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Robert Thomas Meesig

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USAGE, PRACTICES AND POLICIES
OF POLYGRAPH ("LIE DETECTOR") SCREENING
IN POLICE AGENCIES
IN THE UNITED STATES

By

Robert Thomas Meesig

A THESIS

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ABSTRACT

USAGE, PRACTICES AND POLICIES OF POLYGRAPH ("LIE DETECTOR") SCREENING IN POLICE AGENCIES IN THE UNITED STATES

By

Robert Thomas Meesig

The purpose of this study was to determine the extent of use and perceptions of pre-employment polygraph screening (PEPS) among police agencies in the United States. A questionnaire was mailed to administrators of 699 of the largest police agencies and a random sample of the remaining smaller agencies, and 2108 (73%) usable responses were received. PEPS was used by 62% of the large and 13% of the small agencies. These agencies employed 32% of all sworn officers in the United States. The primary reasons for using PEPS were that it reveals information not otherwise available and that it deters undesirable applicants. The main benefits were better and more honest employees. Agencies using PEPS were more likely to be located in the Western United States and in states with no laws regarding PEPS, and they tended to use more additional screening techniques than agencies that did not use PEPS.

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Chapter I

The screening and selection of applicants for police officer positions is an important yet difficult function of police administrators. This thesis addresses the extent to which pre-employment polygraph screening (PEPS) is used by police agencies, the major factors related to its use, and why and how agencies use it as an applicant selection technique.

Statement of the Problem

According to the Bureau of Justice Statistics (BJS) (1992), there are 15,430 general purpose law enforcement agencies in the U.S. A total of 12,288 (79.7%) are local (operated by municipal or county governments) police agencies, 3,093 (20%) are sheriff agencies and 49 (0.3%) are state police and highway patrols.

These agencies employ 741,195 full-time personnel. About 62% (459,891) are employed at the local level, 28% (203,974) by sheriff agencies, and 10% (77,330) by state agencies. Approximately 75% (556,791) are "sworn" officers who have full arrest powers for all types of offenses. The combined annual budgets of all these agencies was approximately \$28 billion in fiscal year 1990 (Bureau of Justice Statistics [BJS], 1992).

Police Applicant Selection

The overall effectiveness of a police agency is initially impacted at the employee entry level. The selection of personnel is one of the most important functions

of agency administrators as it affects the entire organizational mission. Administrators essentially attempt to predict future performance every time a police applicant is selected. They try to do this by basing their prediction on an evaluation of information regarding the applicant's qualifications and past history. In order to evaluate performance, a variety of personnel selection methods and techniques can be used to obtain information regarding applicants (Ash, Slora and Britton, 1990). Administrators then select applicants based on the information that the selection techniques have provided.

The PEPS Technique

PEPS is a type of screening procedure in which a job applicant undergoes a polygraph examination to determine whether he or she meets an employer's requirements for employment. The use of PEPS in both the private and public sector to determine a prospective employee's suitability for employment has been and continues to be an extremely controversial matter of public policy. Although part of the reason for this controversy stems from the lack of solid scientific research about polygraph testing in general, and PEPS in particular, there seems to be differing perceptions about its role in employee selection. Primarily, there appears to be far greater support for PEPS in the public sector than in private industry (Horvath, 1987a). This can be seen particularly in the areas of public opinion and employee rights.

Public Opinion

With regard to public opinion, the available surveys of the U.S. population reflect that the majority of the public favors polygraph usage in specific situations involving high degrees of trust such as law enforcement. However, there seems to be much less public sentiment for polygraph usage without sufficient justification (Phannenstill, 1983; Horvath, 1987a).

A review of the literature disclosed seven surveys of the attitudes of persons who have actually taken PEPS in commercial settings (Horvath and Phannenstill, 1987). In these seven surveys, carried out in different cities and at different times between 1973 and 1987, 82% (representing a total of about 1200 respondents) of the people reported that based on their experiences in taking the PEPS exam, they thought that polygraph screening was fair. A similar percentage reported that the test was not objectionable and was not an invasion of their personal privacy, and about 84% agreed to take such a test again to gain employment. A similar study done by Putnam (1978) on applicants for police work in Washoe county, NV, showed similarly highly favorable views (Putnam, 1978). In another study of applicants for the National Security Agency, 74% of the respondents reported that polygraph screening was important to protect security and 91% agreed to further testing if necessary (Department of Defense, 1984). Finally, in a national poll, using a sample generalizable to 161 million adults in the U.S., 65% of the

respondents reported that they did not object to polygraph screening and 81% felt that polygraph testing should be used for screening persons in sensitive situations, such as those who handle classified information (Horvath, 1987). However, as Horvath (1987) pointed out in his discussion of the poll results, there was much less public support for the arbitrary or routine use of such testing.

In summary, the available research data do not show that polygraph screening is generally viewed by the public as an unfair or objectionable employment practice. On the contrary, it indicates considerable public support for polygraph testing when it is used with adequate justification in sensitive positions of public trust such as law enforcement.

Employee Rights

In 1988 the U.S. Congress passed the Employee Polygraph Protection Act (EPPA). This law essentially prohibits the great majority of private employers in the U.S. from using polygraph testing to screen applicants for employment (EPPA, 1988). However, the EPPA also attempted to balance the prospective employee's privacy rights against the employer's right to protect his or her business by including a number of exemptions for private security services and other special classes of private employers. Further, it exempted all federal, state and local government employers, and national defense and security positions from its provisions (Cross, 1989). Similarly, although 44 state legislatures and the

District of Columbia have instituted restrictions limiting the use of the polygraph in some form or another or have laws requiring licensure of polygraph examiners, there are provisions in almost all state statutes exempting public agencies from proscriptions against testing in employment situations (Ansley and Beaumont, 1992). Hence, in creating this double standard for private and public employees, legislative bodies that have considered the issue of polygraph testing have essentially acknowledged that a properly conducted PEPS process does not infringe on applicant rights, and has value in applicant selection, particularly in positions involving high public trust (Cross, 1989).

In concert with the legislatures, the courts also have recognized the need for public law enforcement agency administrators to select only the most highly qualified applicants to fill sensitive positions of public trust. They have held that applicants for police positions can be required to submit to PEPS exams or be denied employment (O'Leary, 1977). Although the U.S. Supreme Court has never addressed this issue, in 1987, the U.S. Third Circuit Court of Appeals heard an appeal by applicants for the Philadelphia, PA, Police Department alleging that the department's PEPS requirement was a violation of their due process and equal protection rights. The court ruled that, provided that the PEPS test is administered to all applicants in a fair and reasonable manner without discrimination, and

that all questions are job-related, the technique did not violate either their due process or equal protection rights (Anderson v. City of Philadelphia, 1987).

Extent of Use of PEPS

Until the passage of EPPA in 1988, private sector employers used PEPS tests for over 40 years to help select applicants for employment or to assist in the investigation of employees suspected of involvement in acts of employee dishonesty. While exact figures are difficult to obtain, there are several surveys which indicate that prior to passage of EPPA in 1988, about 20% of all major businesses in the U.S. made use of PEPS. In certain industries involving high levels of employee trust, the figures were much higher; for instance, approximately 50% of all commercial banks and over 60% of all retail operations reportedly used PEPS (Buckley, 1988).

In the public sector, the first reported use of the polygraph in screening police applicants was in the early 1950s in a California police department (Gugas, 1962). Since that time, the available surveys of state and local police agencies show that PEPS examinations of police applicants has grown steadily from fewer than 20% in the 1960s (Yeschke, 1962), to at least 44% in the mid-1980s (Roper, 1981; Horvath and Shelton, 1982), and more recently, to 75% of selected agencies in the U.S. (McCloud, 1991).

At the federal level there has also been a dramatic increase in the use of PEPS in recent years. The Federal

Bureau of Investigations and the U.S. Secret Service have initiated PEPS programs, and the Department of Defense reported that the polygraph is a valuable screening device in its applicant selection process, even though it uses many others, including the most expensive and time-consuming procedures (Department of Defense, 1984). Further, the nation's most important investigative and counterintelligence agencies have supported the continued use of the polygraph as an indispensable weapon against crime, espionage and international terrorism (Heinley, 1986; Cross, 1989).

Need for the Study

The literature shows that the use of PEPS as a police applicant selection technique by law enforcement agencies in the U.S. has increased significantly over the past thirty years. Yet, as Meesig and Horvath (1993) point out, the literature reflects surprisingly little information regarding the effectiveness of the technique or how it is used by police agencies, or even what may lead one agency to implement it and another to reject it. Further, the need for more thorough and sound research has been clearly identified for more than a decade as one of the primary reasons for the reluctance to use it. Additionally, because of the lack of existing research on PEPS, police administrators considering implementation have minimal information available upon which to evaluate it and base their decision. Yet as the increased use of PEPS among agencies would indicate, such decisions are being made with greater frequency.

There is a need for a current and comprehensive description regarding the use of PEPS. The results of such a report can be used by researchers, the legislatures and the courts to address the conflicting and controversial issues surrounding PEPS, and it can also be used by police administrators to assess the technique and make more informed decisions regarding its legitimate and proper use in their agencies.

Purpose of the Study

The purpose of this study is three-fold:

- (1) To obtain current information regarding the extent of use of PEPS as an applicant selection technique for police agencies in the U.S.
- (2) To identify the major factors related to PEPS usage.
- (3) To provide an analysis of why and how U.S. police agencies use PEPS.

Study Overview

In Chapter II, after a brief discussion of polygraph testing, the available literature pertaining to police agency use of the PEPS technique will be reviewed. The survey methodology used in this study will be set forth in Chapter III. In Chapter IV, the purposes of this study will be accomplished by presenting a description of the findings of the survey findings. Chapter V will consolidate the study results and compare them with previous studies.

Chapter II

Review of Literature

This chapter is divided into four sections. It begins with a general discussion of polygraph testing. Then, in the second section, studies found in the literature specifically reporting on the extent of use of PEPS by police agencies are identified. Following that, in Section C additional information those studies contain pertaining to agencies that use PEPS is presented. Finally, in the fourth section, the information the studies contain pertaining to agencies that do not use PEPS is presented.

Section A - Polygraph Testing

It was not until about 1895, when Cesare Lombroso, an Italian physiologist, and his student, Mosso, published their work on the use of the hydrosphygmograph, that objective measurement of physiological changes became associated with the detection of deception. Since that time, substantial improvements and refinements have been made in the process of detecting deception, and in our knowledge about the process (Ansley, Horvath and Barland, 1983).

The polygraph instrument of today, after almost a century of development, is a sophisticated instrument which consists of a minimum of three measures of physiological functions. The basic components are the cardiograph, which monitors changes in blood volume and heart rate; the pneumograph, which measures respiration and related movements in the abdominal and thoracic area; and the galvanometer,

which records the changes in resistance to electricity on the surface of the skin. The constant changes in physiological measurements sensed by these components are transmitted to a pen and recorded on a moving chart (Ansley and Abrams, 1980).

The Examination Process

A polygraph examination normally consists of a pretest interview, polygraph testing and a post-test phase. During the pre-test interview, the examiner explains to the examinee the nature of the polygraph instrument, the purpose of the test and the pertinent issues. The examiner also formulates about eight to ten questions on relevant issues and reviews all test questions with the examinee at this time (Horvath, 1987a). During the polygraph test phase, the second component of the examination process, the examiner attaches the polygraph to the examinee and asks the examinee the previously reviewed questions while the polygraph instrument records physiological changes. Relevant questions (those pertinent to the issues to be resolved) are asked at least once in separate repetitions of the question list (Horvath and Reid, 1981; Bureau of National Affairs, 1985). The results of the testing, that is, the charts on which the physiological measurements are displayed, are reviewed by the examiner. There are a number of accepted methods for carrying out this review, depending on such things as the testing procedure, the particular training orientation of the examiner, and the type of examination at hand. In any event, the review of the data consists of a comparison of the

nature, magnitude and consistency of physiological changes which occur to the different questions asked during the testing. The examiner then makes a determination regarding the examinee's truthfulness to the questions (Nagle, 1984; Horvath, 1987a). Often, particularly in federal agencies, the examiner's review may be followed by at least one other review carried out by another examiner or a polygraph supervisor as a quality control measure. If there is disagreement, additional testing may be carried out.

In the post-test phase following the testing phase the examinee is advised of the test results and given an opportunity to explain or clarify any issue which may be of concern. The test and post-test interview may be repeated in an effort to clarify the examinee's responses to specific questions (Garwood, 1985). After the examination process is completed, the test results (i.e., information provided by the examinee) are provided to the authority that requested the exam to assist in a decision-making process regarding the examinee.

Specific Issue vs. PEPS Exams

The polygraph is used to conduct specific issue examinations to investigate involvement in criminal offenses and it is also used to conduct PEPS examinations of job applicants to determine suitability for employment. Although each type of examination is typically administered in the phases described above, Horvath (1987a) described several important differences between them. First, in a specific

issue examination the pretest interview focuses only on the offense at hand and, aside from the collection of demographic information, there is no questioning regarding unrelated matters. In contrast, in the PEPS examination the pretest interview is essentially an information gathering process. The applicant is asked questions regarding a number of different areas of concern without focus on any one particular issue. A second difference in procedure between the specific issue and PEPS examinations is that in the former the purpose is to determine the examinee's truthfulness to one specific issue, e.g., a murder, a burglary, an arson, etc. In the latter instance, the purpose of polygraph testing is to verify the applicant's truthfulness regarding several different issues. Third, in a specific issue examination all relevant test questions pertain to the same offense, whereas in a PEPS examination each relevant test question pertains to a separate area of inquiry (Horvath, 1987a).

Research

Although the use of PEPS by police agencies has grown considerably over the past 40 years, surprisingly little research had been conducted regarding the technique. Both proponents and opponents of the polygraph agree that there has not been sufficient empirical research on either polygraph testing in general, or on the use of the polygraph in screening situations in particular (Office of Technology Assessment, 1983; Horvath, 1985).

Accuracy.

Specifically with regard to the accuracy of polygraph testing, the research evidence is not well developed, even though since the 1970s over 100 studies have been conducted regarding the subject (Buckley, 1988). Although there is general agreement in the scientific community that the accuracy of polygraph testing is greater than chance (Office of Technology Assessment, 1983; Nagle, 1984), the issue that separates the opponents from the proponents is not whether polygraph testing "works" (i.e., has a detection rate above chance), but how well it works (Horvath, 1987a). Opponents of polygraph testing claim essentially that it does not work well enough to justify its use (Office of Technology Assessment, 1983). Proponents point out, however, that there is presently no research to show that PEPS is inaccurate, and moreover, that all of the scientific data now available show that its accuracy is equal to or better than other selection devices (Nagle, 1984; Horvath, 1987a). Proponents typically maintain that the accuracy of polygraph testing is about 90%; opponents maintain that it is about 70%, but with a high "false positive" error rate (Buckley, 1988). (A false positive error is a polygraph outcome that indicates a person is deceptive when the person is, in fact, telling the truth. Conversely, a "false negative" error is a polygraph outcome of truthfulness, or no deception, for an examinee who is actually lying). Opponents claim that false positive errors occur more often than do false negative errors (Bureau of

National Affairs, 1985), and as a result, honest people could undeservedly be denied legitimate employment or otherwise discriminated against.

The great majority of the research studies on polygraph testing pertain to specific issue polygraph examinations (e.g., investigation of a robbery, homicide, theft, etc.) and are not applicable to PEPS testing. As previously noted, there are important differences of opinion regarding how to interpret research evidence relating to accuracy even if it is confined only to specific issue testing. In addition, it is generally agreed that generalization from the research base on specific issue testing to PEPS can only be done with great caution (Correa and Adams, 1981).

Utility.

Aside from the accuracy issue, both Nagle (1984) and Horvath (1987a) report that in the literature in general there is a consensus that polygraph testing has a utilitarian value. It serves a utilitarian purpose in that the information collected during PEPS exams is often not obtainable through other methods.

One of the few key pieces of empirical research specifically addressing this PEPS issue was a field study conducted by Blum (1967) to determine its utility in real-life situations. Blum's study was conducted in a California sheriff department and included an assessment of PEPS together with information obtained by a physical exam, a physical agility test, a written application, a preliminary

interview, written psychological tests, a psychiatric interview, a background investigation, a civil service exam, and an oral board exam. The PEPS results were not made available for consideration in the selection process. The study showed that of the 57 applicants who had completed all phases of screening, the oral board selected 31 of them. Of these 31 selectees, 17 of them (55%) had admitted during PEPS testing to having committed serious crimes in their past. Only one of them had been identified by other selection methods as having committed a serious crime. The study showed that PEPS has utility in revealing an applicant's involvement in serious crime not revealed by other selection procedures, and that other procedures do not reveal a criminal history not also revealed by PEPS (Horvath, 1987). However, follow-up observations of how these selectees subsequently performed as sheriff deputies were never reported, and the usefulness of PEPS as a means of actually predicting subsequent on-the-job performance and honesty remains untested.

Section B - Studies

In this section ten studies found in the literature specifically reporting on the extent of the use of PEPS by police agencies are identified.

One of the earliest reports regarding the extent of PEPS testing of police applicants was by Gugas (1962). He reported the testing of applicants in California police departments since the early 1950s. Gugas stated he was aware

of about 35 police agencies using PEPS as part of their applicant screening programs.

In 1962, Yeschke conducted a survey of 180 large law enforcement agencies to examine their use of PEPS and to study PEPS advantages and limitations. His survey population included all state police agencies and police departments in the U.S. serving cities with populations of 100,000 or more. A total of 116 agencies (64%) responded and 19 agencies (16% of respondents) reported using PEPS. Twenty-six (22%) were considering its use in the future.

In 1964, Gooch conducted a national survey designed to determine the extent of the use of PEPS by U.S. law enforcement agencies. In this study, Gooch selected a purposive sample of 167 federal, state and municipal police agencies, including all state agencies (excluding Alaska and Hawaii) and municipal agencies serving populations of 50,000 and above. A total of 118 usable responses were received, which was a response rate of 71% (118/167). Twenty-three agencies (19% of respondents) reported using PEPS together with other techniques, and 13 (11%) were considering its use.

Eisenberg, Kent and Wall (1973) conducted a survey of various personnel practices in large police agencies across the U.S. They sent questionnaires to all state (47), county (140) and municipal (481) police agencies in the U.S. having 50 or more sworn personnel. Based on a return rate of 74% (493/668), they found that 31% of the respondents (153 agencies) reported using PEPS to assess aptitudes and

characteristics of sworn officer applicants.

Roper (1981) conducted a national survey of all state departments of public safety, county sheriff departments and municipal police departments with 100 or more sworn employees to determine police applicant selection requirements and procedures currently used. A total of 508 (75%) of the 675 agencies included in the study responded and, of those, 221 (44%) reported using PEPS in their applicant selection battery.

In 1982, Horvath and Shelton reported the results of a national survey which extended the Gooch (1964) study and sought to determine changes in the use of PEPS during the 18 years since the Gooch report. Horvath and Shelton surveyed all federal and state police agencies and a stratified random sample of 270 local agencies. From a total of 340 agencies, usable responses were received from 237 (70% response rate) and a total of 105 agencies (44%) reported using PEPS. Fourteen agencies (6%) reported that they had used PEPS in the past but had since discontinued its use, and 76 agencies (65% of 117 responses) said they would consider its use.

