Table 17

**Issues of Greatest Importance Pertaining to Concerns That Have Been Expressed
About Polygraph Testing Presented by Mean Scores in Rank Order**

Issue	State (N=822)		Private (N=349)		Federal (N=190)		Combined (N=1361)	
	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>	<u>M¹</u>	<u>Rank</u>
Basic training of examiners	4.87	1	5.04	2	5.01	1	4.93	1
Poor public relations*	4.65	2	5.05	1	4.92	2	4.79	2
Background credentials of persons trained	4.61	3	4.75	3	4.75	3	4.66	3
Lack professionalism in field*	4.37	5	4.66	5	4.62	5	4.48	4
Inadequate licensing legislation*	4.38	4	4.67	4	4.39	6	4.45	5
Lack of standardized. testing procedures*	4.36	6	4.47	7	4.69	4	4.44	6
Lack of understanding of what polygraph testing involves*	4.22	8	4.54	6	4.38	7	4.32	7
Not enough adequate research supporting polygraph testing	4.24	7	4.35	8	4.37	8	4.29	8
Not enough in-service training programs*	4.21	9	3.95	12	3.86	12	4.10	9
Lack of general admissibility as evidence	4.01	12	4.23	9	4.00	10	4.07	10
Lack of court acceptance of results	4.04	10	4.18	10	3.94	11	4.06	11
Low ethical standards of examiners	4.02	11	4.13	11	4.01	9	4.05	12
Inadequate polygraph instruments	3.39	13	3.44	13	3.30	13	3.39	13

¹Corrected for missing data. M= Mean score of responses scored as 1=none, 2=minor, 3=some, 4=moderate, 5=serious, 6=very serious

*Significant differences based on category of examiner

Statistical analysis showed that the category of examiner did not affect examiner opinion on seven of these issues. Since the means for these three categories were not different, the state, private, and federal examiners were combined into one group. The purpose behind combining the examiners was to explore other variables that may have an effect on these opinions.

The Effect of Education

In an effort to determine whether education was associated with these views, statistical analysis was completed controlling for education. The examiners were divided into two groups; those who have a degree and those who do not have a degree. The rank orderings for those with a degree were similar to those without a degree. There were no significant differences between those examiners that have a degree and those examiners that do not have a degree. In sum, the amount of education did not have an effect on the concerns listed in Table 18.

Table 18

Issues of Greatest Importance Pertaining to Concerns That Have Been Expressed About Polygraph Testing Presented by Mean Scores in Rank Order Controlling for Education

Issue	No Degree (N=464)		Degree (N=867)		Combined (N=1331)	
	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>
Basic training of examiners (Q 68b)	4.87	1	4.97	1	4.93	1
Background credentials person trained (Q 68a)	4.59	2	4.70	2	4.66	2
Not enough research supporting poly. (Q 68l)	4.25	3	4.30	3	4.29	3
Lack general admissibility as evidence (Q 68f)	4.05	6	4.07	4	4.07	4
Lack of court acceptance of results (Q 68e)	4.06	5	4.06	5	4.06	5
Low ethical standards of examiners (Q 68J)	4.13	4	4.02	6	4.05	6
Inadequate polygraph instruments (Q 68d)	3.35	7	3.35	7	3.39	7

1Corrected for missing data. M= Mean score of responses scored as 1=none, 2=minor, 3=some, 4=moderate, 5=serious, 6=very serious

*Significant differences based on education of the examiner.

The Effect of APA Membership

Similar analysis was conducted controlling for membership in the APA. Table 19 displays these variables when controlling for membership in the APA. Examiners were divided into two groups; members in the APA and non-members in the APA. There was a significant difference between members and non-members with regards to two of the issues that have been expressed about polygraph testing. The first issue deals with the lack of general admissibility of polygraph testing as evidence. When compared to non-members, members of the APA considered this issue to be of more importance ($\bar{M}=4.17$ vs. $\bar{M}=3.84$) [two-tail test, $t=3.89$, $df=1326$, $p=.0001$].

The second significant difference between members and

non-members of the APA deals with the issue of lack of court acceptance of results. When compared to non-members, members of the APA considered this issue to be of more importance ($\bar{M}=4.16$ vs. $\bar{M}=3.85$) [two-tail test, $t=3.72$, $df=1325$, $p=.0002$].

Table 19

Issues of Greatest Importance Pertaining to Concerns That Have Been Expressed About Polygraph Testing Presented by Mean Scores in Rank Order Controlling for Membership in the APA

Issue	Member (N=914)		Non-Member (N=447)		Combined (N=1361)	
	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>
Basic training of examiners (Q 68b)	4.93	1	4.95	1	4.93	1
Background credentials person trained (Q 68a)	4.65	2	4.70	2	4.66	2
Not enough research support the poly(Q 68l)	4.31	3	4.23	3	4.29	3
Lack general admiss. as evidence (Q 68f)*	4.17	4	3.84	6	4.07	4
Lack of court acceptance of results (Q 68e)*	4.16	5	3.85	5	4.06	5
Low ethical standards of examiners (Q 68J)	4.08	6	3.99	4	4.05	6
Inadequate polygraph instruments (Q 68d)	3.35	7	3.46	7	3.39	7

1Corrected for missing data. M= Mean score of responses scored as 1=none, 2=minor, 3=some, 4=moderate, 5=serious, 6=very serious

*Significant differences based on membership in the APA

The Effect of Experience

Next, the amount of examiner experience was considered. Table 20 lists the seven issues that have been expressed about polygraph testing. Similar to earlier analysis, the examiners were divided into three categories; low, moderate, and high levels of experience.

The only significant relationship between the issues in Table 20 and experience of the examiner dealt with the

concern of background credentials of persons trained [$F(2,1320)=5.76, p=.0033$]. Use of the Scheffe test demonstrated that the high experienced examiners ($M=4.76, sd=1.2$) had a significantly higher mean than the low experienced examiners ($M=4.46, sd=1.2$). The moderate experienced examiners ($M=4.67, sd=1.2$) did not differ significantly from the low or high experienced examiners.

Table 20

Issues of Greatest Importance Pertaining to Concerns That Have Been Expressed About Polygraph Testing Presented by Mean Scores in Rank Order Controlling for Experience of the Examiner

Issue	Low (N=292)		Moderate (N=538)		High (N=519)		Combine (N=1349)	
	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>	<u>M</u>	<u>Rank</u>
Basic training of examiners (Q 68b)	4.78	1	4.96	1	5.00	1	4.93	1
Bckgrd.credentials person trained (Q68a)*	4.46	2	4.67	2	4.76	2	4.66	2
Not enough research support poly.(Q 68l)	4.18	5	4.28	3	4.35	3	4.29	3
Lack general admiss. as evidence (Q 68f)	4.20	4	4.07	5	4.01	5	4.07	4
Lack of court acceptance of results (Q 68e)	4.21	3	4.06	6	4.00	6	4.06	5
Low ethical standards examiners (Q 68J)	3.92	6	4.12	4	4.04	4	4.05	6
Inadequate polygraph instruments (Q 68d)	3.49	7	3.35	7	3.38	7	3.39	7

1Corrected for missing data. M= Mean score of responses scored as 1=none, 2=minor, 3=moderate, 4=serious, 5=very serious.