Kendrick (1983) reported a survey in which 91 state and local law enforcement agencies across the U.S. responded to a questionnaire regarding the use of the polygraph (the total number of agencies included in the survey and the manner in which they were selected were not reported). About 43% (39) of the respondents reported using the polygraph as part of their applicant screening process. Thirteen of the 91



agencies (14%) reported that they had used PEPS in the past but had since discontinued its use, and 11 (12%) said it was being considered for future use.

In the mid-1980s, the Oceanside, CA, Police Department sent out questionnaires to 405 California police agencies to determine the extent of use of the polygraph in screening police applicants (Lopez, undated). The manner in which the 405 agencies were selected was not specified. Of the 218 agencies that responded (54% response rate), 113 (52%) reported using it.

Ash, Slora and Britton (1990) conducted a survey of large police agencies to determine selection procedures used in screening police applicants. A total of 99 agencies (49 state police agencies and police departments in the 50 largest cities in the U.S.) were surveyed and 62 agencies (63%) responded. Thirty-five agencies (56%) reported using the polygraph as part of their screening programs.

McCloud (1991) conducted a survey of all state police agencies and selected municipal police agencies in 1989 to determine the extent and utilization of polygraph testing in law enforcement. Out of 406 agencies in the sample, 308 (76%) responded and at least 75% of them reported using the polygraph for applicant screening.

In Table 1 below, extent of use information regarding the studies reviewed are set forth for ease of comparison and reference.

Table 1

Extent of Police Agency Use of PEPS
as Reported in Ten Surveys, 1962-1991

Survey	Year	No. & Type Agencies	Sample	Agency Size	No. (%) Responses	No. (%) Users
Gugas	1962	Unspecified CA only	Unspecified	Unspecified	Unspecified	35 (-)
Yeschke	1962	180 State, Local	Population	Large (100,000+ pop)	116 (64)	19 (16)
Gooch	1964	167 Federal, State, Local	Purposive	Large	118 (71)	23 (19)
Eisenberg, Kent & Wall	1973	668 State, County, Local	Population	Large (50+ sworn employees)	493 (74)	153 (31)
Roper	1981	675 State, County, Local	Population	Large (100+ sworn employees)	508 (75)	221 (44)
Horvath & Shelton	1982	340 Federal, State, Local	National Random	All Sizes	237 (70)	105 (44)
Kendrick	1983	Estimated 114 State, Local	Unspecified	Unknown	91 (80)	39 (43)
Lopez	Undated (1980s)	405 CA only	Unspecified	Unknown	218 (54)	113 (52)
Ash, Slora & Britton	1990	99 State, Municipal	Population	Large (50 largest cities)	62 (63)	35 (56)
McCloud	1991	406 State, Municipal	Purposive	Unknown	308 (76)	Estimated 231 (75)

As the table reflects, the studies were conducted over a thirty year period. The survey sample sizes of the studies

ranged from 99 to 675 agencies and the reported survey response rates ranged from 54 to 80%. The percentage of agencies that reported using PEPS increased consistently from 16% in 1962 to 75% in 1991. Commencing with the Yeschke (1962) study, almost every subsequent survey found an increase in usage among police agencies, even though the surveys themselves varied in size, sample selection criteria and definitions of agency size and type. This would indicate that the use of PEPS increased generally throughout the U.S. law enforcement agency population during the three decade time period.

However, it is important to note here that, because of the various methodologies employed in the studies, the results of only one of them may be considered to be generalizable to all agencies in the U.S. Only the Horvath and Shelton (1982) study used a nationally representative random sample of all federal, state and local agencies and, therefore, the study results may be generalizable to all such agencies in the U.S. The Eisenberg, Kent and Wall (1973), Roper (1981) and Ash, Slora and Britton (1990) studies limited their surveys to specific populations of large agencies, and as a result their study findings may be generalizable only to those specified populations. For the remaining six studies, generalization of findings beyond the study sample groups may not be appropriate as the manner of selection of agencies for inclusion in the studies was either not clearly specified or was not random.

Section C - Users

For clarity in discussion, police agencies that reported they currently used PEPS in their applicant selection programs are referred to as Users.

In this section additional information reported in the above studies pertaining to PEPS Users is reviewed. The information is presented in the context of the characteristics of Users, why and how they use PEPS, User evaluations of it as a screening device based on their experience, and other screening techniques employed by Users.

Characteristics of Users

Five of the above studies reported information comparing police agency characteristics with the use of PEPS. Agency characteristics included the agency size (which was measured by the number of agency sworn employees and also by the size of the population within the agency's area of jurisdiction), the type of agency (i.e., municipal, county, state), the geographic region in which the agency was located in the U.S., and the existence of state laws regulating the use of PEPS. The data reported by the studies on these characteristics are summarized in Table 2 below.

Table 2

Association of Agency Characteristics with the
Use of PEPS by Police Agencies

Survey	Agency Size (sworn emps)	Agency Size (pop)	Agency Type	Geographic Region	State Laws
Eisenberg, Kent & Wall (1973)	Small less likely to use	-	Not related	-	-
Roper (1981)	Not related	Not related	Not related	Difference by area	Trend
Horvath & Shelton (1982)	Small less likely to use	-	Not related	-	-
Lopez (undated)	Small less likely to use	-	-	-	-
Ash, Slora & Britton (1990)	-	-	Municipal use more than state	-	-

Size.

Roper (1981) reported finding no relationship between the use of PEPS and agency size (by either number of sworn employees or size of population served). However, her survey sample included only larger-sized agencies (all state, sheriff and municipal agencies employing 100+ sworn personnel). On the other hand, the Eisenberg, Kent and Wall (1973) study found that the polygraph was used less frequently in smaller agencies than in larger agencies. The reported usage by agency size was as follows: 100 or fewer sworn employees - 25%; 101-300 sworn employees - 34%; 301-500 sworn employees - 35%; 501-1,000 sworn employees - 32%; and 1,000+ sworn employees - 52%. The Lopez (undated) study,

which did not report agency sizes, and also the Horvath and Shelton (1982) study, which included agencies in a wide range of sizes based on both the number of sworn employees and city population sizes, also noted that smaller agencies were less likely to use PEPS than larger agencies. This would indicate that agency size is related to usage of the technique.

Type.

Eisenberg, Kent and Wall (1973), Roper (1981) and Horvath and Shelton (1982) all reported finding no relationship between agency type and the use of PEPS. However, Ash, Slora and Britton (1990) reported that in their survey municipal agencies were significantly more likely to use the technique than state police agencies. This finding may have been affected by the small number of User respondents in the study (a total of 35 state and municipal agencies - reference Table 1). In any case, it appears likely that agency type has at most had little relationship with the use of PEPS during at least the past twenty years.

Geographic region.

Only the Roper (1981) study compared police agency PEPS usage with geographic regions of the U.S. When she analysed PEPS usage by U.S. Census Regions, she reported that usage was most prevalent in the Western (60% of respondents) and Southern (50%) regions of the country. In contrast, agencies in the Northeastern U.S., including New York and New Jersey, were least likely (about 8%) to use PEPS.

State laws.

Again, only the Roper (1981) study mentioned that the use of PEPS may be tied to statewide requirements regarding its legality. However, the matter was not further pursued.

Summary.

In sum, the literature indicates that agency size and geographic region may be associated with police agency use of PEPS, whereas agency type and state legal requirements are not associated with usage.

Why Police Agencies Use PEPS

In this section information available in the studies that provides insights as to why police agencies use PEPS is presented and analyzed.

Gugas (1962) stated that PEPS examinations of 510 applicants in seven police agencies resulted in the agencies rejecting 233 (46%) of them based on the uncovering of information that had not previously been detected by other techniques. The type of information that was revealed related to applicant admissions regarding health problems, arrests, military service, prior work records, abnormal sex behavior and credit problems.

Yeschke (1962) also reported that a properly administered PEPS exam could be used to check hidden unlawful activities of applicants, with the intent to eliminate the less desirable applicants from further consideration.

Horvath and Shelton (1982) reported the primary reason agencies used PEPS was that it reveals information about

applicants not available through other screening methods (94%). The second and third ranked reasons were that it "deters undesirable applicants" (54%) and its "speed in obtaining results" (42%). Ranked fourth was that PEPS "saves money" (37%). The type of information that the PEPS exams revealed that were not otherwise detected were admissions related to both felonies and misdemeanors committed, drug and alcohol abuse, dishonesty on jobs, homosexual activities and finance/credit matters.

Summary.

Based on the available data, police agencies use PEPS primarily because it is most effective in revealing unfavorable information not otherwise available. Such information can then be used to screen out the less suitably qualified applicants.

How Agencies Use PEPS

In this section the studies are reviewed for information regarding circumstances of use of PEPS and agency policies and procedures governing its use.

Circumstances of use.

Horvath and Shelton (1982) reported the following information:

- Almost 94% of their 105 User respondents reported using just the polygraph instrument to conduct PEPS exams. About 2% reported using a voice analyzer instrument instead of a polygraph instrument. Almost 5% reported using some combination of the instruments.

- About 80% used their own examiners to conduct PEPS exams; 18% used an outside firm and 2% used both. When asked why they used an outside firm, 45% said it was due to a lack of trained examiners, 25% said agency size precludes inhouse programs, 5% said it was less expensive and 25% indicated a combination of reasons.

Kendrick (1983) reported that 95% of his 91 respondents stated they had their own examiners and that 92% of them conducted PEPS exams for other agencies: only 15% charged a fee for their services. He also reported that 12 of the User respondents did not have their own examiners and arranged for other agencies or firms to conduct their PEPS exams: five of them paid a fee for the exams.

Horvath and Shelton (1982) reported that:

- Respondents claimed that a mean of 242 PEPS exams were conducted annually by or for their agency (Range=0 to 2100; Median=125).

- About 54% began using PEPS exams prior to 1972; 45% began between 1973-1981 (1% unknown).

Policies and procedures.

Kendrick (1983) reported that 66% of his respondents had written policies regarding PEPS. Additionally, 62% stated they had quality control or review procedures (primarily reviews by other examiners or a supervisor) relative to PEPS.

With respect to which categories or groups of applicants are required to undergo PEPS testing, Eisenberg, Kent and Wall (1973) reported that many of their respondents specified

that PEPS was not always used for all applicants and that it often was used only for questionable applicants. Horvath and Shelton (1982) reported that 74% of their respondents tested applicants for sworn positions and 14% tested applicants for civilian positions.

Horvath and Shelton (1982) reported that 79% of the respondents stated they advertised or gave some other form of notice to the public that a PEPS exam was required. A total of 61% reported that applicants were made aware of the PEPS requirement before they were given application form packages, 26% made individuals aware during the time the packages were filled out, and 14% made them aware after the packages were filled out.

Several studies reported information regarding the sequence in which PEPS should be administered in combination with other techniques. Gugas (1962) reported that PEPS should supplement psychology tests, and Yeschke (1962) reported that it could be used in conjunction with a background investigation. Kendrick (1983) reported that of the 91 respondents in his survey, 22 indicated they used it before the background investigation in their selection process, and 12 indicated they used it after the background investigation. Lopez (undated) reported that over 97% (102/105) of his respondents said the sequence and proper scheduling of polygraph exams in the screening process was important. About 69% ranked oral boards and interviews as the most important first step in the process, and 44% ranked

PEPS as the most important second step. Psychological testing was considered by 45% as the most important third step. Horvath and Shelton (1982) reported that PEPS was generally administered after written tests and oral interviews but before psychological and/or psychiatric exams, background investigations and physical exams.

Horvath and Shelton (1982) reported that about 82% of the respondents said that an applicant's refusal to undergo a PEPS exam leads to automatic rejection of the application.

Horvath and Shelton (1982) reported that the two primary purposes of PEPS exams were to verify information derived from the application form and/or the background investigation (82%) and to develop new information not revealed by other selection devices/steps (67%). Only 3% reported using PEPS only when questionable or apparently incomplete information is provided or discovered.

Summary.

In sum, the information available regarding how agencies use PEPS is minimal and some information is based on limited samples of agencies. However, when studies reported on similar areas of use (most agencies use their own examiners; not all applicants are tested; PEPS is normally administered after interviews and before background investigations), their findings were in general agreement.

User Evaluations of PEPS

In this section, information available in the studies reflecting the perceived agency benefits and results obtained

by using PEPS is reviewed.

In Gooch (1964), agencies reported that the three primary benefits they received from using PEPS were "higher quality employees" (74%), "fewer problems" (57%) and "lower turnover" (48%). Additional benefits were "increased employee efficiency" (43%), "reduced training costs" (35%), "increased public confidence" (35%) and a "reduced number of applicants" (22%). Eighteen years later, Horvath and Shelton (1982) reported the same three primary benefits in the same rank order (88%, 43% and 36%, respectively). "Fewer citizen complaints" ranked fourth (33%) and several other miscellaneous benefits were also listed.

Gugas (1962) did not specifically evaluate the importance of the types of information revealed by PEPS, but he did report that the largest cause for the 46% applicant rejection rate based on PEPS exams was admissions of health problems, and that other causes included admissions regarding arrests, military service, prior work records, abnormal sex behavior and credit problems.

Lopez (undated) reported that when asked to evaluate how successful they felt PEPS was, 81% of their respondents rated it above average or outstanding.

Summary.

In sum, Users perceived positive and tangible benefits, primarily in the area of higher quality employees, based on their use of PEPS.

Other Screening Techniques

Of the studies reviewed, only Roper (1981) presented information regarding PEPS usage and the number of other techniques used by agencies (both Users and Nonusers) which indicated a possible relationship between the two variables. She reported that agencies in the Western U.S., where the highest number of Users in her survey were located, tended to incorporate the most screening devices in their selection programs, and that agencies in the Eastern U.S., where the fewest Users in her survey were located, tended to incorporate the fewest. However, the association between the two variables was not further pursued.

Comment

It is important to recognize that all of the above reported information regarding Users is at least 10 years old. It was published well before the U.S. Congress passed the EPPA in 1988, which proscribed the use of PEPS in the private sector. Thus, the data does not reflect any potential impact of EPPA, or of any other judicial or state legislative actions in recent years.

Section D - Nonusers

In this section, information available in the studies is reviewed pertaining to police agencies that reported they had used PEPS at some time in the past but had since discontinued its use (referred to as Former Users) and agencies that reported they have never used PEPS (referred to as Nonusers).

Former Users

Horvath and Shelton (1982) reported that 14 agencies (6% of the total number of respondents) were Former Users of PEPS. Thirteen of them indicated that they had used the polygraph instrument to administer PEPS exams. Four said they had discontinued its use prior to 1972 and eight discontinued it between 1973 - 1981. The reasons they discontinued its use included enactment of state prohibitory legislation (four agencies), revision of selection process (three agencies), cost (two agencies) and dissatisfaction with results (one agency).

Kendrick (1983) was the only other study that reported Former User respondents. In that study 13 agencies (14% of 91 respondents) identified themselves as Former Users.

Nonusers

Gooch (1964) and Horvath and Shelton (1982) both asked agencies why they did not use PEPS and in both studies the agencies that responded included both Former Users and Nonusers. The reasons for nonuse were tabled and compared by Meesig and Horvath (1993). Their findings regarding the number and percent of agency scores for each reason in the two studies are presented in Table 3 below, and the reasons are rank ordered according to the Gooch (1964) study percentages.

Table 3

Rank Order and Percentages of
Nonusers' Reasons for Not Using PEPS

Reasons	Gooch (1964) (N=95)			Horvath & Shelton (1982) (N=125)		
	<u>n</u>	<u>Rank</u>	<u>%¹</u>	<u>n</u>	<u>Rank</u>	<u>%</u>
Satisfied with Other Methods	95	1	39	125	1	54
Never been approached/ unaware of program	95	2	17	125	7	11
Cost Involved	95	3	14	125	2	34
Considering Use	95	4	14	N/A ²		
Agency Size	95	5	9	125	5	15
Lack Confidence in Polygraph Examiners	95	6	6	125	8	6
Resentment that Would Result	95	7	6	125	9	6
Lack Confidence in Polygraph Technique/Equipment	95	8	5	125	6	14
Shortage of Applicants	95	9	4	125	10	5
Lack Trained Examiners	N/A			125	3	22
Legislative Problems	N/A			125	4	16

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

²N/A=Question or option not asked or not available in this study.

It can be seen that in both the Gooch (1964) and Horvath and Shelton (1982) studies, the primary reason given was that the agencies were satisfied with their current (other) methods of screening; in Gooch (1964), 39% and in Horvath and Shelton (1982), 54% of the agencies cited this reason. In Gooch (1964), the second-ranked reason was that the agencies had never been approached about initiating a program or were

generally unaware of polygraph screening programs, cited by 17% of the agencies. The third reason was that such a program was viewed as being too costly (14%). In the Horvath and Shelton (1982) study, the cost of polygraph screening was the second-ranked (34%) factor and the lack of trained examiners was third (22%). It is of some interest to note that in the Horvath and Shelton (1982) study the lack of awareness of polygraph screening was the seventh-ranked factor (11%), showing, perhaps, a growing awareness of the use of such screening over the 18 year period of time between that and the Gooch (1964) study.

In addition to the above, Lopez (undated) reported that many small agencies that did not use PEPS listed budgetary constraints as the primary reason.

Several studies asked agencies about the possibility of using PEPS in the future. Yeschke (1962) reported that 26 (27%) of his 97 Nonuser respondents said they were considering its use in the future. Gooch (1964) reported that of the 95 responding Nonuser agencies, 13 (14%) were considering its use. Kendrick (1983) reported that 11 (25%) of 44 Nonuser respondents stated that PEPS was being considered for the future. In the Horvath and Shelton (1982) study, 132 responding agencies were identified as Nonusers (including Former Users) and were asked under what conditions they would consider implementing PEPS exams in their applicant screening program. Among the 177 responding agencies (89%) the top three reasons were (1) evidence of

effectiveness (37%); (2) court acceptance of the validity of PEPS (36%); and (3) if law/policies permit its use (17%). Other reasons included "if funds available" (11%), "increase in applicants" (11%), "systems failure" (9%), "improved training and/or requirements" (8%), "considering its use" (5%) and "if cost effective" (4%).

Summary

Two studies (Horvath and Shelton, 1982, and Kendrick, 1983) identified relatively small groups of Former Users among their respondents. Two studies (Gooch, 1964, and Horvath and Shelton, 1982) reported that Nonusers (including Former Users) stated their primary reason for not using PEPS was that they were satisfied with other methods. Unfortunately, no information was available regarding which other methods they were referring to. One study (Horvath and Shelton, 1982) reported that the primary factors that would influence Nonusers to consider using PEPS were research showing that it was effective and court acceptance of the validity of PEPS.

Comment

As noted at the end of the Users section above, it is important to recognize that all of the above reported information regarding Former Users and Nonusers is at least 10 years old and was published well before the U.S. Congress passed the EPPA in 1988.

Chapter III

Methodology

This study was conducted between 1989-1991 to address the use of PEPS by police agencies as an applicant selection procedure. The methodology of the study included mailing to police agencies survey questionnaires asking questions regarding PEPS usage. Due to funding limitations, two separate consecutive surveys were conducted rather than one large survey. Because agency size had been identified in three previous studies (reference Table 2) as a major factor associated with PEPS usage, it was decided that the samples of the two surveys would be selected based on agency size. The first survey, referred to as the large agency survey and conducted in 1989-1990, addressed the largest police agencies in the U.S., and the second survey, referred to as the small agency survey and conducted in 1991, addressed the remaining agencies.