*Significant differences based on experience of the examiner

In sum, the amount of examiner education did not effect the views expressed pertaining to concerns about polygraph testing. Membership in the APA did have an effect on the concerns of lack of general admissibility as evidence and lack of court acceptance of results. Members viewed both of these concerns as being more important than non-members.

Finally, polygraph examiner experience only had an effect on one of the variables. Compared to low experience examiners, highly experience examiners felt that background credentials of persons trained was of more importance.

Chapter 5

Discussion and Conclusions

This chapter is divided into three sections. It begins with a discussion of the study results and how these findings fit into the context of professionalism in the polygraph field. Limitations of the study are discussed in the second section. The third and final section addresses the direction of future research.

Section A - Professionalism

The present study provides a detailed description of the backgrounds, attitudes, and opinions of polygraph examiners in the United States. One benefit of such an in-depth, comprehensive analysis is that it provides a foundation for understanding where the polygraph field fits in with other occupations. Once this is known, those in the field can, if they wish, attempt to change their position on one or more dimensions of the occupation-profession continuum.

Many advocates of polygraph testing continue to push for an increase in the "professionalism" of polygraph examiners. These individuals support changes that will assist this occupation in moving closer to professional status. For these proponents, the ultimate goal is to transform the polygraph field into a "profession".

In the literature on occupations and professions there are numerous discussions on the professionalization process, yet there continues to be little agreement in defining the distinguishing traits and characteristics of a "profession"

(Larson, 1977). In their classic study, *The Professions*, (1933) Carr-Saunders and Wilson argued that a typical profession exhibits a complex set of characteristics. Since this claim, numerous sociologists have attempted to define these characteristics in an attempt to distinguish professional and nonprofessional occupations (Pavalko, 1971).

Millerson (1964), after a review of the literature, listed 23 elements which had been included in various definitions of a profession. After reviewing research from 21 authors, Millerson came to the conclusion that there was little agreement in what constitutes a profession. No single item was accepted by every author as a necessary characteristic of a profession. However, there were many characteristics that were mentioned by the majority. The most frequently mentioned characteristics were: (1) possession of a skill based on theoretical knowledge; (2) provision of training and education; (3) testing of competence of members; (4) the organization of a professional association; (5) adherence to a code of ethics; and (6) altruistic service.

Since the 1970s, however, this descriptive approach of defining a profession has been criticized for being too ambiguous. Critics point to the fact that the characteristics of a profession were selected in an arbitrary manner with little attempt in understanding the relationships between the elements (Johnson, 1972). Given this, recent literature has focused more on the theme of professional power. Friedson

(1983) feels that the single uniform distinguishing characteristic of the professions is the power of the professions to define and control their own work. Self-regulation and freedom from external control seem to be the main characteristics behind the current definition of what constitutes a profession.

One could argue that the polygraph field, in general, has some of the elements that have been described in both past and current research pertaining to what constitutes a profession. The descriptive nature of the "check-list" approach frequently used in the 1950s and 1960s can be helpful in the organization of well defined elements constituting a profession. The findings in this study suggest that some, if not all, of these characteristics are present in the polygraph field, but, as a group, it is acknowledged that examiners fall short of professional status.

The more current research pertaining to professional power can also be related to the present position of the polygraph field. When examiners seek to obtain from the state special privileges, such as a system of licensing and self-government, they are increasing the professionalization of the field by increasing their professional power. Much effort is still needed in this area. For example, there are still 21 states with no polygraph examiner licensing laws. Fortunately, as the results indicate, there is very high agreement among polygraph examiners with respect to licensing

law requirements and other issues pertaining to the professional development of the polygraph examiner.

Even though there is little agreement in defining the traits and characteristics of a profession, there appears to be some agreement in attempting to distinguish professional from non-professional occupations. The common theme, in both past and current research, seems to focus on a high degree of technical competence in the members of certain work groups. This especially holds true in the polygraph field.

The competency level of polygraph examiners has continued to be a topic of concern. In the beginning of this study it was mentioned that the competent polygraph examiner is the most influential factor to an effective polygraph examination. Both critics and proponents of polygraph testing, however, often make claims of the high prevalence of incompetency among polygraph examiners (Reid and Inbau, 1966; Lykken, 1980; Elmore, 1981; Nagle, 1983; Graham, 1986). This study was not intended to measure directly the competence of examiners, but it did provide a description of some qualities and characteristics pertaining to a competent examiner. Prior to this study, there was no systematic information on polygraph examiners concerning these issues.

In 1938 William Marston mentioned the importance of a college education in his discussion on the proper training of polygraph examiners. The education requirement has continued to be a focus of concern. In contrast to what is often assumed, the educational level of polygraph examiners is

actually quite high. As the study results indicate, sixty-five percent of the respondents possess at least a Bachelor's Degree. A significant proportion of these examiners (18%) possess an advanced degree.

Similar to other occupations, the educational requirements for polygraph examiners have increased over the years. This is due, in part, to an increase in state licensing laws requiring formal education. This requirement is said by many to be one of the most critical of all prerequisites of polygraph testing. Because of this, it could be argued that as the educational level of polygraph examiners continues to increase, the professionalization of the field rises respectively. The study results suggest that the field has made some strides towards increasing the educational level of examiners. Continued efforts would help to increase the professional development of polygraph examiners.

The study results also indicate that examiners are experienced. A great majority of respondents (78%) have been practicing for at least six years. Thirty-eight percent of these examiners have 15 or more years of experience. As highlighted in the literature review, the experience level of examiners may aid in increasing examiner competency. Also, it is noteworthy to mention that 88% of the respondents have prior investigative or policing experience. Many feel that this background is also important in polygraph testing.

A considerable number of examiners are also involved in

various professional development activities. Eighty-two percent have attended a national training program since completion of their initial polygraph training. This is an important finding because much of the discussion on professionalism revolves around the issue of training. Additionally, 38% of the examiners belong to a national professional or scientific association not in the polygraph field. The same percentage of examiners have spoken to a professional or scientific organization about polygraph testing within five years prior to completion of the survey. Well over half of the examiners (57%) have also been to a state or regional polygraph seminar, and an additional 45% of the examiners have attended a seminar of the APA.

In sum, the study results indicate that the majority of polygraph examiners in the United States are educated, experienced, and have backgrounds in policing or investigative work. A considerable number of examiners are also involved in various professional development activities. Since these are qualities and characteristics that may aid in increasing the competency level of examiners, it is reassuring to know that many examiners possess these qualities.

Knowledge of these characteristics and backgrounds is essential in the development of professional standards in the field. Before this study, little was known about these characteristics. With this information, the polygraph field can gain a better understanding of the strengths and

weaknesses of its members. Once this is known, the field can place continued efforts in specific areas dealing with the professional development of polygraph examiners.

Section B - Limitations of the Study

The first limitation of this study deals with the relatively low response rate. It was recognized from the start that the detailed questionnaire used in this study might depress the response rate. Because of limited funds, it was decided that an extensive, as opposed to a reduced, questionnaire would be used. Mailing reduced versions of the questionnaire would not have been feasible because of the costs of postage.

As noted in chapter III, the overall survey response rate was 38%. When response rates fall below 50%, it is usually wise to ask if the respondents differ in some way systematically from the non-respondents. This is because there is evidence to suggest that individuals who respond in surveys like this one are, on average, more educated and interested in the topic at hand (Horvath, 1995; Maxfield and Babbie, 1998). While it was not possible to determine if these respondents differed with respect to these characteristics, it was possible to analyze how the respondents corresponded to the known APA membership with respect to examiner category.

Approximately 50% of the members in the APA are state examiners, 34% are private examiners, and 16% are federal examiners. Proportions of responses from APA members were

55% for state examiners, 27% for private examiners, and 18% for federal examiners. The difference between the respondents category of work and APA membership categories was not significant [$X^2=1.16$, $p=.56$]. This suggests that the respondents were, at least as far as category of work is concerned, similar to examiners in the APA.

A second limitation deals with how experience of the examiner was operationalized. As noted in Chapter III, experience was defined according to the number of years the examiner had practiced, not by the number of examinations completed. This could be a concern because experience in years may not be strongly related to actual testing experience. For example, this occurs when an examiner practices only on a part-time basis and carries out examinations infrequently. Nevertheless, for purposes of this research it was decided that years, as opposed to number of examinations, would be used for statistical analysis.

Another limitation of this study deals with small cell sizes when education was used as a control variable. For instance, there were only six federal examiners without a college degree. This finding was not unforeseen considering that the minimum requirement to become an examiner at the federal level is usually a Bachelor's Degree. Having small cell sizes can create problems in terms of generalizability and confidence in the findings. A viable solution was to collapse the federal and state examiners into one category called "public" examiners. Unfortunately, when collapsing

variables into one group the possibility exists that dissimilar elements will be grouped together. It is recognized that these categories of examiners have their differences, but the collapsing of state and federal examiners into one category was necessary for further analysis.

Another limitation deals with the lack of available research on the topic at hand. Before this study, very little was known about the backgrounds, attitudes, and opinions of polygraph examiners. Since this is the first survey that attempts to provide systematic information about polygraph examiners, it was not possible to compare these results with other research findings. Because of this, there was no useful empirical reference guide for designing the nature of this inquiry or for preparing specific research questions that built upon prior knowledge.

Section C - Implications

Two significant events in the past decade have been damaging, at least in part, to the polygraph field. The passage of the Employee Protection Polygraph Act (EPPA) on December 27, 1988, and the Supreme Court's decision in *United States v. Scheffer* on March 31, 1998, may have set back the growth of the polygraph field, and may have influenced the direction it will take in the future. It is possible that these decisions could have been avoided if there were a better understanding of polygraph testing. Since this field is perhaps best understood by understanding its members,

continued research, similar to the study at hand, should be conducted.

In spite of EPPA and the *Scheffer* decision these events should not be taken as devastating blows to the field. Both implicitly recognize the importance of polygraph testing. For example, EPPA recognizes the accuracy and reliability of testing by exempting both public employers and some private businesses from its prohibitions. In the *Scheffer* decision, the majority of justices in the concurring opinion and the dissent indicated that a blanket exclusion of polygraph evidence in the military courts may not be a wise decision.

Nearly all states prohibit or strictly limit the use of polygraph evidence by both sides in a criminal trial, so the *Scheffer* decision may not change the prevailing practice. The Court left state and lower federal courts free to relax barriers against polygraph evidence as a matter of policy. Justice Thomas said that individual jurisdictions "may reasonably reach differing conclusions as to whether polygraph evidence should be admitted." This indicates that, similar to EPPA, the *Scheffer* decision acknowledges the potential usefulness of polygraph testing. Continued research efforts are necessary in order to prevent more serious and damaging outcomes.

The results of this study help to clarify and articulate some of the critical issues that should be addressed in future research dealing with polygraph examiners. To begin with, members of the APA were asked to give their opinions on

the amount of emphasis the APA should devote to certain activities. Respondents reported that substantial/major efforts should be placed on weeding out unethical and incompetent examiners, research activities, and offering more advanced training programs. State, private, and federal examiners all agreed on the rankings of these issues. Based on these findings examiners recognize that unethical and incompetent examiners harm all in the field and that research activities and advanced training programs are essential to continued improvement.

One method of decreasing the number of unethical and incompetent examiners is through stringent state licensing laws. These laws can set minimum requirements for examiners. Requiring examiners to possess a Bachelor's Degree, to undergo a supervised internship, and to have attended a polygraph training school accredited by the APA can serve to reduce the number of unethical and incompetent examiners. At present, in states without licensing requirements, virtually anyone can practice polygraph testing without meeting any of these proposed minimum standards. This, of course, is detrimental to the professional development of the polygraph field.

Members of occupations that have reached professional status have set forth minimum requirements for entry into their profession. For example, medical students must pass review boards and complete formal internship programs to become doctors. Accountants also have to meet minimum

requirements. They have to take extensive written examinations and practice publicly before they are able to become certified public accountants. Also, lawyers must pass the bar exam before they represent a client in court. Polygraph examiners, on the other hand, do not have nationally established guidelines in the field. It can be argued that the lack of these guidelines is detrimental to increasing professionalism in the polygraph field.

In the past, it has been mentioned that there is inconsistent agreement among examiners relating to various issues in the polygraph field (Reid and Inbau, 1966). This study, on the other hand, indicates that there is very strong agreement from the respondents on several issues. For example, almost all of the respondents (96%) reported that polygraph examiners should be licensed. Interestingly, there are currently 21 states with no examiner licensing laws (American Polygraph Association, 1996). With such a high agreement among examiners, one would think that examiners practicing in states with no licensing requirements would push more forcefully for the passage of such laws.