Research Questions

Three research questions are investigated in this study. They are as follows:

- (1) To what extent do police agencies in the U.S. currently use PEPS as an applicant selection technique?
- (2) What major factors are related to police agency PEPS usage?
- (3) Why and how do police agencies use PEPS?

Variables

Based on the literature review, the following independent variables were identified and included in this study: PEPS usage, agency size, agency type, geographic region of location, and the existence of state laws affecting the use of PEPS. The values for each of these independent variables are set forth in Appendix A.

The above independent variables will be used to assess the dependent variables set forth below:

Why Agencies Use PEPS

Reasons for using PEPS; issues of greatest importance; reasons for discontinuing use

How Agencies Use PEPS

Circumstances surrounding usage; policies and procedures regarding usage

Agency Evaluations of PEPS

Applicant pass/fail proportions; admissions during PEPS examinations; evaluations (benefits, confidence levels, accuracy estimates, absolute importance, relative usefulness)

Other Screening Techniques Used

Extent of use of 13 common pre-employment tests and procedures

Future Plans to Use PEPS

Plans to implement PEPS in the next one to three years; circumstances in which implementation of PEPS would be considered

Design of the Instrument

The questionnaire designed for this survey was a self-administered, mail survey questionnaire consisting of questions organized into the following general categories:

- Agency Demographic Data

- Usage (User, Former User, Nonuser)
- User Questions
- Former User Questions
- Nonuser Questions
- Other Techniques Used (User, Former User, Nonuser)

An initial draft questionnaire was developed in 1988. It underwent several modifications after review by a number of prominent and knowledgeable polygraph examiners who were members of, and in a number of instances, on the Board of Directors of the American Polygraph Association and the American Association of Police Polygraphists. In addition, the questionnaire was pretested on a number of police officers and law enforcement officials. The final document, consisting of 41 questions, was completed in 1989 and used in the large agency survey. A copy of the questionnaire is located in Appendix B. In 1991, the same questionnaire was used in the small agency survey, with the exceptions that the answer choices to one question (#24) were increased and modified for clarification; one additional question (#41) was included to determine agency policy regarding release of PEPS testing results; and one additional answer choice was added to one question (#42) to determine the extent of use of drug testing as an applicant selection technique. These modified questions are presented in Appendix C.

Population Under Study

In the large agency survey the study population consisted of a listing of 699 of the largest general purpose

(having full arrest powers) police agencies in the U.S. This listing was compiled by the Police Executive Research Forum (PERF) based on the agency eligibility criteria for membership in that organization (Carter and Sapp, 1990). The listing included all 49 state police/highway patrol agencies; all consolidated police agencies (26); all county sheriff departments with 100 or more sworn employees (169); and all municipal police departments serving populations of 50,000 or more (455).

In the small agency survey, the study population was approximately 16,000 agencies identified in the 1986 Directory Survey of Law Enforcement Agencies, which is a listing of U.S. law enforcement agencies maintained by the BJS.

Sample

In the large agency survey, the entire population of 699 agencies was surveyed. The sample in the small agency survey was derived through a series of steps as described below.

In 1990, the BJS conducted a survey of U.S. law enforcement agencies as part of its Law Enforcement Management and Administrative Statistics (LEMAS) program. Using its 1986 Directory Survey of Law Enforcement Agencies, BJS developed a nationally representative sample of two groups of large and small agencies for its survey. The large agency group consisted of all agencies in the directory with 100 or more sworn employees, including all state agencies. The small agency group consisted of a systematic random

sample of all the remaining agencies in the directory stratified first by size of population served, and then by number of sworn officers. The resulting sample consisted of a total of 2,931 general purpose agencies, including 721 large and 2,210 small agencies (Hubble, 1990; Sweet, 1990).

The LEMAS listing identified 721 large agencies; however, the PERF listing had identified 699 large agencies. The difference of 22 agencies was due to the different criteria used to define large agencies. The LEMAS and PERF listings were not compared to identify the 22 agencies. In the present study, only the large agencies in the PERF listing were included in the sampling process. Thus, it is possible that the 22 agencies identified only in the LEMAS listing were not included in the present study sample.

In 1990, the BJS made the listing of 2210 small agencies in their sample available for use in the present study. A review of these agencies disclosed that due to the difference between the LEMAS and PERF definitions regarding agency size, 18 of the 2210 LEMAS small agencies had already been included in the PERF large agency listing and large agency sample. Therefore, they were excluded from the small agency sample. This left a total sample of 2192 small agencies (697 sheriff and 1495 local) for the present study's small agency survey sample.

Data Collection

The data for both surveys were collected by the staff of the American Polygraph Association Research Center, School of

Criminal Justice, Michigan State University, in the following manner. A letter of transmittal was prepared describing the nature and purpose of the study and reflecting that it was jointly sponsored by the American Polygraph Association and the American Association of Police Polygraphists. The letter assured that individual agency responses would be held in confidence and requested the agency's support in participating in the survey. The letter also explained that all questionnaires were numbered to insure that follow-up mailings could be done efficiently and with minimal cost. Copies of the letter and the questionnaires, together with stamped, self-addressed return envelopes, were mailed to all of the chief law enforcement administrators identified in the two samples.

In the large agency survey, the first mailing of questionnaires was made in August, 1989, with follow-up mailings to non-respondents in November, 1989, and February, 1990. In the small agency survey, the first mailing was made in January, 1991, with follow-up mailings to non-respondents in April and July, 1991.

Questionnaire Distribution

In Table 4, the number and percent of questionnaires distributed and received in each survey are summarized.

Table 4

Number and Percent of Questionnaires Distributed and Received
in the Large and Small Agency Surveys

Questionnaires	Large		Small		Combined	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Number Distributed	699	100	2192	100	2891	100
Overall Responses	635	91	1512	69	2147	74
Usable Responses	626	90	1482	67	2108	73

In the large agency survey, questionnaires were distributed to 699 agencies and 635 were returned (overall return rate of 91%). Eight of the respondents declined to participate in the survey and one respondent was eliminated as it was determined to be outside the population parameters. As a result, there were 626 usable responses (usable return rate of 90%).

In the small agency survey, questionnaires were distributed to 2192 agencies and 1512 were returned (overall return rate of 69%). Nonusable responses included 14 agencies that declined to participate in the survey and 16 respondents who replied that the police agency to which the questionnaire was addressed no longer existed. As a result, there were 1482 usable responses (usable return rate of 67%). A total of 25 of the 1482 agencies reported that the number of sworn officers assigned were now in excess of 100 personnel. However, they were not excluded from the small agency survey. The reason for this was that the large agency

population had already been defined and identified by the PERF listing and the LEMAS sample, and the study population from which the small agency survey sample was drawn was defined as "all remaining agencies." Therefore, changes in agency manpower did not affect the large and small agency category definitions.

The "combined" column in Table 4 displays the data for large and small agencies when it is added together, or combined. This combined column will also appear in subsequent tables to serve primarily as a basis for organizing agency responses.

Size Characteristics of Respondents

Agency responses were reviewed to determine the size characteristics of the large and small respondents. Table 5 reflects size characteristics in terms of number of sworn employees and size of population served.

Table 5

**Size Characteristics of Agencies that Provided Usable Responses
in the Large and Small Agency Surveys**

Characteristic	Large (N=626)	Small (N=1482)	Combined (N=2108)
<u>By Number of Sworn Employees</u>			
n	621	1454	2075
Range	17 - 26,000	1 - 291	1 - 26,000
Mean	491	19	160
Median	187	10	20
Total	305,211	26,962	332,173
<u>By Population Served</u>			
n	620	1455	2075
Range	50,000 - 28M	50 - 860,000	50 - 28M
Mean	614,405	19,941	197,564
Median	135,000	7,800	18,000

Table 5 reflects that the number of sworn employees among large agencies ranged between 17 to 26,000 and among small agencies ranged between 1 to 291. There is an overlap between the two size groups and this is due to two reasons. First, as previously discussed, the large agencies were defined as all state agencies, sheriff agencies employing 100 or more sworn personnel and municipal agencies serving populations of 50,000 or more. Agencies meeting these criteria were documented in the PERF agency listing. However, the definition of small agencies was based on the LEMAS survey sample. The LEMAS sample used the BJS directory of 16,000 agencies as its population and defined large agencies as all agencies with 100 or more sworn employees as reported in the directory. Small agencies were then defined

as all remaining agencies in the directory. Second, in addition to the different size definitions, it was found that some respondents reported higher or lower numbers of sworn employees than the numbers that had been reported in the PERF and BJS directory listings.

Table 5 also reflects that the populations served ranged between 50,000 to 28 million among the large agencies and between 50 to 860,000 among the small agencies. Here again the overlapping of population sizes between the two surveys was caused by the same factors that were described in the preceding paragraph regarding the overlaps in numbers of sworn employees.

Agency Type of Respondents

Table 6 below presents the number and percent of usable responses received from the Large and Small Agency surveys broken down by agency type.

Table 6

Agency Types of Agencies that Provided Usable Responses
in the Large and Small Agency Surveys

Characteristic	Large (N=626)		Small (N=1482)		Combined (N=2108)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Local	406	65	891	60	1297	62
County	166	26	469	32	635	30
State	49	8	2	-*	51	2
<u>Other</u>	<u>4</u>	<u>1</u>	<u>111</u>	<u>8</u>	<u>115</u>	<u>6</u>
Total	625	100	1473	100	2098	100

*Less than 1%.

Although all state agencies were thought to have been included in the large agency survey, the table reflects that two respondents in the small agency survey identified themselves as state level agencies.

Chapter IV

Results

In this chapter the results are presented in five sections. Section A sets forth an overview of PEPS usage. Sections B, C and D then provide separate descriptions of Users, Former Users and Nonusers, respectively, based on the study results. Section E presents comparisons between Users, Former Users and Nonusers.

Section A - Overview of PEPS Usage

Figure 1 below sets forth the number and percentages of agencies that reported they were Users, Former Users and Nonusers of PEPS in the large and small agency surveys and when the two surveys were combined.

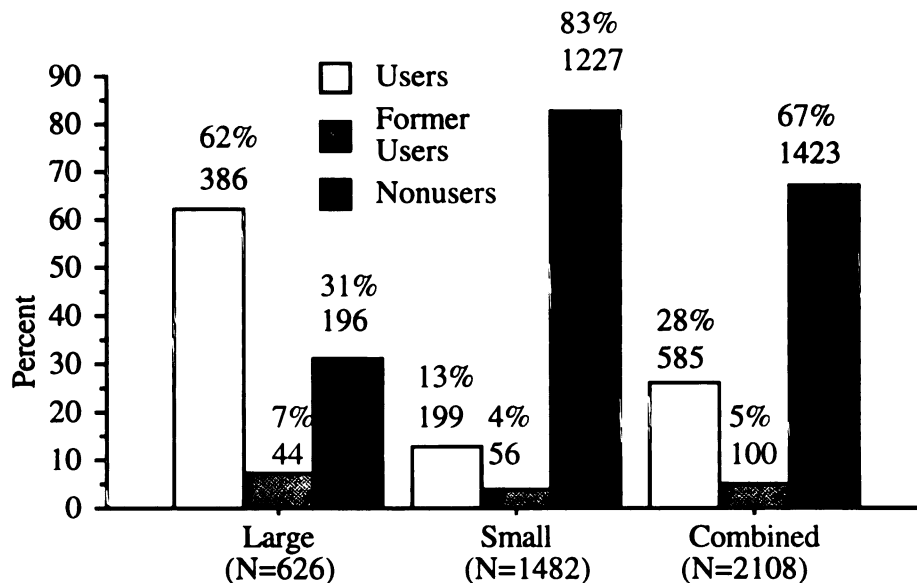


Figure 1

Number and Percent of Users, Former Users and Nonusers
in the Large and Small Surveys and in Both Surveys Combined

In the large agency survey, 386 of 626 respondents (62%) indicated they were current Users of PEPS, 44 (7%) were Former Users and 196 (31%) were Nonusers. In the small agency survey, 199 of the 1482 respondents (13%) indicated they were current PEPS Users, 56 (4%) were Former Users and 1227 (83%) had never used it.

When the respondents from the two surveys were combined, they totaled 2108 agencies, 13% of all general purpose law enforcement agencies in the U.S. (BJS, 1990). Of the combined 2108 agencies, 585 (28%) were PEPS Users, 100 (5%) were Former Users and 1423 (67%) were Nonusers.

To determine whether PEPS usage and agency size were associated, the large and small agency groups were compared regarding whether they were PEPS Users or Nonusers. In each size group, the Former Users were first combined with the Nonusers as they were not currently using PEPS. Then each size group was divided into Users and Nonusers. The results are reflected in Table 7 below.

Table 7

Comparison of Large and Small Agencies by PEPS Usage

Usage	Large (N=626)		Small (N=1482)		Combined (N=2108)	
	n	% ¹	n	%	n	%
Users	386	62*	199	13	585	28
<u>Nonusers</u>	<u>240</u>	<u>38</u>	<u>1283</u>	<u>87</u>	<u>1523</u>	<u>72</u>
Total	626	100	1482	100	2108	100

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

*Significant difference by agency size regarding PEPS usage.

Analysis showed that there was a significant difference by agency size regarding PEPS usage [$X^2(1)=510.7$, $p=.0001$, $\Phi=.49$]. Large agencies were more likely to be PEPS Users and small agencies were more likely to be Nonusers. The Phi coefficient of .49 indicated that the relationship between the two variables was moderate.

Because of the demonstrated relationship between PEPS usage and agency size, agency size is treated as an independent variable in Sections B, C and D when presenting data for Users, Former Users and Nonusers. For example, the data regarding Users in the Section B tables are presented in separate columns for Large and Small Users. And similarly, the data regarding Former Users and Nonusers in the Section C and D tables, respectively, are presented in separate columns for Large and Small Former Users and Nonusers. Additionally, the tables in all the sections contain a third column which displays the data for the large and small agencies when they

are added together or "combined." This column is used primarily as a basis for organizing agency responses in the tables.

In some of the tables where individual item responses are set forth in percentages, the total responses may exceed 100%. This is due to the fact that some of the questions that agencies were asked in the survey questionnaires provided for multiple independent responses. In other words, some of the questions provided several response choices and instructed respondents to mark all that applied.

Section B - Description of Users

In this section, Large and Small Users are described in terms of User characteristics, why and how PEPS is used and User evaluations of PEPS.

Characteristics of Users

Presented below are the data regarding size characteristics of Large and Small User agencies.

Size.

Table 8 reflects Large and Small User data compared by two specific size characteristics: first, by the number of sworn employees reported by the Users in each survey, and then by the populations served by the Users in each survey.

Table 8

Size Characteristics of Large and Small Users

Size	Large (N=386)	Small (N=199)	Combined (N=585)
<u>By Number of Sworn Employees</u>			
n	383	196	579
Range	17 - 8,414	2 - 170	2 - 8,414
Mean	447	35	307
Median	215	28	133
Total	171,094	6,836	177,930
<u>By Population Served</u>			
n	381	198	579
Range	50,000 - 12.4M	950 - 700,000	950 - 12.4M
Mean	522,105	31,267	354,254
Median	142,000	17,500	85,000

As reflected in the table, the mean number of sworn employees in Large User agencies was 447 (Median=215) and the mean number of sworn employees in Small User agencies was 35 (Median=215). The size of populations served was 522,105 (Median=142,000) in Large User agencies and 31,267 (Median=17,500) in Small User agencies.

Type.

Table 9 below reflects Large and Small Users compared by agency type.

Table 9

Number and Percent of Large and Small Users
Presented by Agency Types

Agency Type	Large (N=386)		Small (N=199)		Combined (N=585)	
	n	% ¹	n	%	n	%
Local	262	68	156	79	418	72
County	91	24	35	18	126	21
<u>State/Other</u>	<u>32</u>	<u>8</u>	<u>7</u>	<u>3</u>	<u>39</u>	<u>7</u>
Total	385	100	198	100	583	100

Table 9 reflected that 68% of the Large Users were local agencies, 24% were county agencies, and 8% were state or other type agencies. Additionally, 79% of the Small Users were local, 18% were county, and 3% were state or other types.

Why Police Agencies Use PEPS

In this section data are presented regarding reasons for using PEPS and issues of greatest importance in PEPS.

Reasons for use.

Users were provided a list of 10 different reasons for using PEPS. They were asked to indicate, based on their own experiences, the extent of their agreement with each statement using the following scale: 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree. The Large and Small User mean scores for each reason are reflected in Table 10, and the reasons are rank ordered according to the "combined" mean score values.

Table 10

Large and Small User Reasons for Using PEPS
Presented by Mean Scores in Rank Order

Reason	Large (N=386)			Small (N=199)			Combined (N=585)		
	<u>n</u>	<u>Mean</u> ¹	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>
Reveals info. not available otherwise	384	4.3	1	190	3.9	3	574	4.2	1
Deters undesirables	382	4.1	3	191	4.1	1	573	4.1	2
Background easier to establish	384	4.2	2	190	4.0	2	574	4.1	3
Faster	384	4.0	4	190	3.8	4	574	4.0	4
More useful info	383	3.7	5	190	3.4	7	573	3.6	5
Identifies problem persons better	383	3.6	6	189	3.5	6	572	3.6	6
Easier to administer	383	3.5	8	167	3.5	5	550	3.5	7
Less expensive method	380	3.5	7	191	3.4	8	571	3.5	8
More effective than background investigation	381	3.4	9	191	3.3	10	572	3.4	9
Less faulty info than background investigation	379	3.3	10	191	3.3	9	570	3.3	10

¹Corrected for missing data. Mean=Mean score of responses scored as 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree.

Table 10 reflects that the highest three mean score values of both Large and Small Users were for the same three reasons. The reasons were that it reveals information not available otherwise (Large User $\bar{M}$ =4.3; Small User $\bar{M}$ =3.9); it deters undesirables (both Large and Small User $\bar{M}$ =4.1); and it makes background information easier to establish (Large User

$\bar{M}=4.1$; Small User $\bar{M}=4.0$). This indicates that the primary reasons why Large and Small Users used PEPS were similar.

To determine the degree of similarity between the Large and Small User rankings of all the reasons, they were compared by using the Spearman rank correlation coefficient. This correlation coefficient, based on the ranks of the two sets of scores, reflected a very strong relationship between the two rank orders [$r_s=.86$]. This indicates very high agreement on the reasons for using PEPS for both large and small agencies.

It is noteworthy that the mean scores for all of the reasons ranged between Undecided (3) and Strongly Agree (5), indicating that on average both Large and Small Users agreed that all the listed reasons, regardless of rank order, were positive reasons which contributed to agency decisions to use PEPS.

Issues of greatest importance.

Users were provided a list of 16 different issues to be investigated in an applicant's background. They were asked to indicate, based on their experience, how important it is to use PEPS to investigate each of the issues using the following scale: 1=Very Unimportant, 2=Unimportant, 3=Important, 4=Very Important. The results are reflected in Table 11 by the mean score of agency responses to each issue and the issues are rank ordered in the table according to the "combined" mean score values.