Almost all examiners (96%) agree that there is a need for supervised internship requirements before administering exams alone. Even though there is such high agreement relating to this issue, a few polygraph training schools, some of which are not accredited, do not have this requirement (F. Horvath, personal communication, April 22, 1998).

The great majority of respondents (97%) also reported that examiners should be required to attend continuing education programs. This requirement is often present at the federal level, but examiners practicing at the state/local and private levels are usually not required to attend continuing education programs. Since there is such high agreement among the respondents, efforts should be placed on passing programs that require examiners to attend some form of continuing education.

Virtually all examiners stated that polygraph testing should be used to screen employees for work in policing and in government intelligence work (98% and 99%, respectively). A great majority of examiners (90%) also reported that polygraph results should be admitted in criminal trials if certain conditions are met. This high agreement among examiners indicates the high level of confidence that examiners have towards their colleagues and the polygraph testing process. This can be beneficial in confronting the controversy that surrounds the field.

It is reassuring to know that polygraph examiners are in such high agreement on various issues in the field. This insight may be beneficial to legislatures in the creation of minimum requirements for examiners. Since examiners are in such high agreement, it is paramount to focus continued efforts in the passage of these minimum standards.

Several concerns have been expressed about polygraph testing, polygraph examiners, and the polygraph examiner

community in the United States. The survey respondents gave their opinions as to how much of a "problem" each of the concerns are to the polygraph field. With the exception of inadequate polygraph instruments, examiners ranked each of the issues as a moderate to serious "problem". Basic training of examiners, poor public relations, and the background credentials of persons trained were the top three concerns given by the respondents. They considered these to be the most serious "problems" facing the field. Based on these responses, increased efforts should be devoted to these issues in order to increase professionalism in the polygraph field.

With the exception of poor public relations, all of the issues just mentioned deal directly with the characteristics and qualities of the polygraph examiner. The importance of this was highlighted in the beginning of the study. It was argued from the start that the qualities and characteristics of polygraph examiners are the most important considerations in assessing the accuracy of polygraph testing. Based on the findings in this study, one could argue that the polygraph examiners themselves are in agreement. With this in mind, future research should continue to focus on issues dealing with the individual examiner.

Lastly, it was mentioned in chapter I that polygraph examiners themselves may benefit the most from this study. It is hoped that this study has provided polygraph examiners with a better understanding of their colleagues. One clear

benefit of this is that a polygraph examiner can point to these results in court. The data in this study will be of value to the examiner in explaining what examiners do and how they perceive their field. Simply knowing that the majority of examiners in the United States are educated, experienced, and have backgrounds in investigative work may help in establishing the credibility of the field.

Because of their strong desire to increase professionalization within the polygraph field, the APA can be credited for many of the advances in the field. This association has attempted to change its position on the occupation-profession continuum, but just where the polygraph field lies on this continuum is uncertain. Continued efforts, such as research similar to this study, still need to be made.

This study is just the beginning in an attempt to gain insight into the polygraph field. The results of this study and the above implications serve as a useful reference guide in triggering future research endeavors. Since the polygraph field is perhaps best understood by understanding those who make it up, considerable efforts must be devoted to understanding further the members of this occupation. The field can then attempt to move more strongly toward professional status.

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APPENDIX

APPENDIX A

Polygraph Examiner Survey Questionnaire

Polygraph (Detection of Deception) Examiner Survey

Partial financial and mailing support provided by the Axciton Instrument Co. and the Lafayette Instrument Co. The Stoelting Instrument Co. provided helpful mailing assistance.

II. Professional Characteristics and Background

5. What is the title of your present position? _____
6. What is your state of residence? _____
7. Does your state require polygraph examiner licensing? Yes [] No []
8. Do you hold a "polygraph examiners license"? Yes [] No []
- a. IF YES, how many and which states?
- (1) Number of state licenses: _____
- (2) States in which you hold licenses (Please list all): _____
9. Do you have professional liability insurance? Yes [] No []
10. During the past five years have you spoken by invitation to any non-polygraph community organizations about polygraph testing? Yes [] No []
11. During the past five years have you spoken by invitation to any professional or scientific organizations about polygraph testing? Yes [] No []
12. Prior to or during your initial polygraph training were you a sworn officer for a public law enforcement agency or one of the military or intelligence services? Yes [] No []
13. Did you attend your initial polygraph training program under sponsorship by a public law enforcement agency or one of the military/intelligence services? Yes [] No []
14. What was the name of the school where you received your initial polygraph training? _____
15. At the time of your attendance was the training school accredited by the American Polygraph Association? Yes [] No [] Don't know []
16. In what year did you complete your initial polygraph training? 19 ____
17. Did you serve a supervised internship as part of or after your initial polygraph training? Yes [] No []
- a. IF YES - (1) Number of months? ____
- (2) How many exams? ____
18. Since completion of your initial polygraph training, have you attended any national training programs/seminars/short courses related to polygraph testing? Yes [] No []
- a. IF YES, how many have you attended in:
- (1) the past five years? ____
- (2) the past two years? ____
19. Since completion of your initial polygraph training have you completed any college level academic course work? Yes [] No []
- a. IF YES, how many semester credits have you completed? _____

20. Consider each of the areas listed below and indicate the degree of your interest in training on that topic if it were available. (Circle your responses)

	Degree of Interest				
	No interest	Slight	Moderate	Strong	Very strong
a. Chart interpretation	0	1	2	3	4
b. Control Question Development	0	1	2	3	4
c. Establishing a successful polygraph business	0	1	2	3	4
d. Interrogation	0	1	2	3	4
e. Interviewing	0	1	2	3	4
f. Relevant Question Development	0	1	2	3	4
g. Technique developments	0	1	2	3	4
h. Testing in sexual conduct cases	0	1	2	3	4
i. Testing for probation purposes	0	1	2	3	4
j. Use of computerized polygraph instruments	0	1	2	3	4
k. Use of "Guilty Knowledge" testing	0	1	2	3	4
l. Other (Please specify) _____					

21. How regularly do you conduct polygraph examinations? Full time [] Part time []

22. Are you now or have you ever been an instructor in a basic polygraph examiners training course? Yes [] No []

23. Have you ever been appointed to serve as a member of any state polygraph licensing or regulatory board? Yes [] No []

a. IF YES, which state(s)? _____

24. What term best describes the nature of your current work in the polygraph testing field? (Check only one)

Law enforcement (state or local) (1) []
 Law enforcement (federal) (2) []
 Federal intelligence and/or security (3) []
 Military services (4) []
 Private or commercial practice (5) []
 Other (Please specify) (6) _____

25. Prior to your current position, were you ever employed as a polygraph examiner for any of the following? (Check all that apply)

a. Law enforcement (state or local) []
 b. Law enforcement (federal) []
 c. Federal intelligence and/or security []
 d. Military services []
 e. Private or commercial practice []
 f. Other (Please specify) _____

26. If you are currently employed as a law enforcement examiner, are you required to carry out tasks other than conducting polygraph examinations? Yes [] No []

a. IF YES, what other tasks are you required to perform? (Check all that apply)

a. Clerical []
 b. Investigations []
 c. Interviews []
 d. Hostage negotiations []
 e. Patrol duties []
 f. Other (Please specify) _____

III. Polygraph Testing Practices and Experience

27. What term best describes the "technique" you most typically use to administer specific issue polygraph testing? (For instance, "Zone Comparison", "Modified General Question Test", "Relevant-Irrelevant" and so forth are terms that are commonly used.)
-
28. Approximately what percentage of the specific issue examinations that you carry out are those in which you believe it would be appropriate to use "peak-of-tension" testing or the related "guilty knowledge" testing (whether you actually used such tests or not) either alone or in conjunction with other types of tests? _____ %
29. Do you use stimulation (Stim) tests when you conduct specific issue examinations? Always (1) [] Sometimes (2) [] Never (3) []
30. What brand of instrument do you currently use?
Lafayette (1) [] Stoelting (2) [] Both (3) [] Other (Please specify) (4) _____
31. Do you know how to use a "computerized polygraph instrument" or have you had any training in the use of such an instrument? Yes [] No []
- a. IF YES, do you now use a "computerized" polygraph instrument in administering polygraph examinations? Yes [] No []
- b. IF YES, do you use a computer program to assist in decision making? Yes [] No []
32. How frequently do you calibrate your polygraph instrument? (Check only one)
- | | |
|--------------------------------|---------|
| Before every examination | (1) [] |
| Every day before testing | (2) [] |
| Every week | (3) [] |
| Every month | (4) [] |
| Only when it appears necessary | (5) [] |
33. When you were enrolled in your initial polygraph examiner's training program, were you taught how to evaluate polygraph charts with numerical scoring? Yes [] No []
34. How do you now typically "score" or evaluate your polygraph charts in specific issues cases? (Check only one)
- | | |
|---|---------|
| Numerically, on a 7 point (+3 to -3) system | (1) [] |
| Numerically, on a 3 point (+1 to -1) system | (2) [] |
| Rank order scoring | (3) [] |
| Computer algorithm | (4) [] |
| Non-numerically | (5) [] |
| Other (Please specify) (6) _____ | |
35. Approximately how many polygraph examinations of the following types have you performed in the past 12 months?
- a. Pre-employment _____ b. Periodic _____ c. Specific issue _____
36. Approximately how many of each of these examination types have you administered since graduation from your basic polygraph examiner training program?
- a. Pre-employment _____ b. Periodic _____ c. Specific issue _____

37. Have you ever had to testify in court with regard to a polygraph examination?

Yes [] No []

a. IF YES, for your most recent such testimony:

(1) at what level was the court? Local (1) [] State (2) [] Federal (3) []

(2) what was the type of situation involved? Criminal [] Civil []

38. In the last three years have you administered polygraph examinations (for a fee or otherwise) for any of the following criminal justice agencies? (Check all that apply)

- a. Law enforcement (state or local) []
- b. Law enforcement (federal) []
- c. Federal intelligence/security []
- d. Military services []
- e. Prosecutors []
- f. Defense Attorney []
- g. Judges []
- h. Probation/parole officers []
- i. Other (Please specify) _____

39. How many years has the organization for which you are now employed used polygraph testing for any purpose? _____

40. How many polygraph examiners are employed in your organization? _____

41. Do you or your employer routinely conduct examinations off-site (away from your office)?

Yes [] No []

a. IF YES, please specify the type of location: _____

42. Do you have another polygraph examiner score or review (quality control) your polygraph charts in specific issue testing?

Always (1) [] Sometimes (2) [] Only on request (3) [] Never (4) []

43. Are you required to report your polygraph examination results to a polygraph coordinator/supervisor?

Always (1) [] Sometimes (2) [] Only on request (3) [] Never (4) []

44. Does your employer have written policies with respect to:

- a. how polygraph examinations are to be conducted (e.g., type of technique)? Yes [] No []
- b. how polygraph examination results are to be handled internally? Yes [] No []
- c. how polygraph examination results are to be reported? Yes [] No []
- d. release of polygraph examination results outside the organization? Yes [] No []

45. In the past 12 months, what is the approximate percentage of cases of the following types in which you have administered polygraph examinations? (Total should equal 100%)

- a. Drug use/sale/possession _____%
- b. Homicide (or attempted) _____%
- c. Sexual assault/rape (adult) _____%
- d. Sexual assault (minor) _____%
- e. Theft (all types but excluding violent offenses) _____%
- f. Theft-robbery/forcible _____%
- g. Other _____%

46. Are there specific criminal cases/situations in which you will routinely decline to conduct polygraph examinations? Yes [] No []

a. IF YES, what kinds of cases are these? (e.g., pregnancy, juveniles under 16, etc.):

47. Based upon your experience in administering specific issue polygraph examinations using a "control-question" procedure, how many errors do you know with certainty that you have made?

- a. Actually truthful person reported deceptive: _____
b. Actually deceptive person reported truthful: _____

48. Based upon your experience in administering specific issue polygraph examinations using a "control-question" procedure in the last 12 months, what is the approximate percentage of your decisions in each of these categories? (Total should equal 100%)

- a. Truthful (NDI) _____ %
b. Deceptive (DI) _____ %
c. Inconclusive (INC) _____ %
d. Other _____ %

49. Based upon your experience in administering specific issue polygraph examinations using a "control-question" procedure, in the past 12 months, what is number of instances in which you know you have made an error?

- a. Number of known errors on actually truthful persons _____
b. Number of known errors on actually deceptive persons _____
c. Inconclusive decisions that should have been "Truthful" _____
d. Inconclusive decisions that should have been "Deceptive" _____

50. In the past 12 months, what is the approximate percentage of persons who have "confessed" their guilt to you during the pre-test interview of specific issue examinations? _____ %

51. In the past 12 months, what is the approximate percentage of persons who you have determined to be "deceptive" to the issue under investigation who "confessed" their guilt to you following polygraph testing? (Don't count instances of "deception" where no interrogation is conducted.) _____ %

52. Which of the following choices best describes your employer's policy concerning the audio and/or video recording of criminal specific polygraph examinations? (Check only one)

- Must record all examinations (1) []
Only required to record when examining an individual of the opposite sex (2) []
Recording is optional at the discretion of the examinee (3) []
Examinations are not recorded (4) []
Other (Please specify) (5) _____

53. If recording is not mandatory in criminal specific polygraph exams, does your employer instead require that a third party (witness) be present during the examination? (Check only one)

- Not applicable - recording is mandatory (1) []
No, a witness is not required to be present (2) []
Yes, a witness is required to be present in the room (3) []
Yes, a witness is required to be present outside the room (4) []
Other (Please specify) (5) _____

IV. Views on Polygraph Testing: General

54. Do you believe polygraph examiners should have law enforcement or other investigative experience before being admitted to a formal polygraph training school?