Table 11

Large and Small User PEPS Testing Issues of
Greatest Importance Presented by Mean Scores in Rank Order

Test Issues	Large (N=386)			Small (N=199)			Combined (N=585)		
	<u>n</u>	<u>Mean</u> ¹	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>
Illegal drug use	383	3.9	1	190	3.7	1	573	3.8	1
Felonies committed	381	3.6	2	191	3.5	2	572	3.6	2
Dishonesty prior employment	381	3.6	3	191	3.5	4	572	3.6	3
Accept/pay bribes	381	3.5	4	190	3.5	3	571	3.5	4
Use of excessive force	381	3.4	5	187	3.4	5	568	3.4	5
Alcohol abuse	380	3.4	6	191	3.3	6	571	3.4	6
Illegal sexual activity	375	3.3	8	188	3.2	8	563	3.3	7
Employment history	381	3.3	7	191	3.1	10	572	3.2	8
Misdemeanors committed	382	3.3	9	189	3.1	11	571	3.2	9
Involvement in subversive organizations	375	3.2	10	189	3.2	9	564	3.2	10
Mental problems	379	3.1	11	189	3.2	7	568	3.1	11
Medical problems	380	3.0	12	190	3.0	12	570	3.0	12
Physical disabilities	381	2.9	13	190	2.9	13	571	2.9	13
Finance/credit problems	380	2.9	14	188	2.9	14	568	2.9	14
Traffic violations	381	2.7	15	187	2.6	15	568	2.7	15
Homosexual activity	360	2.5	16	187	2.6	16	547	2.5	16

¹Corrected for missing data. Mean=Mean score of responses scored as 1=Very Unimportant, 2=Unimportant, 3=Important, 4=Very Important.

As shown in the table, the two issues that received the highest mean score values by both Large and Small Users were illegal drug use (Large Users $\bar{M}$ =3.8; Small Users $\bar{M}$ =3.7) and felonies committed (Large Users $\bar{M}$ =3.6; Small Users $\bar{M}$ =3.5). This indicated that both Large and Small Users considered these two issues to be the most important PEPS testing issues.

The Large and Small User mean score rankings of all of the issues were compared in order to determine the degree of similarity between them, and analysis reflected a very strong relationship [$r_s=.96$]. This indicates very high agreement on the ordering of the importance of the issues for both large and small agencies.

It is noteworthy that the mean scores for all of the issues ranged between Important (3) and Very Important (4), indicating that on average both Large and Small Users agreed that PEPS was of positive value in addressing all of them.

How Police Agencies Use PEPS

In this section, data are set forth regarding the circumstances of use of PEPS and User policies and procedures governing PEPS.

Circumstances of use.

Table 12 below reflects Large and Small User results regarding the circumstances of use of PEPS by Users.

Table 12

**Circumstances of Use of PEPS
by Large and Small Users**

Circumstance	Large (N=386)		Small (N=199)		Combined (N=585)	
<u>Type Instrument</u>	n	% ¹	n	%	n	%
Polygraph	374	98	187	97	561	98
Voice stress	5	1	5	3	10	2
<u>Both</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>-</u>	<u>3</u>	<u>-</u>
Total	381	100	193	100	574	100
<u>Test Given by</u>	n	% ¹	n	%	n	%
Own examiner	268	70	46	24	314	55
<u>Outside examiner</u>	<u>116</u>	<u>30*</u>	<u>146</u>	<u>76</u>	<u>262</u>	<u>45</u>
Total	384	100	192	100	576	100
<u>Number of Own Examiners</u>						
Range	1 - 26		1 - 2		1 - 26	
Median	2		1		2	
Mean	2		1		2	
<u>Number of Exams Last Five Years</u>						
Range	5 - 10,000		1 - 400		1 - 10,000	
Mean	779*		54		537	
Median	400		28		200	
Total	292,896		10,110		303,006	
<u>Number of Exams Last 12 Months</u>						
Range	0 - 1,764		0 - 120		0 - 1,764	
Mean	176*		13		125	
Median	100		6		45	
Total	67,278		2,361		69,639	
<u>Do Exams for Other Agencies</u>	n	% ¹	n	%	n	%
Yes	87	23*	20	10	107	19
<u>No</u>	<u>296</u>	<u>77</u>	<u>174</u>	<u>90</u>	<u>470</u>	<u>81</u>
Total	383	100	194	100	577	100
<u>Number of Exams Done for Other Agencies Last 12 Months</u>						
Range	0 - 516		0 - 21		0 - 516	
Mean	47*		9		41	
Median	19		7		15	
Total exams	4041		139		4180	

Table 12 (cont'd)

<u>Why Use Other Agencies</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>
No examiners	85	82	1	135	94	1	220	89	1
Less expensive	46	54	2	49	56	2	95	55	2
Better trained	29	41	4	43	51	3	72	46	3
Confidential	33	42	3	32	36	4	65	39	4
<u>Use Other Agencies</u>	<u>n</u>	<u>%¹</u>		<u>n</u>	<u>%</u>		<u>n</u>	<u>%</u>	
Commercial	96	79*		69	47		165	62	
Other police	12	10		66	45		78	29	
<u>Combination</u>	<u>13</u>	<u>11</u>		<u>12</u>	<u>8</u>		<u>25</u>	<u>9</u>	
Total	121	100		147	100		268	100	

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

*Significant difference between Large and Small Users.

Table 12 shows that Large Users were more likely than Small Users to use their own polygraph examiners to conduct PEPS exams [$X^2(1)=108.4$, $p=.0001$; $\Phi=.43$]. The Phi coefficient of .43 indicates that the relationship between agency size and use of their own examiners is moderate. Large Users employed more examiners per agency than Small Users ($\bar{M}=2$ vs. $\bar{M}=1$). Large Users conducted a significantly greater number of exams than Small Users during the five year period preceding the surveys ($\bar{M}=779$ vs. $\bar{M}=54$) [one-tail $t=8.6$, $df=562$, $p=.0001$] and during the 12 months preceding the surveys ($\bar{M}=176$ vs. $\bar{M}=13$) [one-tail $t=8.6$, $df=557$, $p=.0001$].

Large Users were more likely than Small Users to conduct PEPS exams for other law enforcement agencies [$X^2(1)=13.1$, $p=.0003$; $\Phi=.15$]. However, the Phi coefficient of .15 indicates that the relationship between agency size and conducting exams for other agencies is very slight. Nevertheless, Large Users conducted a larger number of exams for other agencies

than Small Users ($\underline{M}=47$ vs. $\underline{M}=9$) [one-tail $t=1.9$, $df=100$, $p=.0312$] during the 12 months preceding the surveys.

The Users that did not use their own examiners to conduct PEPS exams, but instead used outside examiners, were asked why they did so. Both Large and Small Users reported that their primary reason was because they had no examiners of their own (Large Users - 82%; Small Users - 94%). It was found that Large Users that used outside examiners were more likely than Small Users to use commercial agencies and that Small Users were more likely to use other police agencies [$X^2(2)=39.7$, $p=.0001$].

Policies and procedures.

Survey results pertaining to a number of User policies and procedures regarding PEPS are set forth in Table 13.

Table 13

**PEPS Policies and Procedures
of Large and Small Users**

Policy/Procedure	Large (N=386)		Small (N=199)		Combined (N=585)	
<u>Who is Tested</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
All sworn	380	99	180	90	560	96
All civilian	206	54	65	33	271	46
Critical/special	206	54	N/A ²		N/A	
Some sworn	N/A		13	7	N/A	
Some civilian	N/A		33	17	N/A	
Other	-	-	10	5	10	2
<u>When Told of Exam</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Upon inquiry about job	306	80	1	139	70	1
With application form	230	60	2	85	43	2
In media announcement	129	34	3	71	36	3
After turn in application	64	17	4	40	20	4
After all steps done	52	14	5	29	15	5
<u>When Test Administered</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Before medical exam	288	79	1	115	66	1
Before psychological interview	261	75	2	104	64	2
Before background investigation	212	60	3	66	37	4
Before oral board	163	47	4	65	38	3
<u>Refusal to Take Exam</u>	<u>n</u>	<u>%¹</u>		<u>n</u>	<u>%</u>	
Automatic reject	346	92		152	89	
Use other device	11	3		11	7	
No penalty	15	4		2	1	
<u>Delay process</u>	<u>5</u>	<u>1</u>		<u>5</u>	<u>3</u>	
Total	377	100		170	100	
No policy	N/A			20	N/A	

Table 13 (cont'd)

<u>Re-exam Policy</u>	<u>n</u>	<u>%¹</u>		<u>n</u>	<u>%</u>		<u>n</u>	<u>%</u>	
With approval	124	33		58	30		182	32	
By exception	132	35		48	25		180	32	
Never	49	13		33	17		82	14	
Automatic	40	11		24	13		64	11	
<u>Applicant request</u>	<u>32</u>	<u>8</u>		<u>29</u>	<u>15</u>		<u>61</u>	<u>11</u>	
Total	377	100		192	100		569	100	
 <u>How Testing Used</u>	 <u>n</u>	 <u>%¹</u>	 <u>Rank</u>	 <u>n</u>	 <u>%</u>	 <u>Rank</u>	 <u>n</u>	 <u>%</u>	 <u>Rank</u>
Verify application/ background info	366	97	1	184	98	1	550	97	1
Develop unique info	338	91	2	149	81	2	487	88	2
Verify questionable/ incomplete info	299	82	3	135	76	3	434	80	3
Substitute for background inves.	7	2	4	2	1	4	9	2	4
 <u>Release of Test Results</u>	 <u>n</u>	 <u>%</u>		 <u>n</u>	 <u>%¹</u>		 <u>n</u>	 <u>%</u>	
To applicant	N/A ²			106	60		N/A		
Not outside agency				89	57				
No policy				52	40				
To other agencies- exceptional				56	34				
To other agencies upon request				24	14				

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

²N/A=Question or option not asked or not available in this study.

As reflected in Table 13, 99% of the Large Users and 90% of the Small Users require all applicants for sworn positions to take PEPS exams, indicating strong consensus among Users regarding the routinized use of PEPS in police applicant screening. However, the percentages of both Large and Small Users requiring all applicants for civilian positions to take PEPS exams were not nearly so high (54% and 33%), indicating

that Users in general were motivated to use PEPS primarily to screen police officer applicants.

Users were asked to identify at which of five stages in the screening process they made applicants aware of the need to complete a PEPS exam, and to check as many stages as applied. As indicated in Table 13, the rank orderings of both Large and Small Users were identical. The great majority of Users said the PEPS exam requirement was set forth in the initial stage when information is distributed upon inquiry about job openings. The lowest ranked stages were after applications were turned in and after all steps were completed.

Upon being asked when they administered PEPS exams in their applicant screening process, the majority of both Large and Small Users administered PEPS before a medical exam (79% and 66%) or a psychological interview (75% and 64%). While a majority of Large Users (60%) administered it before a background investigation, only a minority of Small Users (37%) did so. However, only a minority of both Large and Small Users administered PEPS before an oral board (47% and 38%).

When asked what their policy was regarding an applicant's refusal to take a PEPS examination, the great majority of both Large (92%) and Small Users (89%) responded similarly that refusal leads to automatic rejection. This indicates a consensus that in most User agencies, regardless of size, PEPS was considered to be a mandatory requirement

for applicants, and that alternatives to PEPS were not offered. In the small agency survey, agencies were provided an additional option to indicate that they had no policy regarding refusals, and 20 agencies selected that option.

When asked what their policy was with respect to a re-examination of an applicant who is reported to be "deceptive" to one or more important issues (without significant admissions) in an initial polygraph examination, only a very small percentage of Large and Small Users said a second exam was administered automatically (11% and 13%). The great majority of both Large and Small Users (89% and 87%) placed at least some restrictions on retesting applicants.

When asked how they used PEPS testing, the rank ordering of the four answer choices was identical for both Large and Small Users. The great majority said it was used to verify basic information derived from the applicant (Large=97%, Small=98%); to develop unique information not revealed by other selection devices (Large=91%, Small=81%); and to verify questionable or incomplete information provided by other selection devices (Large=82%, Small=76%). Very few Large or Small Users (Large=2%, Small=1%) indicated they used PEPS as a substitute for a background investigation.

User Evaluations of PEPS

In this section, data are presented regarding applicant PEPS pass/fail proportions, applicant admissions during PEPS exams and agency evaluations of PEPS.

Applicant pass/fail proportions.

Users were asked to indicate the approximate percentages of applicants who "passed" and "did not pass" PEPS exams during the 12 months preceding the surveys. Their responses are displayed by number and mean percentage in Table 14 below.

Table 14

Proportions of Large and Small User Applicants
Who Passed and Did Not Pass PEPS During a 12 Month Period

Item	Large (N=386)		Small (N=199)		Combined (N=585)	
	n	Mean % ¹	n	Mean %	n	Mean %
Passed all/eligible	332	49	170	63	502	54
Disqualified/did not pass	337	25	164	11	501	21
Deceptive	152	21	166	11	318	16
Refused/discontinued	332	1	165	1	497	1
Passed PEPS	N/A ²		177	75	N/A	

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

²N/A=Question or option not asked or not available in this study.

With regard to applicants who "passed" the PEPS exam, Table 14 discloses that 49% of all Large User and 63% of all Small User applicants passed all selection techniques, including PEPS, and were found to be eligible for employment. About 25% of the Large User applicants and 11% of the Small User applicants were reported to have been disqualified from consideration because of the PEPS exam outcome. Additionally, 21% of the Large User applicants and 11% of the

Small User applicants were found to be "deceptive" during PEPS testing. Finally, only 1% of both Large and Small User applicants either refused to undergo PEPS testing or discontinued an examination in progress.

In the small agency survey only, agencies were asked what percentage of their applicants had successfully "passed" the PEPS, regardless of whether or not they passed other techniques or were eligible for hire. A total of 177 agencies responded that an average of 75% of their applicants had done so.

Admissions.

In the large agency survey, Users were presented with a list of the crime types of burglary, arson, robbery, rape and homicide and were asked whether they ever had an applicant admit to any unsolved crimes in these categories during PEPS exams. In addition to selecting as many of the listed crime types as applied, a number of agencies wrote in additional types of crimes in an "other" answer choice. The ones most frequently written in were drug abuse, larceny and sex offenses. Therefore, in the subsequent small agency survey, the list of crime types was expanded to include these also. The results are set forth in Table 15 below. All results are presented by the number and percentage of agencies that responded to each category and they are rank ordered by percentage.

Table 15

Large and Small User
Applicant Admissions During PEPS Examinations

Crime	Large (N=386)			Small (N=199)			Combined (N=585)		
	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Burglary	250	70*	1	56	31	3	306	57	N/A
Arson	150	44*	2	19	11	5	169	33	
Robbery	129	38*	3	9	5	7	138	27	
Rape	113	34	4	10	6	6	123	24	
Homicide	31	10	5	2	1	8	33	7	
Drug abuse	76	N/A ²		124	67 ³	1		N/A	
Larceny	60	N/A		113	62	2		N/A	
Sex offenses	30	N/A		33	19	4		N/A	

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

²N/A=Not offered as a "Yes" or "No" option. Responses were written in by agencies in the "Other" option.

³Offered as a "Yes" or "No" option in the small agency survey only.

*Significant difference between proportions of Large and Small Users.

As exhibited in Table 15, both Large and Small Users reported that applicants had admitted to unsolved serious crimes in all the crime categories during PEPS exams. It is noted that significantly larger proportions of Large Users than Small Users reported admissions in three of the five originally listed categories [burglary - 70% vs. 31%, $z=5.57$; arson - 44% vs. 11%, $z=2.75$; robbery - 38% vs. 5%, $z=2.02$; rape - 34% vs. 6%, $z=1.8$; homicide - 10% vs. 1%, $z=0.43$] .

Evaluations of PEPS.

Table 16 below sets forth User evaluations of PEPS based on their experience with the technique.

Table 16

Large and Small User
Evaluations of PEPS

<u>Item</u>	<u>Large</u> (N=386)			<u>Small</u> (N=199)			<u>Combined</u> (N=585)		
<u>Benefits</u>	<u>n</u>	<u>%</u> ¹	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
More honest applications	314	86	1	160	86	1	474	86	1
Higher quality hires	293	83	2	143	78	3	436	81	2
Fewer undesirable applicants	270	76	3	158	85	2	428	79	3
Fewer misconduct problems	191	60	5	120	69	4	311	63	4
Fewer internal problems	193	60	4	116	66	5	309	62	5
Fewer complaints	156	51	6	82	53	6	238	52	6
Lower turnover	144	45	7	74	43	7	218	44	7
<u>Confidence in Testing</u>	<u>n</u>	<u>%</u> ¹		<u>n</u>	<u>%</u>		<u>n</u>	<u>%</u>	
Minimal (0-50%)	6	2		5	2		11	2	
Fair (51-75%)	23	6		29	15		52	9	
Moderate (76-85%)	86	22		63	33		149	26	
<u>High (86-100%)</u>	<u>266</u>	<u>70</u>		<u>96</u>	<u>50</u>		<u>362</u>	<u>63</u>	
Total	381	100		193	100		574	100	
<u>Estimate of Accuracy of Testing</u>	<u>n</u>	<u>%</u> ¹		<u>n</u>	<u>%</u>		<u>n</u>	<u>%</u>	
Less than 50%	2	1		4	2		6	1	
50 to 75%	20	5		23	12		43	8	
76 to 85%	53	14		24	13		77	13	
86 to 95%	168	44		93	49		261	46	
<u>96 to 100%</u>	<u>135</u>	<u>36</u>		<u>46</u>	<u>24</u>		<u>181</u>	<u>32</u>	
Total	378	100		190	100		568	100	

Table 16 (cont'd)

Importance of PEPS in Selection Process

(Range from 1=Very Little Importance to 100=Extreme Importance)

Number responses	380	191	571
Range	10 - 100	5 - 100	5 - 100
Mean	84	75*	81
Median	90	80	90

Relative Usefulness of Selection Procedures

(1=Less Useful than Polygraph, 2=About the Same Usefulness, 3=More Useful than Polygraph)

	<u>n</u>	<u>Mean</u>	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>	<u>n</u>	<u>Mean</u>	<u>Rank</u>
Background investigation	384	2.24	1	190	2.41	1	574	2.29	1
Psychology test	375	1.93	2	189	2.11	2	564	1.99	2
Psychologist interview	370	1.92	3	186	2.00	3	556	1.95	3
Psychiatrist interview	327	1.83	4	173	1.91	6	500	1.86	4
Personal interview	378	1.75	5	189	2.01	4	567	1.84	5
Selection board interview	374	1.69	6	189	1.94	5	563	1.77	6

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

As shown in Table 16, Users were provided with a list of seven potential benefits of using PEPS and were asked to indicate, based on their experience, whether each one was or was not considered to be a primary benefit. The majority of both Large and Small Users selected all but one (lower turnover) of the seven benefits as primary benefits. In addition, when their responses were rank ordered and compared there was a very strong correlation between the rankings of the two groups [$r_s=.93$], indicating a very high agreement on the ordering of benefits for both Large and Small Users on agency

size. When the Large and Small User mean scores were rank ordered, it was noted that the top three benefits for both Large and Small Users (more honest applications, higher quality hires and fewer undesirable applicants) all concerned perceived effects of PEPS on the applicant screening process. The remaining four benefits for both Large and Small Users all related to perceived effects of PEPS subsequent to the hiring process.