Yes [] No [] Undecided []

55. What is the level of education you think polygraph examiners ought to have before being admitted to basic polygraph training school? (Check only one)

High school graduate	(1) []
At least two years of college and/or an Associates degree	(2) []
Four years of college and/or a Bachelors degree	(3) []
Graduate work and/or a Masters degree	(4) []
A Ph.D. and/or equivalent	(5) []
No formal educational background should be required	(6) []

56. Do you believe polygraph examiners should be required to serve a supervised internship before administering examinations alone?

Yes [] No [] Undecided []

- a. IF YES, do you feel an internship should be based on:

(1) number of examinations conducted? Yes [] No []

- (a) IF YES, how many should be required? _____

(2) length of time for internship? Yes [] No []

- (a) IF YES, what should be the length? _____ Months

57. Do you favor the development of a "national certification program"?

Yes [] No [] Undecided []

- a. IF YES, should such a program be available to:

(1) Members of national associations only? Yes [] No []

(2) All examiners, including non-members of associations? Yes [] No []

58. Do you think polygraph examiners should be licensed? Yes [] No [] Undecided []

- a. IF YES, at what level? (Check only one)

Local (1) [] State (2) [] Federal (3) [] Undecided (4) []

59. Do you think polygraph examiners should be required to attend continuing education programs to maintain and/or increase technical proficiency?

Yes [] No []

- a. IF YES, how often?

Every year	(1) []
Every 2 years	(2) []
Every 3 years	(3) []
Every 4 years	(4) []
Other (Please specify)	(5) _____

60. Do you think polygraph examiners should be required to take proficiency examinations on a periodic basis? Yes [] No [] Undecided []

a. IF YES, how often should this be required?

Every year (1) []

Every 2 years (2) []

Every 3 years (3) []

Every 4 years (4) []

Other (Please specify) (5) _____

61. In recent years there has been a movement to change the terms "polygraph examiner" and "polygraphist" to "forensic psychophysiologicalist."

Do you favor or oppose this change in terminology?

Favor (1) [] Oppose (2) [] Undecided (3) []

62. Do you believe that polygraph testing should be used to screen prospective employees for work in:

a. the private sector? Yes [] No [] Undecided []

b. law enforcement agencies? Yes [] No [] Undecided []

c. government intelligence agencies? Yes [] No [] Undecided []

63. What is your position on the admissibility of polygraph examination results in criminal trials?

Should be admitted in all cases (1) []

Should be admitted only when there is independent review of charts (2) []

Should be admitted only when the results show truthfulness (3) []

Should be admitted only when there is a stipulation (4) []

Should not be admitted in criminal trials (5) []

64. Do you favor the use of polygraph testing as a supplement to screen probationers and parolees?

Yes [] No [] Undecided []

65. It is often reported that control question polygraph testing is more likely to be in error when victims are tested as opposed to suspects. Based on your experience what is the extent of your agreement on this issue?

1	2	3	4	5	6
Don't Agree	Slight	Somewhat	Moderate	Strong	Agree very
at all					strongly

66. How accurate do you believe control question polygraph testing is when you carry out the examination?

Less than 50% (1) []

Between 50 and 75% (2) []

Between 76 and 85% (3) []

Between 86 and 95% (4) []

Between 96 and 100% (5) []

67. How accurate do you believe control question polygraph testing is when it is carried out by what you believe to be the "average" examiner in the United States?

Less than 50% (1) []

Between 50 and 75% (2) []

Between 76 and 85% (3) []

Between 86 and 95% (4) []

Between 96 and 100% (5) []

68. Listed below are some of the concerns that have been expressed about polygraph testing, polygraph examiners and the "polygraph examiner community" in the United States. To each of the issues expressed below, please indicate your view of its importance on the six-point scale shown, where 1 indicates that the item is of no importance ("None") as a "problem" facing the polygraph field to a 6 that indicates that the item is a very serious problem. (Circle your responses)

		Degree of Importance					
		None	Minor	Some	Moderate	Serious	Very Serious
a.	Background credentials of persons who are trained	1	2	3	4	5	6
b.	Basic training of examiners	1	2	3	4	5	6
c.	Inadequate licensing legislation	1	2	3	4	5	6
d.	Inadequate polygraph instruments	1	2	3	4	5	6
e.	Lack of court acceptance of results	1	2	3	4	5	6
f.	Lack of general admissibility as evidence	1	2	3	4	5	6
g.	Lack of professionalism in the field	1	2	3	4	5	6
h.	Lack of standardized testing procedures and guidelines	1	2	3	4	5	6
i.	Lack of understanding of what polygraph testing involves	1	2	3	4	5	6
j.	Low ethical standards of examiners	1	2	3	4	5	6
k.	Not enough "in-service" training programs	1	2	3	4	5	6
l.	Not enough adequate research supporting polygraph testing	1	2	3	4	5	6
m.	Poor public relations	1	2	3	4	5	6

69. Do you or your employer plan to purchase a new polygraph instrument in the next 24 months?

Yes [] No []

- a. IF YES, how many and which type?

Standard instrument _____
Computerized instrument _____

V. Association Memberships and Attitudes

70. Do you belong to any national professional/scientific associations besides those in the polygraph field?

Yes [] No []

a. IF YES, please indicate all that apply:

- a. American Psychological Association (APsyA) []
- b. American Academy of Forensic Sciences (AAFS) []
- c. Society for Psychophysiological Research (SPR) []
- d. International Association of Chiefs of Police (IACP) []
- e. American Society for Industrial Security (ASIS) []
- f. Other (Please list) _____

71. In the last 10 years how many of the following types of seminars have you attended?

- National seminars related to polygraph testing (1) ____
- State or regional seminars related to polygraph testing (2) ____
- Specialty seminars related to polygraph testing (3) ____

72. Have you ever attended one of the annual seminars of the associations indicated?

a. The American Polygraph Association (APA)? Yes [] No []

b. IF YES, in what year was your most recent attendance? 19 ____

c. The American Association of Police Polygraphists (AAPP)? Yes [] No []

d. IF YES, in what year was your most recent attendance? 19 ____

73. In what professional polygraph associations do you hold current membership? (Check all that apply)

- a. APA []
- b. AAPP []
- c. State or Regional (Specify) _____
- d. Other _____

74. In what professional polygraph associations did you hold membership in the past, but do not belong to now? (Check all that apply)

- a. APA []
- b. AAPP []
- c. State or Regional (Specify) _____
- d. Other _____

75. During the past five years, have you been a registered participant of an officially scheduled State or Regional polygraph association sponsored seminar?

Yes [] No []

76. Have you ever served as an officer or board member of a national polygraph association?

Yes [] No []

77. Have you ever served as an officer or board member of a state or regional polygraph association? Yes [] No []
78. Have you ever authored or co-authored a paper or research report that has been published in Polygraph or another recognized journal? Yes [] No []
79. Do you favor a merger of all current national polygraph associations into one larger association? Yes [] No [] Undecided []

If you are a current member of the APA, please answer Questions 80 to 108. If you do not belong to the APA please skip to Section VI, Question 109, on Page 15.

80. How many APA meetings have you attended? (Circle your response)

0 1 2 3 4 5 6 7 8 9 10+

81. During the past five years, have you been a registered participant of an APA annual seminar? Yes [] No []
82. During the past five years, have you served as a seminar speaker or instructor at an APA annual seminar? Yes [] No []
83. During the past five years, have you served as a chairperson of any committee of the APA? Yes [] No []
84. During the past five years, have you served as an appointed member of any committee of the APA? Yes [] No []

85. Below are some reasons why people belong to professional associations. For each, please indicate the degree of your agreement with respect to how the statement describes why you are a member of the APA. (Circle your responses)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Membership in the APA is important for:					
a. Adding support to a group concerned with your profession	1	2	3	4	5
b. Building a reputation and credentials in the field	1	2	3	4	5
c. Continuing your education through association programs and activities	1	2	3	4	5
d. Developing professional contacts; meeting others in your field	1	2	3	4	5
e. Having a forum for your ideas; being able to express yourself before your peers	1	2	3	4	5
f. Keeping informed through the association publications--journals, newsletters, etc.	1	2	3	4	5
g. Learning about new career possibilities	1	2	3	4	5
h. Personal benefits, like group insurance, car rentals, reduced rates on hotel rooms, etc.	1	2	3	4	5

86. Who pays for your membership dues in the APA?
 You (1) [] Your employer (2) [] Both (3) []
87. If your employer pays for your membership dues now but discontinued this benefit in the future, would you agree to pay your own dues in order to continue membership? Yes [] No []
88. If you have attended an APA seminar, who paid your fees and expenses for the most recent meeting attended?
 You (1) [] Your employer (2) [] Both (3) []
89. Overall, how much do you personally benefit from your membership in APA?
 None (1) [] Some (2) [] Moderate (3) [] Substantial (4) [] Very much (5) []
90. We are interested in your views on activities that you feel the APA should emphasize. For each of the items shown below please indicate your view about how much effort and resources the APA should devote to that activity. (Circle your response)

		Amount of Emphasis					
		Don't Know	None	Some	Moderate	Substantial	Major
a.	Basic training curriculum improvements	0	1	2	3	4	5
b.	Challenging "voice stress" usage	0	1	2	3	4	5
c.	Defending police applicant screening	0	1	2	3	4	5
d.	Examiner certification improvements	0	1	2	3	4	5
e.	Fostering relations with other associations	0	1	2	3	4	5
f.	Offering advanced training programs	0	1	2	3	4	5
g.	Overturing EPPA	0	1	2	3	4	5
h.	Promoting foreign polygraph usage	0	1	2	3	4	5
i.	Promoting polygraph use on probationers	0	1	2	3	4	5
j.	Promoting unity of all examiners	0	1	2	3	4	5
k.	Public education about polygraph testing	0	1	2	3	4	5
l.	Research activities	0	1	2	3	4	5
m.	Securing state licensing statutes	0	1	2	3	4	5
n.	Weeding out incompetent examiners	0	1	2	3	4	5
o.	Weeding out unethical examiners	0	1	2	3	4	5
p.	Working for admissibility in court	0	1	2	3	4	5
q.	Other: _____						

The APA is trying to determine membership interest in establishing an E-Mail environment for the exchange of information and ideas among APA members. The following questions will help to assess the level of interest in such services.

91. Would you be interested in communicating with APA via electronic mail? Yes [] No []

92. Do you have a computer or terminal with a modem? Yes [] No []

93. Would you be interested in establishing an APA Electronic Forum where questions and answers can be posted, answered, and reviewed by members of the Forum? Yes [] No []

94. Would you be willing to serve on a committee to help organize APA electronic mail services? Yes [] No []

95. How would you rate the performance of the APA in the following areas? (Circle your response)

APA Performance

	Unsure	Poor	Adequate	Good	Outstanding
a. Awards	0	1	2	3	4
b. Business meetings	0	1	2	3	4
c. Handling complaints	0	1	2	3	4
d. Job placement	0	1	2	3	4
e. Membership directory	0	1	2	3	4
f. Monitoring federal legislation	0	1	2	3	4
g. Monitoring state legislation	0	1	2	3	4
h. Newsletter	0	1	2	3	4
i. Professional journal	0	1	2	3	4
j. Providing annual seminars	0	1	2	3	4
k. Providing specialty seminars	0	1	2	3	4
l. Regulating basic courses	0	1	2	3	4

96. Using a scale of 1 to 5, with 1 representing the lowest possible rating of quality and 5 the highest possible rating of quality, please rate how satisfied you were with the following items in the most recent APA Annual Meeting you attended. (Circle your responses)

Quality of Annual Meeting

	Poor	Fair	Good	Excellent	Outstanding
a. Speakers	1	2	3	4	5
b. Panels	1	2	3	4	5
c. Business Meeting	1	2	3	4	5
d. Facilities	1	2	3	4	5
e. Length of meeting	1	2	3	4	5

97. Are there adequate opportunities for you to serve on committees?
Yes [] No []
98. How do you evaluate the performance of committee leaders communicating with you and relating your views to others?
No opinion (1) [] Poor (2) [] Fair (3) [] Good (4) [] Excellent (5) []
99. In the past five years how often have you interacted directly with association officers, directors, or committee leaders?
Never (1) [] Seldom (2) [] Occasionally (3) [] Often (4) []
100. Do you favor or oppose a change in the APA constitution so that election of all officers would be by mail ballot?
Favor (1) [] Oppose (2) [] Undecided (3) []
101. Should APA sponsor/organize seminars to be held in other nations for annual meetings of APA members?
Yes [] No [] Undecided []
102. Would you favor or oppose holding the annual APA meeting in the Fall months (Sept., October or November) instead of July or August?
Favor (1) [] Oppose (2) [] Undecided (3) []
103. Should the meeting continue over to Saturday?
Yes [] No [] Undecided []
104. In addition to its summer annual meeting, should the association conduct other seminars/workshops/scientific sessions?
Yes [] No [] Undecided []
105. Are there too many, too few, or about the right number of APA sponsored social activities (e.g. receptions)?
Too many (1) [] Too few (2) [] About the right number (3) []
106. Social activities like receptions (with food and drink) cost money. Would you favor increasing the registration fee to support more of these activities?
Yes [] No [] Undecided []
107. Having coffee available in the morning costs money. Would you favor increasing the registration fee to support these kinds of activities?
Yes [] No [] Undecided []
108. Should the dinner banquet at the annual meeting be continued?
Yes [] No [] Undecided []

VI. Views on Scientific Issues

109. Which one of these four statements best describes your own opinion of polygraph interpretations by those who have received systematic training in the technique, when they are called upon to interpret whether a subject is or is not telling the truth? (Check only one.)