Users were asked how much confidence they felt they had in the results obtained from PEPS testing by selecting one of four answer choices (minimal=0-50%; fair=51-75%; moderate=76-85%; high=86-100%). The great majority of Users said they had moderate to high (76-100%) levels of confidence in the results (Large Users=92%, Small Users=83%). To determine whether there was a relationship between agency size and level of confidence, the four answer choices were collapsed into two categories (minimal to fair=0-75%, and moderate to high=76-100%) and Large and Small User responses were compared. Analysis showed that Large Users were more likely than Small Users to have moderate to high confidence in PEPS testing [$X^2(1)=13.1, p=.0003; \Phi=.15$]. However, the Phi coefficient of .15 indicates that the relationship between agency size and level of confidence is very slight.

Users were asked to estimate the accuracy of PEPS testing results as it was used in their agency by selecting one of five answer choices (less than 50%; 50-75%; 76-85%; 86-95%; and 96-100%). The great majority of Users estimated

the level of accuracy to be between 76-100% (Large Users=94%, Small Users=86%). To determine whether there was a relationship between agency size and estimates of accuracy, the five answer choices were collapsed into two categories (less than 50%-75%, and 76-100%) and Large and Small User responses were compared. Analysis showed that Large Users were more likely than Small Users to have high accuracy estimates of PEPS testing [$X^2(1)=11.3, p=.0008; \Phi=.14$]. However, the Phi coefficient of .14 indicates that the relationship between agency size and estimate of accuracy is very slight.

When asked to rate on a 100 point scale, with 1 indicating very little importance and 100 indicating extreme importance, how important they considered PEPS to be in their selection process, both Large and Small Users indicated relatively high levels of importance ($M=84$ and $M=75$). However, the rating of Large Users was significantly higher than that of Small Users [one-tailed $t=4.8, df=569, p=.0001$].

Finally, Users were asked to rate the usefulness of six other selection procedures relative to PEPS using the following scale: 1=Less Useful than Polygraph; 2=About the Same as Polygraph; 3=More Useful than Polygraph. When the mean scores of the Large and Small User responses were rank-ordered and compared, a very strong relationship between the two orders was observed [$r_s=.83$]. This indicated very high agreement on the rank ordering of ratings between Large and Small Users. The only technique that both Large and Small Users ranked as relatively more useful than PEPS was a

background investigation (mean scores of 2.24 and 2.41, respectively).

Other Screening Techniques

Users were presented with a list of 13 common tests and procedures other than PEPS that police agencies use in pre-employment screening. For each technique all respondents were asked to indicate whether or not they used them as a regular part of their applicant screening process. The responses by Users are set forth in Table 17 below by the number and percent of agencies that used them and they are rank ordered according to the "combined" percentage values.

Table 17
Other Applicant Screening Techniques Used
by Large and Small Users

Technique	Large (N=386)			Small (N=199)			Combined (N=585)		
	n	%	Rank	n	%	Rank	n	%	Rank
Criminal history	363	99	2	194	99	1	557	99	1
Reference check	374	99	1	192	98	2	566	99	2
Background investigation	375	99	3	192	98	3	567	99	3
Medical exam	373	99	4	187	96	5	560	98	4
Application form	363	96	5	188	96	4	551	96	5
Oral board	337	90	6	178	92	6	515	91	6
Psychologist/ Psychiatrist interview	323	86	7	145	76	7	468	82	7
Personality test	317	85	8	137	71	8	454	80	8
Physical agility	310	83	9	122	65	10	432	77	9

Table 17 (cont'd)

Knowledge test	289 78 10	133 70 9	422 75 10
Aptitude test	210 58 12	112 60 11	322 58 11
Civil service exam	227 61 11	68 36 12	295 53 12
Honesty test	48 13 13	40 22 13	88 16 13
Drug test	9 N/A ²	132 69 ³ N/A	N/A

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

²Not offered as a "Yes" or "No" option. Responses were written in by agencies in the "Other" option.

³Offered as a "Yes" or "No" option on the small agency survey only.

Table 17 shows that at least 90% of all Users used the same six techniques in addition to PEPS in their applicant screening processes, and that at least 58% of them used 11 of the 13 listed techniques. When the rank orders of the Large and Small User responses were compared, there was a very strong correlation between the rankings of the two groups [$r_s=.98$]. This indicated very high agreement on the ordering of the techniques by use for both Large and Small Users.

In the large agency survey, in addition to selecting from the 13 listed techniques, a number of agencies wrote in additional procedures in an "Other" answer choice. The ones most frequently written in were drug tests, credit checks and driving records. As the drug test technique was of particular interest, the list of 13 techniques was expanded in the subsequent small agency survey to include drug tests as a "Yes" or "No" option. Drug tests were used by 69% of the responding Small Users.

Section C - Description of Former Users

In this section, Large and Small Former Users are described in terms of Former User characteristics, when and why they discontinued PEPS, their evaluations of PEPS, what techniques they currently use, and future plans to use PEPS.

Characteristics of Former Users

Presented below are data regarding size characteristics and agency types of Large and Small Former Users.

Size.

Table 18 reflects Large and Small Former User data compared by two specific size characteristics: first, by the number of sworn employees reported by the Former Users in each survey, and then by the populations served by the Former Users in each survey.

Table 18

Size Characteristics of Large and Small Former Users

Size	Large (N=44)	Small (N=56)	Combined (N=100)
<u>By Number of Sworn Employees</u>			
n	43	55	98
Range	60 - 4,783	2 - 112	2 - 4,783
Mean	500	28	235
Median	175	17	58
Total	21,489	1,540	23,029
<u>By Population Served</u>			
n	44	55	99
Range	50,000 - 6.6M	950 - 175,000	950 - 6.6M
Mean	466,932	23,518	220,591
Median	140,000	8,000	55,000

As displayed in the table, the mean number of sworn employees was 500 (Median=175) in Large Former User agencies and 28 (Median=17) in Small Former User agencies. The mean size of populations served was 466, 932 (Median=140,000) in Large Former User agencies and 23,518 (Median=8,000) in Small Former User agencies.

Type.

The number and percent of Large and Small Former Users compared by agency type are set forth below in Table 19.

Table 19

Number and Percent of Large and Small Former Users
Presented by Agency Types

Agency Type	Large (N=44)		Small (N=56)		Combined (N=100)	
	<u>n</u>	<u>%</u> ¹	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Local	32	73	40	73	72	73
County	10	23	14	25	24	24
<u>State/Other</u>	<u>2</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>3</u>
Total	44	100	55	100	99	100

Table 19 reflected that 73% of the Large Users were local agencies, 23% were county agencies and 4% were state or other level agencies. Additionally, 73% of the Small Users were local, 25% were county and 2% were state or other level agencies.

When and Why Former Users Discontinued PEPS

In this section data are presented regarding the past circumstances of use of PEPS by Large and Small Former Users and the reasons why they discontinued using PEPS.

Past circumstances of use.

The type of polygraph instrument previously used by Former Users and the time frames during which they began and discontinued the use of PEPS is shown in Table 20.

Table 20

Past Circumstances of Use of PEPS by Large and Small Former Users

Circumstance	Large (N=44)		Small (N=56)		Combined (N=100)	
Type Instrument	n	% ¹	n	%	n	%
Polygraph	43	98	53	96	96	97
Voice stress	-	-	-	-	-	-
<u>Both</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>3</u>	<u>3</u>
Total	44	100	55	100	99	100
<u>Year Began PEPS</u>						
Number of responses	33		50		83	
At least half began	1940 - 73 (52%)		1959 - 81 (54%)		1940 - 81 (53%)	
Remainder began	1973 - 89 (48%)		1981 - 90 (46%)		1974 - 90 (47%)	
<u>Year Quit PEPS</u>						
Number of responses	37		46		83	
At least half quit	1965 - 82 (54%)		1972 - 87 (52%)		1965 - 87 (53%)	
Remainder quit	1982 - 89 (46%)		1987 - 90 (48%)		1982 - 90 (47%)	

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

The years the Former Users reported they began using PEPS ranged from 1940 to 1990. Large Former Users started using the technique as early as 1940 and at least half (52%)

started using it by 1973, whereas the earliest date that Small Former Users started using it was almost two decades later (1959) and at least half (54%) started using it by 1981. The years the Large Former Users reported they discontinued use ranged from 1965 to 1990, and about half (54%) had done so by 1982, whereas the earliest reported date that Small Former Users discontinued it was 1972, and at least half (52%) had done so by 1987. Thus, the majority of Large Former Users started and discontinued the technique earlier than the majority of Small Former Users.

Why Former Users discontinued use.

Former Users were presented with a list of 11 reasons for discontinuing the use of PEPS and were asked to indicate whether or not they were reasons why they discontinued use. Table 21 displays the number and percent of agency responses to each reason and the reasons are rank ordered in the table according to the "combined" percent value.

Table 21

Large and Small Former User
Reasons for Discontinuance of PEPS

Reason	Large (N=44)			Small (N=56)			Combined (N=100)		
	n	% ¹	Rank	n	%	Rank	n	%	Rank
Lack confidence in test	9	25	4	20	43	1	29	35	1
Too controversial	12	33	2	16	33	5	28	33	2
Lack positive results	9	26	3	18	38	3	27	33	3
Cost too high	6	17	8	19	39	2	25	30	4
Accuracy not satisfactory	7	19	7	16	34	4	23	28	5
Prohibitive legislation	17	47	1	4	9	9	21	27	6
Lack of qualified examiners	9	26	4	12	27	6	21	27	7
Results not useful	6	17	9	7	16	7	13	16	8
Too much resentment	9	25	6	3	7	11	12	15	9
Lack of applicants	2	6	11	7	15	8	9	11	10
Prohibitive court order	5	14	10	4	9	10	9	11	11

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

There were some clear differences between Large and Small Former Users regarding their reasons for discontinuing PEPS. The top reason for Large Former Users was prohibitive legislation (47%); yet this reason was ranked ninth (9%) by Small Former Users, indicating that it had minimal impact on their decisions to discontinue PEPS. On the other hand, the main reason the Small Former Users gave for discontinuing PEPS was a lack of confidence in the testing (43%), which was ranked fourth (25%) by Large Former Users. It is interesting

to note the distinctive natures of these two reasons. Prohibitive legislation implies that the agencies may have been forced to discontinue using PEPS, whereas a lack of confidence in the testing indicates that agencies may have discontinued the technique based on their own individual evaluations of its effectiveness.

In order to determine the degree of similarity between the Large and Small Former User mean score rankings of all of the reasons for discontinuing PEPS, they were compared and the results reflected a very slight relationship [$r_s=.20$]. This indicates that there was very low agreement on the ordering of reasons for both Large and Small Users.

Former User Evaluations of PEPS

Table 22 below sets forth Former User evaluations of PEPS based on their experience with the technique.

Table 22

Former User
Evaluations of PEPS

Item	Large (N=44)		Small (N=56)		Combined (N=100)	
<u>Confidence in Testing</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Minimal to Fair (0-75%)	16	37	28	52	44	45
<u>Moderate to High (76-100%)</u>	<u>27</u>	<u>63</u>	<u>26</u>	<u>48</u>	<u>53</u>	<u>55</u>
Total	43	100	54	100	97	100
<u>Estimate of Accuracy of Testing</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Less than 50% to 75%	13	31	23	44	36	38
<u>76 to 100%</u>	<u>29</u>	<u>69</u>	<u>30</u>	<u>56</u>	<u>59</u>	<u>62</u>
Total	42	100	53	100	95	100

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

Former Users were asked to indicate how much confidence they felt they had in the results obtained from PEPS testing by selecting one of four answer choices (minimal=0-50%; fair=51-75%; moderate=76-85%; high=86-100%). The majority of Large Former Users (63%) said they had moderate to high (76-100%) levels of confidence in the results, but only 48% of the Small Former Users said so. To determine whether there was a relationship between agency size and level of confidence, the four answer choices were collapsed into two categories (minimal to fair=0-75%, and moderate to high=76-100%) and the collapsed data are set forth in Table 22 above. Large and Small Former User responses were compared, and analysis showed no significant difference between responses based on agency size [$X^2(1)=2.1, p=.1501$].

Former Users were asked to estimate the accuracy of PEPS testing results as it was used in their agency by selecting one of five answer choices (less than 50%; 50-75%; 76-85%; 86-95%; and 96-100%). The majority of Former Users estimated the level of accuracy to be correct between 76-100% of the time (Large Former Users=69%, Small Former Users=56%). To determine whether there was a relationship between agency size and estimates of accuracy, the five answer choices were collapsed into two categories (less than 50%-75%, and 76-100%) and the collapsed data are set forth in Table 22 above. Large and Small Former User responses were compared, and analysis showed no significant difference between responses based on agency size [$X^2(1)=1.5$, $p=.2144$; $\Phi=.13$].

Screening Techniques Currently Used

Former Users were presented with a list of 13 common tests and procedures (other than PEPS or voice stress analysis) that police agencies use in pre-employment screening. For each technique all respondents were asked to indicate whether or not they used them as a regular part of the applicant screening process. The results are set forth in Table 23 below by the percentages of agency responses to each technique and the techniques are rank ordered in the table according to the "combined" percentage values.

Table 23

Screening Techniques Currently Used
by Large and Small Former Users

Technique	Large (N=44)			Small (N=56)			Combined (N=100)		
	n	% ¹	Rank	n	%	Rank	n	%	Rank
Reference check	40	98	2	53	96	1	93	97	1
Criminal history	36	97	4	53	96	2	89	97	2
Background investigation	39	98	3	52	95	3	91	96	3
Medical exam	41	100	1	50	93	5	91	96	4
Application form	40	95	5	52	95	4	92	95	5
Oral board	38	90	6	47	87	6	85	89	6
Knowledge test	33	83	7	36	65	7	69	73	7
Physical agility	31	76	8	35	65	8	66	69	8
Psychologist/ Psychiatrist interview	29	74	9	29	57	9	58	64	9
Personality test	29	74	10	28	56	10	57	64	10
Aptitude test	26	65	11	24	47	12	50	55	11
Civil service exam	23	59	12	18	36	13	41	46	12
Honesty test	12	30	13	7	14	14	19	21	13
Drug test	1	N/A ²		29	56 ³	11	30	N/A	

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

²Not offered as a "Yes" or "No" option. Responses were written in by agencies in the "Other" option.

³Offered as a "Yes" or "No" option on the small agency survey only.

The table shows that at least 87% of both the Large and Small Former Users used the same six techniques in their applicant screening processes, and that at least 47% of both Large and Small Former Users used 11 of the 13 listed

techniques. When the rank orders of all of the Large and Small Former User responses were compared, there was a very strong correlation between the rankings of the two groups [$r_s=.94$], which indicated very high agreement on the ordering of techniques by use by both Large and Small Former Users.

In the large agency survey, in addition to selecting from the 13 listed techniques, a number of agencies wrote in additional procedures in an "other" answer choice. The ones most frequently written in were drug tests, credit checks and driving records. As the drug test technique was of particular interest, the list of 13 techniques was expanded in the subsequent small agency survey to include drug tests as a "Yes" or "No" option. Drug tests were used by 56% of the responding Small Former Users.

Future Plans to Use PEPS

Former Users were asked several questions regarding their possible future use of PEPS. Specifically, they were asked to indicate whether they planned to implement a PEPS program in the next one to three years, and if so, for what reasons they were planning to do so. The number and percent of agency responses are reflected in Table 24 below. For agencies that indicated they were planning to implement PEPS, the percentages of their responses to each of the listed reasons are rank ordered in the table according to their "combined" percentage values.

Table 24

Large and Small Former User
Plans to Implement PEPS

Issue	Large (N=44)		Small (N=56)		Combined (N=100)	
<u>Plan to Implement in One to Three Years</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	3	7	8	15	11	12
No	38	93	46	85	84	88
Total	41	100	54	100	95	100
<u>Reasons Why Planning to Implement</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Assist background investigations	4	67	1	9	90	1
Reduce undesirable applicants	2	33	4	8	80	2
Save money	3	50	2	5	56	4
Increase in number of applicants	1	17	5	6	60	3
Background inves. not feasible	1	17	6	5	50	6
Background inves. restricted	-	-	-	5	56	5
Legislative/ judicial actions	3	50	3	1	11	8
Citizen complaints increased	-	-	-	2	25	7
Budget increased	-	-	-	1	11	9

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

As displayed in the table, 7% of the 41 responding Large Former Users and 15% of the 59 responding Small Former Users planned to implement PEPS in the next one to three years. The primary reason for doing so for both Large and Small

Former Users was to assist in background investigations by having knowledge of possible problem areas before the background investigation starts.

Former Users that were not planning to implement PEPS were asked whether there were any circumstances in which they would consider the use of PEPS, and if so, which circumstances. The number and percent of agency responses are reflected in Table 25 below. For agencies that indicated they would consider using PEPS, the percentages of their responses to each of the listed circumstances are rank ordered in the table according to their "combined" percentage values.

Table 25

Circumstances in which Large and Small Former Users
Indicated that the Use of PEPS would be Considered

<u>Circumstance</u>	<u>Large</u> (N=44)		<u>Small</u> (N=56)		<u>Combined</u> (N=100)	
<u>Would Consider</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Implementing</u>						
Yes	17	46	25	61	42	54
No	20	54	16	39	36	46
Total	37	100	41	100	78	100
<u>Circumstances in which</u> <u>would Consider</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Research showing effectiveness	11	69	1	19	76	1
Background inves. restrictions	9	60	2	18	72	2
Favorable court decision	9	56	3	14	54	5
Improved examiner qualifications	5	33	5	15	63	3
Increased citizen complaints	6	43	4	13	57	4
Budget increase	5	33	5	10	43	6
Licensing legislation	4	27	6	9	38	7
Increase in applicants	2	14	7	6	25	8

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

As exhibited in the table, 46% of the 37 responding Large Former Users and 25% of the 41 responding Small Former Users said they would consider use of the technique. The two main circumstances in which both Large and Small Users reported they would consider doing so were (1) research evidence showing that polygraph testing is effective as a

pre-employment screening device; and (2) if restrictions were placed on background investigations. When the rank orders of all of the Large and Small Former User responses were compared, there was a very strong correlation between the two groups [$r_s=.90$], which indicated very high agreement on the ordering of the responses by both Large and Small Users.

Section D - Description of Nonusers

In this section, Large and Small Nonusers are described in terms of characteristics of Nonusers, what techniques they currently use, and future plans to use PEPS.

Characteristics of Nonusers

Presented below are survey results regarding size characteristics and agency types of Large and Small Nonusers.

Size.

Table 26 below reflects Large and Small Nonuser data compared by two specific size characteristics: first, by the number of sworn employees reported by the Nonusers in each survey, and then by the populations served by the Nonusers in each survey.