- | | |
|--|-----------|
| It is a sufficiently reliable to be the sole determinant. | (1) [] |
| It is a useful diagnostic tool when considered with other available information. | (2) [] |
| It is of questionable usefulness, entitled to little weight against other available information. | (3) [] |
| It is of no usefulness. | (4) [] |

110. How well informed do you feel you are about "psychophysiological detection of deception (Polygraph) tests" and their interpretation? (Circle your response)

1	2	3	4	5	6	7
Not at all						Very
informed						informed

111. How competent is the average polygraph examiner who has been trained in the United States in the administration and interpretation of detection of deception (polygraph) tests?

1	2	3	4	5	6	7
Not at all						Very
competent						competent

112. Considering all of the different approaches to the physiological detection of deception, how well informed are you regarding the differences between the Guilty Knowledge Test, Control Question Test, and Relevant-Irrelevant Test?

1	2	3	4	5	6	7
Not at all						Very
informed						informed

113. How familiar are you with the American Psychological Association's (APsya) policy regarding polygraph tests?

1	2	3	4	5	6	7
Not at all						Very
familiar						familiar

114. The APsya policy on polygraph testing in the workplace is generally:

1	2	3	4	5	6	7
Negative			Neutral			Positive

115. The APsya policy on polygraph testing in the criminal justice system is generally:

1	2	3	4	5	6	7
Negative			Neutral			Positive

116. The APsya policy on polygraph testing for purposes of national security is generally:

1	2	3	4	5	6	7
Negative			Neutral			Positive

117. Please give us your best estimate of how many articles have been published on the topic of polygraph testing in refereed scientific journals of psychology and psychophysiology over the past ten years (1984-1994)? _____

The following questions refer to the possible use of countermeasures by subjects during the administration of a polygraph test. Countermeasures are anything that an examinee might do in an effort to defeat or distort a polygraph test.

118. According to your understanding of the scientific literature, how effective is alcohol when used as a counter measure?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

119. In your opinion, how effective is alcohol when used as a countermeasure?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

120. According to your understanding of the scientific literature, how effective are tranquilizers when used as a countermeasure?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

121. In your opinion, how effective are tranquilizers when used as a countermeasure?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

122. According to your understanding of the scientific literature, how effective are mental countermeasures (i.e. mental arithmetic, imagery)?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

123. In your opinion, how effective are mental countermeasures (i.e. mental arithmetic, imagery)?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

124. According to your understanding of the scientific literature, how effective are physical countermeasures (i.e. biting tongue, pressing toes toward floor)?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

125. In your opinion, how effective are physical countermeasures (i.e. biting tongue, pressing toes toward floor)?

1	2	3	4	5	6
Not at all			Almost always		Don't
effective			effective		know

126. In general, what is your opinion regarding the effectiveness of countermeasures?

1	2	3	4	5	6
Not at all				Almost always	Don't
effective				effective	know

The following questions consider your opinions of the Guilty Knowledge Test:

127. How accurate is the Guilty Knowledge Test when administered to an innocent suspect during a criminal investigation?

1	2	3	4	5	6
No better				Nearly	Don't
than chance				perfect (100%)	know

128. How accurate is the Guilty Knowledge Test when administered to a guilty suspect during a criminal investigation?

1	2	3	4	5	6
No better				Nearly	Don't
than chance				perfect (100%)	know

129. How accurate is the Guilty Knowledge Test when administered to a hostile foreign agent for purposes of national security clearance?

1	2	3	4	5	6
No better				Nearly	Don't
than chance				perfect (100%)	know

130. How accurate is the Guilty Knowledge Test when used to determine the suitability of a police officer candidate, given that the candidate is NOT deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better				Nearly	Don't
than chance				perfect (100%)	know

131. How accurate is the Guilty Knowledge Test when used to determine the suitability of a police officer candidate, given that the candidate is deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better				Nearly	Don't
than chance				perfect (100%)	know

132. According to your understanding of the scientific literature, the Guilty Knowledge Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

133. According to your experience, the Guilty Knowledge Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

The following questions consider your opinions of the Control Question Test:

134. How accurate is the Control Question Test when administered to an innocent suspect during a criminal investigation?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

135. How accurate is the Control Question Test when administered to a guilty suspect during a criminal investigation?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

136. How accurate is the Control Question Test when administered to a hostile foreign agent for purposes of national security clearance?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

137. How accurate is the Control Question Test when used to determine the suitability of a police officer candidate, given that the candidate is NOT deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

138. How accurate is the Control Question Test when used to determine the suitability of a police officer candidate, given that the candidate is deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

139. According to your understanding of the scientific literature, the Control Question Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

140. According to your experience, the Control Question Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

The following questions consider your opinions of the Relevant-Irrelevant Test:

141. How accurate is the Relevant-Irrelevant Test when administered to an innocent suspect during a criminal investigation?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

142. How accurate is the Relevant-Irrelevant Test when administered to a guilty suspect during a criminal investigation?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

143. How accurate is the Relevant-Irrelevant Test when administered to a hostile foreign agent for purposes of national security clearance?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

144. How accurate is the Relevant-Irrelevant Test when used to determine the suitability of a police officer candidate, given that the candidate is NOT deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

145. How accurate is the Relevant-Irrelevant Test when used to determine the suitability of a police officer candidate, given that the candidate is deliberately hiding incriminating information about his/her background?

1	2	3	4	5	6
No better than chance				Nearly perfect (100%)	Don't know

146. According to your understanding of the scientific literature, the Relevant-Irrelevant Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

147. According to your experience the Relevant-Irrelevant Test tends to make more of which kind of error?

False Positive (Truthful found Deceptive)	(1) []
False Negative (Deceptive found Truthful)	(2) []
Both occur equally often with this test	(3) []
Don't know	(4) []

Thank you for providing the requested information. Please promptly return your completed questionnaire in the enclosed, pre-stamped mailing envelope.

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