Table 26

Size Characteristics of Large and Small Nonusers

Size	Large (N=196)	Small (N=1227)	Combined (N=1423)
<u>By Number of Sworn Employees</u>			
n	195	1203	1398
Range	50 - 26,000	1 - 291	1 - 26,000
Mean	578	15	94
Median	165	8	10
Total	112,628	18,586	131,214
<u>By Population Served</u>			
n	195	1202	1397
Range	50,000 - 28M	50 - 860,000	50 - 28M
Mean	828,021	17,912	131,991
Median	125,000	6,300	9,000

As reflected in the table, the mean number of sworn employees was 578 (Median=165) in Large Nonuser agencies and 15 (Median=8) in Small Nonuser agencies. The mean size of populations served was 828,021 (Median=125,000) in Large Nonuser agencies and 17,912 (Median=6,300) in Small Nonuser agencies.

Type.

Table 27 below reflects the number and percent of Large and Small Nonusers compared by agency type.

Table 27

Number and Percent of Nonusers
Presented by Agency Types

Agency Type	Large (N=196)		Small (N=1227)		Combined (N=1423)	
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Local	112	58	695	57	807	57
County	65	33	420	34	485	34
<u>State/Other</u>	<u>19</u>	<u>9</u>	<u>105</u>	<u>9</u>	<u>20</u>	<u>2</u>
Total	196	100	1220	100	1416	100

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

The table disclosed that 58% of the Large Nonusers were local agencies, 33% were county agencies, and 9% were state or other level agencies. Additionally, 57% of the Small Nonusers were local, 34% were county and 9% were state or other agencies.

Screening Techniques Currently Used

Nonusers were presented with a list of 13 common tests and procedures (other than PEPS or voice stress analysis) that police agencies use in pre-employment screening. For each technique all respondents were asked to indicate whether or not they used them as a regular part of the applicant screening process. The results are set forth in Table 28 below by the percentages of agency responses to each technique and the techniques are rank ordered in the table according to the "combined" percentage values.

Table 28

Screening Techniques Currently Used
by Large and Small Nonusers

Technique	Large (N=196)			Small (N=1227)			Combined (N=1423)		
	n	% ¹	Rank	n	%	Rank	n	%	Rank
Reference check	186	99	4	1142	97	1	1328	98	1
Criminal history	173	97	5	1142	97	2	1315	97	2
Background investigation	187	99	1	1125	96	3	1312	96	3
Application form	187	99	3	1086	92	4	1273	93	4
Medical exam	188	99	2	967	84	6	1155	86	5
Oral board	168	89	6	979	86	5	1147	86	6
Physical agility	147	80	8	496	46	7	643	51	7
Knowledge test	127	73	10	479	45	8	606	49	8
Psychologist/ Psychiatrist interview	149	83	7	452	42	9	601	48	9
Aptitude test	94	55	12	391	37	10	485	40	10
Personality test	129	74	9	341	33	11	470	39	11
Civil service exam	113	63	11	225	22	12	338	28	12
Honesty test	36	22	13	104	10	13	140	12	13
Drug test	11	N/A ²		477	45 ³	N/A	488	N/A	

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

²Not offered as a "Yes" or "No" option. Responses were written in by agencies in the "Other" option.

³Offered as a "Yes" or "No" option on the small agency survey only.

The table shows that at least 86% of both the Large and Small Nonusers used the same six techniques in their applicant screening processes, and that at least 42% of both Large and Small Nonusers used nine of the 13 listed

techniques. When the rank orders of all of the Large and Small Nonuser responses were compared, there was a strong correlation between the rankings of the two groups [$r_s=.73$], which indicated high agreement on the ordering of the techniques by use for both Large and Small Users.

In the large agency survey, in addition to selecting from the 13 listed techniques, a number of agencies wrote in additional procedures in an "other" answer choice. The ones most frequently written in were drug tests, credit checks and driving records. As the drug test technique was of particular interest, the list of 13 techniques was expanded in the subsequent small agency survey to include drug tests as a "Yes" or "No" option. Drug tests were used by 45% of the responding Small Nonusers.

Future Plans to Use PEPS

Nonusers were asked several questions regarding their possible future use of PEPS. Specifically, they were asked to indicate whether they planned to implement a PEPS program in the next one to three years, and if so, for what reasons they were planning to do so. The number and percent of agency responses are reflected in Table 29 below. For agencies that indicated they were planning to implement PEPS, the percentages of their responses to each of the listed reasons are rank ordered in the table according to their "combined" percentage values.

Table 29

Large and Small Nonuser
Plans to Implement PEPS

Issue	Large (N=196)		Small (N=1227)		Combined (N=1423)	
<u>Plan to Implement in One to Three Years</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	8	4	56	5	64	5
No	183	96	1155	95	1338	95
Total	191	100	1211	100	1402	100
<u>Reasons Why Planning to Implement</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Assist background investigations	8	89	2	50	86	1
Reduce undesirable applicants	9	100	1	49	84	2
Save money	6	60	3	29	50	3
Increase in number of applicants	5	56	4	25	44	4
Background investigation restricted	2	22	6	23	38	5
Background investigation not feasible	3	33	5	20	36	6
Legislative/judicial actions	2	22	7	17	30	7
Citizen complaints increased	1	11	8	4	8	9
Budget increased	-	-	9	5	9	8

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

As set forth in the table, only 4% of the 191 responding Large Nonusers and 5% of the 1211 responding Small Nonusers planned to implement PEPS in the next one to three years. The two primary reasons for doing so were to assist in

background investigations by having knowledge of possible problem areas before the background investigation starts, and to reduce undesirable applicants.

Nonusers that were not planning to implement PEPS were asked whether there were any circumstances in which they would consider the use of PEPS, and if so, which circumstances. The number and percentage of agency responses are displayed in Table 30 below. For agencies that indicated they would consider using PEPS, the percentages of their responses to each of the listed circumstances are rank ordered in the table according to their "combined" percentage values.

Table 30

Circumstances in which Large and Small Nonusers Indicated that
Use of PEPS would be Considered

Circumstance	Large (N=196)		Small (N=1227)		Combined (N=1423)	
<u>Would Consider Implementing</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	37	21	283	25	320	24
No	142	79	847	75	989	76
Total	179	100	1130	100	1320	100
<u>Circumstances in which would Consider</u>	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u>	<u>%</u>	<u>Rank</u>
Favorable court decision	25	78	2	204	78	2
Background inves. restrictions	24	73	3	205	78	1
Research showing effectiveness	24	80	1	193	75	3
Budget increase	16	53	4	183	71	4
Increased citizen complaints	11	37	7	177	69	5
Improved examiner qualifications	16	52	5	141	60	6
Licensing legislation	15	50	6	140	58	7
Increase in applicants	4	14	8	111	46	8

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

As reflected in the table, 21% of the 179 responding Large Nonusers and 25 % of the 1130 responding Small Nonusers said they would consider use of the technique. The top three circumstances in which they would consider doing so were (1) a major court decision favorable to such screening; (2) a restriction on their ability to do an adequate background

investigation; and (3) research evidence showing that polygraph testing is effective as a pre-employment screening device. When the rank orders of all the Large and Small Nonuser responses were compared, there was a very strong correlation between the two groups [$r_s=.86$], which indicated very high agreement on the ordering of the circumstances for both Large and Small Nonusers.

Section E - Comparisons Between Users, Former Users and Nonusers

In this section, comparisons are made between Users, Former Users and Nonusers regarding agency characteristics, evaluations of PEPS, the use of screening techniques aside from PEPS, and future plans to use PEPS.

Characteristics of Users and Nonusers

Users and Nonusers were compared below by size, agency types, geographic region of location and the existence of state laws affecting PEPS usage. For purposes of analysis, Former Users are combined with Nonusers.

Size.

As previously reflected in Figure 3 of Section A, there were a total of 585 Users (28%) and 1523 Nonusers (72%) (including 100 Former Users - 5%) in the study. As previously reflected in Table 7, comparison of large and small agencies by Users and Nonusers disclosed that Users were more likely to be large agencies and Nonusers were more likely to be small agencies, and that the relationship between PEPS usage and agency size was very strong.

Type.

In Table 31 below, the number and percent of Users and Nonusers are compared by agency type. Large agencies are distinguished from small agencies because only the large agency survey included state agencies and the small agency survey included all other (miscellaneous) agencies.

Table 31
Comparisons of Large and Small Users and Nonusers
by Agency Type

Agency Type	Users (N=585)		Nonusers (N=1523)		Combined (N=2108)	
<u>Large Agencies</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Local	262	68	144	60	406	65
County	91	24	75	31	166	26
<u>State/Other</u>	<u>32</u>	<u>8</u>	<u>21</u>	<u>9</u>	<u>53</u>	<u>9</u>
Total	385	100	240	100	625	100
<u>Small Agencies</u>						
Local	156	79*	735	58	891	60
County	35	18	434	34	469	32
<u>Miscellaneous</u>	<u>7</u>	<u>3</u>	<u>106</u>	<u>8</u>	<u>113</u>	<u>8</u>
Total	198	100	1275	100	1473	100

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

*Significant differences based on PEPS usage and agency type.

For the large agencies, the table reflects that 68% of the Users and 60% of the Nonusers were local agencies; that 24% and 31%, respectively, were country agencies; and that 8% and 9%, respectively, were state or other level agencies.

Large Users and Nonusers were compared by the three agency types, and analysis showed that agency type did not differ significantly between them [$X^2(2)=4.7, p=.09$].

For the small agencies, the table reflects that 79% of the Users and 58% of the Nonusers were local agencies; That 18% and 34%, respectively, were country agencies; and that 3% and 8%, respectively, were miscellaneous agencies. Small Users and Nonusers were compared by the three agency categories, and analysis showed a significant difference between the agency types of Small Users and Nonusers [$X^2(2)=32.2, p=.0001$]. Small Users were more likely to be local agencies and Small Nonusers were more likely to be county level and miscellaneous agencies.

In sum, among large agencies, agency type was not associated with PEPS usage; however, among small agencies, agency type was associated with usage.

Geographic region.

In Table 32 below, Users and Nonusers are compared by U.S. Census Bureau geographic region of location. Displayed in the table are the number and percentage of Users and Nonusers located in each of the four U.S. Census Bureau regions (Northeast, North Central, South and West) identified previously in Chapter III.

Table 32

Comparisons of Users and Nonusers
by U.S. Census Bureau Regions

U.S. Census Bureau Region	Users (N=585)		Nonusers (N=1523)		Combined (N=2108)	
	<u>n</u>	<u>%</u> ¹	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Northeast	62	11*	294	19	356	17
North Central	122	21	571	38	693	33
South	214	36	503	33	717	34
<u>West</u>	<u>187</u>	<u>32</u>	<u>155</u>	<u>10</u>	<u>342</u>	<u>16</u>
Total	585	100	1523	100	2108	100

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

*Significant difference between Users and Nonusers.

The table discloses a significant difference in the distribution of Users and Nonusers [$X^2(3)=180.0, p=.0001$]. Users were more likely to be located in the West Region and Nonusers were more likely to be located in the Northeast and North Central Regions.

In an effort to determine whether agency size was associated with these results, the same tests were conducted controlling for size. In Table 33 below, the number and percent of Large Users and Nonusers in each of the four Census Bureau regions are set forth, followed by the number and percent of Small Users and Nonusers in each of the four regions.

Table 33

Comparisons of Large and Small Users and Nonusers
by U.S. Census Bureau Regions

U.S. Census Bureau Region	Users (N=585)		Nonusers (N=1523)		Combined (N=2108)	
<u>Large Agencies</u>						
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Northeast	35	9*	65	27	100	16
North Central	57	15	83	35	140	22
South	162	42	57	24	219	35
<u>West</u>	<u>132</u>	<u>34</u>	<u>35</u>	<u>14</u>	<u>167</u>	<u>27</u>
Total	386	100	240	100	626	100
<u>Small Agencies</u>						
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Northeast	27	13*	229	18	256	17
North Central	65	33	488	38	533	37
South	52	26	446	35	498	34
<u>West</u>	<u>55</u>	<u>28</u>	<u>120</u>	<u>9</u>	<u>175</u>	<u>12</u>
Total	199	100	1283	100	1482	100

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

*Significant difference between Users and Nonusers.

Table 33 reflects that among the large agencies, there was a higher frequency of Users in the South and West Regions and Nonusers in the Northeast and North Central Regions [$X^2(3)=91.4, p=.0001$]. Among the small agencies, there was a higher frequency of Users in the West Region and Nonusers in the South Region [$X^2(3)=55.8, p=.0001$].

In sum, the geographic region in which agencies are located appears to be associated with usage of PEPS and agency size.

State laws.

In Table 34 below, Users and Nonusers are compared by state licensing and limiting laws regulating the use of PEPS. State licensing laws are laws which essentially require polygraph examiners to obtain some type of license (requirements vary among states) which authorizes the conduct of polygraph exams with the state. State limiting laws are laws which place limitations on the use of the polygraph in various cases in the state. They may range from limiting its use in certain specified situations to prohibiting the use of the polygraph in all contexts. Displayed in the table are the number and percent of Users and Nonusers located in states with no licensing or limiting laws, in states with either type of laws, and in states with both types of laws, as identified in Appendix A.

Table 34

Comparisons of Users and Nonusers
by the Existence of State Laws Affecting PEPS

State Laws	Users (N=585)		Nonusers (N=1523)		Combined (N=2108)	
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
No Laws	152	26*	200	13	352	17
Limiting Laws	82	14	326	21	408	19
Licensing Laws	155	26	531	35	686	33
<u>Limiting and Licensing Laws</u>	<u>196</u>	<u>34</u>	<u>466</u>	<u>31</u>	<u>662</u>	<u>31</u>
Total	585	100	1523	100	2108	100

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

*Significant differences based on PEPS usage and agency size.

The table displays a significant difference in the distribution of Users and Nonusers [$X^2(3)=64.0, p=.0001$]. Users were more likely to be located in states with no licensing or limiting laws and Nonusers were more likely to be located in states with only licensing laws or only limiting laws.

In an effort to determine whether agency size was associated with these results, the same tests were conducted controlling for size. In Table 35 below, the number and percent of Large Users and Nonusers in each of the four categories of state laws are set forth, followed by the number and percent of Small Users and Nonusers in each of the four categories.

Table 35

Comparisons of Large and Small Users and Nonusers
by the Existence of State Laws Affecting PEPS

State Laws	Users (N=585)		Nonusers (N=1523)		Combined (N=2108)	
<u>Large Agencies</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
No Laws	86	22*	24	10	110	18
Limiting Laws	52	14	59	24	111	18
Licensing Laws	116	30	62	26	178	28
<u>Limiting and Licensing Laws</u>	<u>132</u>	<u>34</u>	<u>95</u>	<u>40</u>	<u>227</u>	<u>36</u>
Total	386	100	240	100	626	100
<u>Small Agencies</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
No Laws	66	33*	176	14	242	16
Limiting Laws	30	15	267	21	297	20
Licensing Laws	39	20	463	36	508	34
<u>Limiting and Licensing Laws</u>	<u>64</u>	<u>32</u>	<u>371</u>	<u>29</u>	<u>435</u>	<u>30</u>
Total	199	100	1283	100	1482	100

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

*Significant differences based on PEPS usage and agency size.

Table 35 shows that, among the large agencies, there was a higher frequency of Users in states with no laws and Nonusers in states with only limiting laws [$X^2(3)=25.1, p=.0001$]. Among the small agencies, there was a higher frequency of Users in states with no laws and Nonusers in states with only licensing laws [$X^2(3)=57.8, p=.0001$].

In sum, state laws regulating the use of PEPS are associated with the usage of PEPS and agency size.

User and Former User Evaluations of PEPS

Both Users and Former Users were asked how much confidence they had in the results obtained from PEPS testing. They were asked to select one of four answer choices (minimal=0-50%; fair=51-75%; moderate=76-85%; and high=86-100%) and the number and percent of their responses are displayed in Table 36 below.

Table 36

Comparisons of Users and Former Users Regarding Their Levels of Confidence in PEPS

Confidence Level	Users (N=585)		Former Users (N=100)		Combined (N=685)	
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Minimal (0-50%)	11	2	21	21	32	5
Fair (51-75%)	52	9	23	24	75	11
Moderate (76-85%)	149	26	26	27	175	26
<u>High (86-100%)</u>	<u>362</u>	<u>63</u>	<u>27</u>	<u>28</u>	<u>389</u>	<u>58</u>
Total	574	100	97	100	671	100

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

As set forth in the table, the great majority of the Users (89%) and a majority of the Former Users (55%) indicated moderate to high (76-100%) levels of confidence.

To determine whether agency confidence levels differed with respect to the use of PEPS and agency size, a two factor Analysis of Variance (ANOVA) was carried out. The two factors were Use of PEPS (User and Former User) and agency Size (large and small) and the dependent variable was the raw

confidence scores selected by the agencies. Their scores were treated as an interval level variable with a scale of 1 to 4, and with the higher scores indicating greater confidence. The main effects for Use showed that the mean confidence score of Users was significantly higher than for Former Users [$F(1, 667)=87.9, p=.0001$]. The main effect for Size reflected that the mean confidence score of large agencies was significantly higher than for small agencies [$F(1, 667)=11.5, p=.0008$]. The interaction between PEPS usage and agency size was not significant [$F(1, 667)=0.02, p=.8873$]. The ANOVA table reflecting these results is set forth in Appendix D.

Users and Former Users were asked what they thought was a reasonable estimate of the accuracy of PEPS results as it was used in their agencies for pre-employment screening. They were asked to select one of five answer choices (less than 50%; 50-75%; 76-85%; 86-95%; and 96-100%) and the number and percent of their responses are displayed in Table 37 below.

Table 37

Comparisons of Users and Former Users
Regarding Their Estimates of Accuracy of PEPS

Accuracy Estimate	Users (N=585)		Former Users (N=100)		Combined (N=685)	
	n	% ¹	n	%	n	%
Less than 50%	6	1	26	27	22	3
50 to 75%	43	8	20	21	63	10
76 to 85%	77	13	17	18	94	14
86 to 95%	261	46	31	33	292	44
96 to 100%	181	32	11	11	192	29
Total	568	100	95	100	663	100

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

As set forth in the table, the great majority of the Users (91%) and a majority of the Former Users (62%) estimated the accuracy of PEPS results to be between 76 and 100%.

To determine whether agency accuracy estimates differed with respect to the use of PEPS and agency size, a two factor ANOVA was carried out. The two factors were Use of PEPS (User and Former User) and agency Size (large and small) and the dependent variable was the raw accuracy scores selected by the agencies. Their scores were treated as an interval level variable with a scale of 1 to 5, and with the higher scores indicating greater accuracy. The main effects for Use showed that the mean accuracy score of Users was significantly higher than for Former Users [$F(1, 659)=70.2$, $p=.0001$]. The main effect for Size reflected that the mean accuracy score of large agencies was significantly higher than for small agencies [$F(1, 659)=8.7$, $p=.0032$]. The interaction

between PEPS usage and agency size was not significant [$F(1, 659)=0.13, p=.7143$]. The ANOVA table reflecting these results appears in Appendix D.

User and Nonuser Screening Techniques

All agency respondents were presented with a list of 13 common tests and procedures (other than PEPS or voice stress analysis) that police agencies use in pre-employment screening, and they were asked to indicate whether or not they used each technique as a regular part of their applicant screening process. The issue of interest concerning this question was whether or not there was any difference between PEPS Users and Nonusers regarding the number of techniques that they used.

Former Users were first combined with Nonusers and then Nonusers were compared with the PEPS Users that used each technique. It was noted that six of the techniques were used by at least 80% of both PEPS Users and Nonusers, and that the remaining seven were used by fewer than 80%. Therefore, in Table 38 below, the techniques are presented in two separate groups based on percentage of use (those used by at least 80% of the agencies and those used by fewer than 80%). The number and percent of agencies that used each of the techniques are also displayed and the techniques are rank ordered in each group according to the "combined" PEPS User and Nonuser percentage values.

Table 38

Comparisons of Users and Nonusers
Regarding Screening Techniques Used

Technique	Users (N=585)			Nonusers (N=1523)			Combined (N=2108)		
	n	% ¹	Rank	n	%	Rank	n	%	Rank
<u>Used by at Least 80% of All Agencies Surveyed</u>									
Reference check	566	99	2	1416	93	1	1987	98	1
Criminal history	557	99	1	1399	92	3	1961	98	2
Background investigation	567	99	3	1398	92	2	1970	97	3
Application form	551	96	5	1360	90	4	1916	94	4
Medical exam	560	98	4	1243	82	5	1806	90	5
Oral board	515	91	6	1230	81	6	1747	88	6
<u>Used by Fewer than 80% of All Agencies Surveyed</u>									
Physical agility	432	77	3	707	47	1	1141	59	1
Psychologist/Psychiatrist interview	468	82	1	658	36	3	1127	59	2
Knowledge test	422	75	4	673	44	2	1097	58	3
Personality test	454	80	2	526	35	5	981	52	4
Aptitude test	322	58	5	534	35	4	857	46	5
Civil service exam	295	53	6	379	25	6	674	36	6
Honesty test	88	16	7	159	10	7	247	14	7

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

In viewing the table, it can be seen that for each of the techniques in both groups the percentage of Users is higher than the percentage of Nonusers. To determine whether the differences were significant, the data were tested in several ways.

The group of six techniques used by at least 80% of all agencies surveyed was collapsed into a variable with two categories - agencies that used all six techniques and agencies that used fewer than six (zero to five) techniques. Analysis showed a significant difference between the two categories of Users and Nonusers [$X^2(1)=39.7$, $p=.0001$; $\Phi=.14$]. Users were more likely to use all six techniques and Nonusers were more likely to use fewer than six techniques. The Phi coefficient of .14 indicated that the relationship between the two variables was very slight.

In an effort to determine whether agency size was associated with these results, the same tests were conducted controlling for size. Among large agencies there was no difference in the number of techniques used by PEPS Users and Nonusers [$X^2(1)=0.2$, $p=.6375$]. However, among small agencies it was determined that PEPS Users were more likely to use all six techniques and that Nonusers were more likely to use fewer than six of the techniques [$X^2(1)=28.4$, $p=.0001$; $\Phi=.14$]. The Phi coefficient of .14 indicated that this relationship was very slight.

In sum, among the six techniques used by at least 80% of all agencies, Large Users and Nonusers were likely to use similar numbers of techniques, but Small Users were likely to use more techniques than Small Nonusers.

The group of seven techniques used by fewer than 80% of all agencies surveyed was collapsed into a variable with two categories - agencies that used more (five to seven)

techniques and agencies that used fewer (zero to four) techniques. Analysis showed a significant difference between the two categories of Users and Nonusers [$X^2(1)=190.2$, $p=.0001$; $\Phi=.30$]. Users were more likely to use more (five to seven) techniques and Nonusers were likely to use fewer (zero to four) techniques. The Phi coefficient of .30 indicated that the relationship between the two variables was slight.

In an effort to determine whether agency size was associated with the results, the same tests were conducted controlling for size. Among both large and small agencies it was found that Users were more likely to use more (five to seven) techniques and that Nonusers were more likely to use fewer (zero to four) techniques. [Among large agencies, $X^2(1)=6.6$, $p=.0102$; $\Phi=.10$. Among small agencies, $X^2(1)=63.5$, $p=.0001$; $\Phi=.21$]. The Phi coefficient of .10 among large agencies indicated the relationship is very slight; however, the Phi coefficient of .21 among small agencies indicated the relationship is slight.

In sum, among the seven techniques used by fewer than 80% of all agencies, PEPS Users were more likely than Nonusers to use more (five to seven) other techniques, regardless of agency size.

Former User and Nonuser Future Plans to Use PEPS

Former Users and Nonusers were asked several questions regarding their possible future use of PEPS. Specifically, they were asked to indicate whether they planned to implement a PEPS program in the next one to three years. Agencies that

responded in the affirmative were then presented with a list of nine reasons and asked to indicate whether or not they would be factors in their decisions to implement PEPS. The number and percentages of agencies that responded to these questions are displayed below in Table 39. The reasons for planning to implement PEPS are arranged in rank order according to the Nonuser percentage values.

Table 39

Comparisons of Former Users and Nonusers
Regarding Plans to Implement PEPS

Issue	Former Users (N=100)		Nonusers (N=1423)			
<u>Plan to Implement in One to Three Years</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>		
Yes	11	12*	64	5		
<u>No</u>	<u>84</u>	<u>88</u>	<u>1338</u>	<u>95</u>		
Total	95	100	1402	100		
<u>For Agencies that Answered Yes to Above - Reasons Why Planning to Implement</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>Rank</u>	
Assist background investigations	13 ²	100	1	58	91	1
Reduce undesirable applicants	10	77	2	58	91	2
Save money	8	62	3	35	55	3
Increase in number of applicants	7	54	4	30	47	4
Background inves. restricted	5	38	6	25	39	5
Background inves. not feasible	6	46	5	23	36	6
Legislative/judicial actions	4	31	7	19	30	7
Citizen complaints increased	2	15	8	5	9	8
Budget increased	1	8	9	5	9	9

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

²Although only 11 Former Users indicated they planned to implement PEPS in one to three years, a total of 13 Former Users responded to the question asking to indicate their reasons for doing so.

*Significant difference between Former Users and Nonusers.

As presented in Table 39, 12% (n=11) of the Former Users and 5% (n=64) of the Nonusers indicated they planned to implement PEPS in the next one to three years. Although only small minorities of both groups were planning to do so, analysis disclosed that Former Users were more likely than Nonusers to have such plans [$X^2(1)=9.2$, $p=.0024$; $\Phi=.08$]. The Φ

coefficient of .08 indicated that the relationship between the two variables is very slight.

The top three reasons given by both Former Users and Nonusers for planning to implement PEPS were (1) to assist in background investigations by having knowledge of possible problem areas before the background investigation starts; (2) to reduce undesirable applicants; and (3) to save money.

Further, the Former User and Nonuser percentage rankings of all nine reasons were compared in order to determine the degree of similarity between them, and analysis reflected a very strong overall relationship [$r_s=.98$]. This indicated very high agreement between Former Users and Nonusers regarding the ordering of reasons why they plan to implement PEPS.

As was shown in Table 39 above, the great majority of Former Users and Nonusers (88% and 95%, respectively) indicated that they were not planning to implement PEPS in one to three years. These agencies were then asked if there were any circumstances in which they would consider the use of PEPS. Agencies that responded in the affirmative to this question were then presented with a list of eight circumstances and asked to indicate whether or not they would be factors in their decisions to implement PEPS. The number and percentages of agencies that responded to these questions are displayed below in Table 40. The circumstances in which agencies would consider using PEPS are arranged in rank order according to the Nonuser percentage values.

Table 40

Comparisons of Former Users and Nonusers Regarding
Circumstances in which PEPS would be Considered

Circumstance	Former Users (N=100)		Nonusers (N=1423)	
<u>Would Consider Implementing</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>
Yes	42	54*	320	24
No	36	46	989	76
Total	78	100	1309	100
<u>For Agencies that Answered Yes to Above - Circumstances in Which They Would Consider Implementing PEPS</u>				
	<u>n</u>	<u>%¹</u>	<u>Rank</u>	<u>n</u> <u>%</u> <u>Rank</u>
Favorable court decision	23	55	3	229 78 1
Background inves. restrictions	27	68	2	229 77 2
Research showing effective	30	73	1	217 75 3
Budget increase	15	39	6	199 70 4
Increased citizen complaints	19	51	4	188 66 5
Improved examiner qualifications	20	51	5	157 59 6
Licensing legislation	13	33	7	155 58 7
Increase in applicants	8	21	8	115 42 8

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

*Significant difference between Former Users and Nonusers.

As shown in Table 40, a little more than half (54%, n=42) of the Former Users and a little less than one-fourth (24%, n=320) of the Nonusers indicated they would consider implementing PEPS. Analysis disclosed that the difference between Former Users and Nonusers was significant [$X^2(1)=33.0$, $p=.0001$; $\Phi=.15$] and that Former Users were more likely than Nonusers to consider doing so. The Phi coefficient of .15

indicated that the relationship between the two variables is very slight.

The top three circumstances given by both Former Users and Nonusers in which they would consider implementing PEPS were (1) a major court decision favorable to such screening; (2) if a restriction were placed on their ability to do an adequate background investigation; and (3) research evidence showing that PEPS testing is effective as a pre-employment screening device.

Further, the Former User and Nonuser percentage rankings of all eight circumstances were compared in order to determine the degree of similarity between them, and analysis reflected a very strong overall relationship [$r_s=.83$]. This indicated very high agreement between Former Users and Nonusers regarding the ordering of the circumstances in which they would consider implementing PEPS.

Chapter V

Discussion

In Chapter I, the purpose of this study was identified as being three-fold:

(1) To obtain current information regarding the extent of use of PEPS as an applicant screening technique by police agencies in the U.S.

(2) To identify the major factors related to PEPS usage.

(3) To conduct an analysis of why and how police agencies use PEPS.

The first three sections of this chapter discuss the study results corresponding to each of the three purposes, and comparisons are made with the findings of pertinent previous studies. The fourth and final section addresses the direction of future research needs regarding PEPS.

Section A - Extent of Use of PEPS

Table 1 in Chapter II listed ten studies conducted between 1962-1991, that reported on PEPS usage among police agencies in the U.S. Although the sample sizes among these surveys varied widely, none of them approached the scope of the present study, which included 2,891 agencies (699 large and 2192 small - see Table 4), or 19% of all 15,430 state and local general purpose police agencies in the U.S. (BJS, 1990). The combined usable response rate of 73% in the present study (90% large and 67% small - see Table 4) included a total of 2108 agencies (626 large and 1482 small) that employed a total of 332,173 sworn officers (305,211 in

large agencies and 26,962 in small agencies - see Table 5). The responding agencies in the present study represented 14% of the 15,430 state and local general purpose police agencies and employed 60% of the total number of 556,791 sworn officers employed by those agencies (BJS, 1990). Based on its size and its sample selection procedures (the entire population of 699 of the largest agencies and a nationally representative random sample of the remaining agencies), the present study can be considered as the most representative estimate of PEPS usage and the study results are generalizable to all state and local police agencies in the U.S.

The studies in Table 1 reflected that PEPS usage among police agencies increased consistently over the past three decades from a low of 16% of the sampled agencies in 1962, to an estimated high of 75% in one purposive sample in 1991. In the present study, however, the reported 62% (386/626) usage rate among large agencies vs. the 13% (199/1482) usage rate among small agencies (Table 7) clearly reflects that any meaningful estimate of the extent of PEPS usage must take agency size into account. As an example, it is important to recognize that the 386 Large User respondents employed 31% (171,094) of the 556,791 sworn officers in the U.S., and that the 199 Small User respondents employed only 1% (6,836). Additionally, although the combined 585 Large and Small Users accounted for only 4% of the total of 15,430 state and local

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police agencies in the U.S., they employed 32% (177,930/556,791) of all sworn police officers in the U.S.

Section B - Major Agency Characteristics

Related to PEPS Usage

The four agency characteristics that were examined in relation to PEPS usage in the present study were agency size, type, geographic region of location and the existence of state laws in the U.S. regulating PEPS usage. All four characteristics were found to be associated with PEPS usage, and these findings are compared below with prior research results.

With respect to size, three previous studies (Eisenberg, Kent and Walls, 1973; Horvath and Shelton, 1982; Lopez, undated - see Table 2) reported that small agencies were less likely to use PEPS than large agencies. That finding agreed with the results of the present study, which found that agency size was clearly associated with the use of PEPS. Large agencies were significantly more likely than small agencies to use PEPS (62% vs. 13%) (Table 7). Because this relationship was so strong, size was controlled for when the relationship between PEPS usage and the type and geographic location characteristics were examined.

With respect to type, three previous studies (Eisenberg, Kent and Walls, 1973; Roper, 1981; Horvath and Shelton, 1982) reported finding no relationship between agency type and the use of PEPS. However, one study (Ash, Slora and Britton, 1990), which was based on a relatively small sample of large

agencies, reported that municipal agencies were significantly more likely to use the technique than state police agencies. Although the categorizations of agency types used by the prior and present studies varied somewhat, the present study agreed with the majority of previous studies in finding that type was not associated with PEPS usage among large agencies. However, it did find a relationship between type and PEPS usage among small agencies, which had not been previously reported (Table 31).

The relationship between geographic region of location and PEPS usage was examined by only one previous study (Roper, 1981), which involved large agencies only. That study found that PEPS usage was most prevalent in the South and West U.S. Census Bureau Regions, and the least prevalent in the Northeast Region. The present study reported the same findings among large agencies (Table 33). However, it also found that the geographic regions of locations of Small Users and Small Nonusers were different than for large agencies, and again this difference had not been previously reported.

Thus, the present study findings were similar to most prior research regarding the relationship between PEPS usage and agency size. However, the present study also demonstrated that the size factor was related to agency type and geographic location characteristics regarding PEPS usage.

The relationship between state laws regulating PEPS usage and the use of PEPS by police agencies was briefly addressed in only one previous study (Roper, 1981), which

involved large agencies only. That study mentioned that the use of PEPS may be tied to statewide requirements regarding its legality; however, the issue was not further pursued. The only other available research regarding this issue was conducted in private industry by Belt and Holden (1978), who surveyed the personnel directors of 400 major U.S. corporations nationwide regarding the use of PEPS in their personnel selection programs. The corporations were selected from Fortune's list of largest companies and usable responses were received from 143 (35.7%) personnel directors. A total of 29 (20.3%) of them said their firms used PEPS and 114 (79.7%) replied they did not. When Belt and Holden cross-tabulated the respondents' locations with the existence of state laws regulating polygraph examiner licensing and training requirements, they found that significantly greater proportions of firms in regulated states used PEPS than firms in nonregulated states. They concluded that the existence of state licensing and training laws regulating PEPS may be an important factor related to the use of PEPS in corporate personnel selection programs, and that such laws may serve to enhance the overall credibility of the technique.

In the present study, however, quite different results were obtained (Tables 34 and 35). It was found that police agency Users were more likely to be located in states with no laws regarding PEPS, and that Nonusers were more likely to be located in states with only limiting laws or only licensing laws, depending on agency size.

In considering the divergent findings between the Belt and Holden (1978) and present study, it should be noted first that the Belt and Holden (1978) study was conducted more than 25 years ago. Additionally, as pointed out earlier in Chapter I, most legislative actions have distinguished between PEPS usage in the private and public sectors. Although the number of states regulating PEPS has increased since 1978, most states have exempted public agencies from proscriptions against testing in employment situations (Bureau of National Affairs, 1985; Ansley and Beaumont, 1992). Further, although the use of PEPS by corporations in the private sector was severely restricted by the EPPA in 1988, public sector police agencies were exempted from the EPPA limitations.

It might be expected that the legislative exemptions made for police agencies would have encouraged them to use PEPS. However, almost half ($17/44=47\%$) of the large Former Users reported that the primary reason why they discontinued PEPS was prohibitive legislation (Table 21). Thus, while some state licensing laws may serve to enhance the credibility of PEPS testing, other state regulatory laws limiting use of the technique may deter usage. Moreover, many Former Users and Nonusers indicated that one of the main circumstances under which they would consider implementing PEPS was if further restrictions were placed on their ability to do an adequate background investigation (Table 40). This suggests that agency decisions to use PEPS can be influenced

by legislation regarding other personnel selection techniques as well as PEPS. Finally, as the limited cross-sectional data in this present study is the only information available on police agencies regarding this issue, changes in agency usage over time related to legislative actions cannot be detected. It appears that this issue requires further study in order to more fully understand all of the related factors and their interactions.

Section C -

Why and How Police Agencies Use PEPS

In this section, issues are examined relating to why police agencies use PEPS, how they use it, why Former Users discontinued PEPS, User and Former User evaluations of PEPS, other screening techniques police agencies use, and the future plans of Former Users and Nonusers for using PEPS.

Why Police Agencies Use PEPS

Four previous studies (Gugas, 1962; Yeschke, 1962; Blum, 1967; Horvath and Shelton, 1982) indicated that police agencies used PEPS because it had utility in revealing information about applicants that was not obtainable by any other means.

In the present study, which reports agency experiences based on over 300,000 PEPS exams conducted during a five-year period, this also was the case. The primary reason why agencies reported using PEPS was that the type of information revealed was not available by any other means (Table 10). Thus, for three decades police agencies have consistently

identified the utilitarian value of PEPS as the main reason why they use it.

Although previous studies did not specifically address the type of information that agencies considered to be of greatest importance in PEPS testing, the present study reported that the three primary issues were illegal drug use, felonies committed and dishonesty in prior employment (Table 11). It is noteworthy that all three of these issues bear directly on applicant honesty and integrity areas of concern regarding positions of public trust. When this is considered in conjunction with the consistently reported use of PEPS because it reveals information that cannot be derived from any other techniques, it suggests that PEPS contributes importantly to providing information in key areas of concern in the police applicant screening process.

How Police Agencies Use PEPS

In three previous studies (Eisenberg, Kent and Walls, 1973; Horvath and Shelton, 1982; Kendrick, 1983) the information reported regarding how PEPS is used was minimal. However, it was noted that when studies reported on similar areas of use, their findings were generally supportive.

In areas where comparisons could be made, the present study findings were similar to the previous studies. For example, in comparing the results of the present study with the Horvath and Shelton (1982) study it was noted that both studies reported that the primary purposes of PEPS exams were to verify information and to develop new information. This

indicates consistent agreement among agencies during the past decade in this regard.

Additionally, the Horvath and Shelton (1982) study reported that 74% of all Users tested all sworn officer applicants and 14% tested all applicants for civilian positions. The present study percentages were 96% and 46%, respectively (Table 13), which were supportive of the Horvath and Shelton (1982) findings, and also reflected a large increase in the use of PEPS within User agencies during the past decade.

The present study also conducted more extensive inquiries than previous studies regarding how police agencies use PEPS. As a result, it was found that agency size was a major factor associated with the circumstances of use of PEPS (Table 12). However, it was also found that large and small agencies generally had similar policies and procedures regarding the use of PEPS (Table 13). This suggests that the differences between large and small agencies regarding how they use the technique is more a function of agency size than the way they view the utility of the technique itself.

Why Former Users Discontinued PEPS

Two previous studies reported that some agencies had identified themselves as Former Users of PEPS (6% of a nationally representative random sample in Horvath and Shelton, 1982, and 14% of a purposive sample in Kendrick, 1983). One of them (Horvath and Shelton, 1982) reported that of the 14 Former Users identified, four reported they

discontinued PEPS because of state prohibitive legislation, three because of revisions in their applicant selection process, two because of cost, and one because of dissatisfaction with results.

The present study findings were similar. A total of 100 Former Users were identified (about 5% of the total sample - Figure 1); thus, the percentage of agencies that discontinued the use of PEPS during the past decade has remained low. Their reasons for discontinuing PEPS, although related to agency size (Table 21), were generally similar to those mentioned in the Horvath and Shelton (1982) study. However, 12% of the Former Users reported they planned to re-implement PEPS in the next one to three years (Table 24), and 54% of the remaining responding Former Users indicated they would reconsider implementing PEPS under certain circumstances (Table 25). This suggests that among the small group of identified Former Users, agency decisions regarding PEPS usage can be influenced by a variety of factors both related and unrelated to their experiences with the technique.

Evaluations of PEPS

Four previous studies reported that Users perceived positive and tangible benefits based on their use of PEPS. Gugas (1962) reported a 46% applicant rejection rate based on admissions made during PEPS exams. Gooch (1964) and Horvath and Shelton (1982) both reported the same three primary benefits perceived by PEPS Users (higher quality employees, fewer problems and lower turnover), even though the two

studies were conducted 18 years apart. Lopez (undated) reported that PEPS was rated above average or outstanding by 81% of the Users.

The present study reported agency evaluations of PEPS in greater depth and included evaluations by both Users and Former Users. Regarding Users, both Large and Small Users rated the top three benefits of PEPS as more honest applications, higher quality employees and fewer undesirables (Table 16). Significantly, the higher quality employees choice was the first ranked benefit in both the Gooch (1964) and Horvath and Shelton (1982) surveys mentioned above. The first and third ranked benefits in the present survey were not provided as options in the previous studies. Thus, higher quality employees has consistently been considered a major benefit of PEPS by police agencies for a period of time spanning three decades.

In addition to the perceived benefits of PEPS, Users evaluated PEPS with regard to levels of confidence, accuracy and importance. Overall, the great majority of ratings were moderate to high (76-100%); however, Large Users were more likely to provide higher evaluations than Small Users (Table 16). This may be related to the higher number of applicants processed by Large Users, which typically tend to draw from larger and more widely diversified populations in large cities than Small Users, which generally recruit applicants from smaller, less diversified areas. Additionally, the tendency toward higher PEPS fail rates (Table 14) and the

higher percentages of admissions to unsolved crimes (Table 15) reported by Large Users could also contribute to higher levels of evaluations of PEPS.

Other Screening Techniques

One previous study (Roper, 1981) indicated that Users tended to use more screening techniques than Nonusers in their applicant screening programs.

The present study expanded this issue to include consideration of agency size also. The number of other techniques that agencies use was found to be related to both PEPS usage and agency size. While Large Users were more likely than Large Nonusers to use more of the less frequently used techniques, Small Users were more likely than Small Nonusers to use more techniques overall. This indicates that PEPS is not used as a substitute for other techniques. Instead, it appears that the more techniques that agencies (especially small agencies) use, the greater the likelihood that they use PEPS.

That PEPS is used predominantly in conjunction with other screening techniques is supportive of the finding that PEPS provides information not otherwise revealed by other screening techniques. It also suggests that agencies may use PEPS in their screening programs not to be more efficient, but to be more thorough and complete in their applicant reviews.

Future Plans to Use PEPS

Past research regarding future plans of Former Users and Nonusers to use PEPS essentially addressed two separate questions. The first question was whether they were considering its use. The second question was, if they were not considering its use, whether there were any circumstances under which they would do so.

With respect to the first question, three previous studies asked Nonusers about the possibility of using PEPS in the future and found that between 11-25% were considering its use (Yeschke, 1962 - 22%; Gooch, 1964 - 11%; Kendrick, 1983 - 25%). In the present study, only a small proportion of the Former Users (12%) and Nonusers (5%) indicated that they had plans to implement PEPS in the next one to three years (Table 39). However, the two primary reasons that both Former Users and Nonusers gave for doing so (to assist in background investigations and to reduce undesirable applicants) were very similar to the primary reasons for using PEPS that were cited by Users (reveals information not otherwise obtainable, deters undesirables and makes background investigations easier to establish). This finding further supports the reported perceived utilitarian value of the PEPS technique in personnel selection.

With respect to the second question regarding future plans to use PEPS, one previous study (Horvath and Shelton, 1982) asked Nonusers (including Former Users) that were not planning to implement PEPS under what circumstances they

would consider doing so. The top three circumstances were (1) evidence/research showing it was effective; (2) court acceptance or a favorable court decision; and (3) if law/policies permit.

The findings of the present study regarding the second question were supportive of the Horvath and Shelton (1982) findings. About 54% of the Former Users and 24% of the Nonusers that were not already planning to implement PEPS stated they would consider doing so (Table 40). Both groups cited circumstances that were similar to the Horvath and Shelton (1982) study (research, courts and further restrictions on background investigations). Yet, as discussed in Chapter I, the interim period between the two studies was when the judicial and legislative controversy over PEPS testing culminated in the EPPA, which imposed restrictions on PEPS usage in the private sector. It seems that, in spite of the legal activity, these issues remain paramount in the view of many Former User and Nonuser agencies.

Section D -

Summary and Future Research Issues

In Chapter I, it was stated that a current and comprehensive descriptive analysis regarding PEPS usage was needed so that it could be used by researchers, the legislatures and the courts to address the conflicting and controversial issues surrounding the technique, and also by

police administrators in making decisions to implement it in their agencies.

The present study provides information regarding PEPS based on the experiences of police agencies that employ 60% of all the sworn officers in the U.S. Of these agencies, PEPS Users employed almost one-third (32%) of all the sworn officers in the U.S. and the information provided was based on more than 300,000 PEPS exams that they conducted during a five-year period. Some of the key findings were that agencies use PEPS primarily because it has utilitarian value in revealing information not otherwise obtainable regarding critical aspects of applicant honesty and integrity, and that it results in higher quality officers. Further, agencies that use PEPS also use a greater number of other selection techniques in their applicant screening programs than agencies that do not use PEPS. The use of PEPS in conjunction with other techniques is supportive of the finding that PEPS reveals unique information that other techniques do not provide.

The study findings regarding the utilitarian value of PEPS have been reported with remarkable consistency by PEPS Users over a period of time spanning three decades. As the use of PEPS has increased significantly during this period (see Table 1), this indicates that the Nonusers that have implemented PEPS have experienced the same benefits as the longer-term Users. Additionally, these findings do not appear to have been significantly affected by the controversy

over PEPS or the legislative or judicial actions that have occurred during this period. All of these factors suggest strongly that the motivating reasons for the use of PEPS are well-established and that the benefits are repeatedly validated as more and more agencies implement it in their selection programs (Meesig and Horvath, 1993).

The only data reported in this study that did not support the utility of PEPS was provided by a minority proportion of the group of 100 Former Users (Table 21). Some of the reasons they gave for discontinuing the technique included a lack of confidence in PEPS (25% of the Large Former Users and 43% of the Small Former Users), a lack of positive results (26% and 38%, respectively), and unsatisfactory accuracy (17% and 39%, respectively). Although the reasons cited by these agencies cannot be ignored, it is important to consider them in the context of the overall findings regarding Former Users. For example, other reasons given for discontinuing PEPS were related to issues broader than utility, such as the technique being too controversial (reported by 33% of both Large and Small Former Users,), the costs being too high (17% and 39% of Large and Small Former Users), and prohibitive legislation (47% and 9%, respectively). Additionally, about half of the Former Users (large agencies=63%; small agencies=48%) indicated they had moderate to high confidence in PEPS, and more than half (large agencies=69%; small agencies=56%) felt that the accuracy of PEPS was between 76-100% (Table 22). Moreover,

more than half of the Former Users indicated they were either planning to implement it again in the near future (large agencies=7%; small agencies=15%)(Table 24) or that they would consider doing so given the proper circumstances (large agencies=46%; small agencies=61%)(Table 25). It seems clear that in general many Former Users retain a positive perception of PEPS, and that their reasons for having discontinued it were related to a variety of factors extending beyond the specific utility of the technique.

While the information in this study provides a current and comprehensive description of PEPS usage among police agencies in the U.S., and it is the best research data presently available in this regard, its value beyond description of usage is limited. Although the study results are highly supportive of PEPS usage, they are necessarily based only on experiential data and they do not empirically prove or disprove the relative utility or validity of PEPS. As pointed out earlier in Chapter I, empirical data directly testing these issues is sorely lacking, despite the fact that the need for such research has been clearly identified for more than a decade as one of the primary reasons for agency reluctance to use the technique (Meesig and Horvath, 1993). Thus, while this study reports that police agencies in general have positive experiences using PEPS, and while it shows that these experiences are clearly different than what the critics might suggest, it cannot resolve these differences empirically.

The research findings of this present and prior studies that have been reported so consistently over the past three decades suggests strongly that these results have merit, and because of this they deserve further scrutiny. If the experiential data regarding PEPS is correct, then the proper use of PEPS should be encouraged and developed. One need only be reminded of the riots in Los Angeles following the Rodney King verdict in 1992 ("30 Days," 1992), and of the Michael Dowd corruption scandal in the New York Police Department in 1992 ("Corruption Scandal," 1992), to recognize the importance of issues such as honesty and integrity among police officers, and to see the impact that these issues have on public perceptions of the police. However, if the real value of PEPS has been overstated in the experiential data, then this must be recognized also, and police administrators must take this into account in developing their selection procedures.

It is primarily through the conduct of empirical research that the contribution of PEPS as an applicant selection technique can be most accurately explored. In this respect, the experiential data in this study, in addition to describing current police PEPS usage, practices and policies, also helps to clarify and articulate some of the critical issues that must be addressed next in the PEPS research area. Two central research issues are framed here as a guide to future research regarding the relative importance of PEPS (Horvath and Meesig, 1993).

First, although the experiential data overwhelmingly reports that PEPS reveals unique information, what is the relative utility of that information? Compared to information provided by other techniques, is the PEPS information pertinent and important with regard to the selection of applicants?

Second, what is the relative value of the information produced by PEPS and other screening techniques in predicting honesty and integrity in job performance? Is the information produced by PEPS more or less effective as a predictor than information provided by other techniques?

It is hoped that the results of this study and the above research questions will serve as a useful reference guide in the future for researchers and for judicial, legislative and police decision-makers in evaluating the effectiveness of PEPS as a screening technique for police applicants in the U.S.

APPENDICES

APPENDIX A

Independent Variables

APPENDIX A

Independent VariablesPEPS Usage

Users - police agencies that reported they currently used PEPS in their applicant selection programs

Former Users - police agencies that reported they had used PEPS at some time in the past but had since discontinued its use

Nonusers - police agencies that reported they have never used PEPS

Agency Size

Large Agencies - includes all state police, all consolidated countywide police agencies and all sheriff departments with 100 or more sworn employees, and all municipal police departments serving populations of 50,000 or more

Small Agencies - includes all county sheriff departments and local (operated by municipal or county governments) police agencies with fewer than 100 sworn personnel.

Agency type

Local Police Agencies (includes city and township)

County Agencies

State Agencies (includes state police and state highway patrol)

Other Agencies

Geographic Region

All agencies were grouped into four regions constructed by the U.S. Census Bureau to sectionalize the U.S. (U.S. Bureau of the Census, 1989), as follows:

Northeast (9 states) - CT, ME, MA, NH, NJ, NY, PA, RI, VT

North Central (12 states) - IA, IL, IN, KS, MI, MN, MO, NE, ND, OH, SD, WI

South (DC and 16 states) - AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV

West (13 states) - AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY

Existence of State Laws

State licensing laws are laws which essentially require polygraph examiners to obtain some type of license (requirements vary among states) which authorizes the conduct of polygraph exams with the state. State limiting laws are laws which place limitations on the use of the polygraph in various cases in the state. They may range from limiting its use in certain specified situations to prohibiting the use of the polygraph in all contexts. States that have laws regarding the licensing of polygraph examiners or limiting the use of polygraph testing are identified by Ansley and Beaumont (1992). Based on their information, all the states, including the District of Columbia, are grouped into four categories as follows:

States with no licensing or limiting laws (7 states) - CO, FL, MS, NH, NY, OH, WY

States with limiting laws only (DC and 13 states) - AK, CA, CT, DE, DC, HI, ID, MD, MN, NJ, PA, RI, WA, WI

States with licensing laws only (16 states) - AL, AZ, AR, IN, KS, KY, LA, MO, NC, ND, OK, SC, SD, TN, TX, UT

States with both licensing and limiting laws (14 states) - GA, IL, IA, ME, MA, MI, MT, NE, NV, NM, OR, VT, VA, WV

APPENDIX B

Large Agency Survey Questionnaire

**THE USE OF PRE-EMPLOYMENT POLYGRAPH TESTING BY LAW
ENFORCEMENT AGENCIES**

A joint research project of the:

AMERICAN POLYGRAPH ASSOCIATION

AMERICAN ASSOCIATION OF POLICE POLYGRAPHISTS

**APA POLYGRAPH RESEARCH CENTER, 560 Baker Hall, Michigan State
University, East Lansing, Michigan 48824**

GENERAL INSTRUCTIONS: This questionnaire is designed to collect information about the extent of, and circumstances in which polygraph testing is used in the pre-employment screening process in law enforcement agencies. Most responses may be indicated by merely placing an 'X' or a check mark in the appropriate space; some however, require write-in responses. All responses are to be recorded directly on the questionnaire itself.

ALL RESPONSES TO THE QUESTIONNAIRE WILL BE HELD IN STRICT CONFIDENCE AND INDIVIDUAL AGENCIES WILL NOT BE IDENTIFIED. ALL DATA WILL BE REPORTED ONLY IN THE AGGREGATE. A PARTICULAR RESPONSE OR SET OF RESPONSES WILL NOT BE ASSOCIATED WITH A PARTICULAR AGENCY.

PART I

1. In what state is your agency located? _____
2. What is the approximate population your agency's jurisdiction serves? _____
3. Which term best describes your law enforcement agency?

a.) City ☐	d.) State Agency ☐
b.) County ☐	(Highway Patrol) ☐
c.) State Agency (Police) ☐	e.) Township ☐
	f.) Other ☐
4. Approximately how many people are employed by your agency?

Sworn	_____
Civilian	_____
5. Does your agency now use polygraph testing or "voice stress analysis" in the applicant screening process?

Yes ☐ (Skip to Part II, page 4)

No ☐ (Go to question #6)
6. Has your agency ever used polygraph testing or voice stress analysis to screen applicants for employment?

Yes ☐ If yes, go to question #7

No ☐ If no, skip to question #13
7. What type of equipment did your agency use for pre-employment screening?

a.) Polygraph only	☐
b.) Voice Stress Analyzer only	☐
(e.g., Psychological Stress Evaluator)	
c.) Both Polygraph and Voice Stress Analyzer	☐

8. In what year did your agency begin use of
- A. Polygraph testing 19__ __
- B. Voice Stress Analysis 19__ __
9. In what year did your agency discontinue use of
- A. Polygraph testing 19__ __
- B. Voice Stress Analysis 19__ __
10. For each of the statements below, indicate whether it was or was not one of the reasons why your agency discontinued use of polygraph testing or voice stress analysis.
- A. The testing caused too much resentment Yes [] No []
- B. The testing was too controversial Yes [] No []
- C. The testing and/or equipment was prohibited by legislation Yes [] No []
- D. The cost of processing applicants was too high Yes [] No []
- E. The information developed was not useful in hiring decisions Yes [] No []
- F. The accuracy of the results was not satisfactory Yes [] No []
- G. The testing and/or equipment was prohibited by court order Yes [] No []
- H. Our agency developed a lack of confidence in this testing Yes [] No []
- I. The testing did not offer enough positive results to continue its use Yes [] No []
- J. Demand for, and shortage of applicants prohibited such high selectivity Yes [] No []
- K. Persons qualified to do this testing were no longer available Yes [] No []
- L. Other (please explain) _____
- _____
- _____
11. How much confidence do you feel you were able to place in the results obtained from polygraph testing when used by your agency? (Check only one)
- a.) Minimal degree of confidence (0-50%) []
- b.) Fair degree of confidence (51%-75%) []
- c.) Moderate degree of confidence (76%-85%) []
- d.) high degree of confidence (86%-100%) []

12. What do you feel is a reasonable estimate of the accuracy of polygraph testing results as it was used in your agency for pre-employment screening? (Check only one)

- a.) Correct less than 50% of the time ☐
- b.) Correct between 50% and 75% of the time ☐
- c.) Correct between 76% and 85% of the time ☐
- d.) Correct between 86% and 95% of the time ☐
- e.) Correct between 96% and 100% of the time ☐

13. Does your agency have any plans to implement a polygraph screening program in the next one to three years?

- Yes ☐ If yes, go to question #14
 No ☐ If no, skip to question #15

14. For each statement below, indicate whether it is or is not a reason why your agency is planning to implement a polygraph screening program.

- A. Belief that such a program would save money Yes ☐ No ☐
- B. There has been an increase in the agency's budget appropriated for applicant screening Yes ☐ No ☐
- C. There has been an increase in the number of applicants Yes ☐ No ☐
- D. Your ability to do adequate background investigations has been restricted due to decreased funding Yes ☐ No ☐
- E. Sometimes background investigations are not feasible Yes ☐ No ☐
- F. To assist in background investigations by having knowledge of possible problem areas before the background investigation starts Yes ☐ No ☐
- G. To reduce the number of undesirable persons applying for positions Yes ☐ No ☐
- H. Such forms of testing have become more acceptable because of either legislative or judicial action Yes ☐ No ☐
- I. There has been an increase in citizen complaints about the behavior of your officers Yes ☐ No ☐
- J. Other (please specify) _____

IF YOU COMPLETED QUESTION 14, PLEASE SKIP TO PART III, PAGE 10, TO COMPLETE THE QUESTIONNAIRE.

15. Is there any circumstance in which your agency would consider the use of polygraph testing to screen applicants?

- Yes ☐ If yes, go to question #16
 No ☐ If no, skip to Part III, page 10

16. For each statement below, indicate whether it would or would not be a factor in your agency's decision to use polygraph screening.

- A. A major court decision favorable to such screening Yes [] No []
- B. Legislation that would provide for licensure of examiners Yes [] No []
- C. A dramatic increase in the number of applicants for jobs in your agency Yes [] No []
- D. A restriction on your ability to do an adequate background investigation Yes [] No []
- E. An increase in the number of citizen complaints about the behavior of your agency's officers Yes [] No []
- F. An increase in your agency's budget devoted to screening applicants Yes [] No []
- G. Research evidence showing that polygraph testing is effective as a pre-employment screening device Yes [] No []
- I. Other (please specify) _____

PLEASE TURN TO PART III, PAGE 10, TO COMPLETE THE QUESTIONNAIRE

PART II

Instructions: Questions #17 to #40, which follow, are to be answered only by agencies who NOW USE POLYGRAPH TESTING OR VOICE STRESS ANALYSIS IN THE APPLICANT SCREENING PROCESS. However, the term "polygraph examination" is used here in a generic sense to refer to testing with either a polygraph instrument or a "voice stress analyzer." Thus, we are interested in your responses regardless of the type of instrumentation used.

17. What type of instrumentation does your agency use for the purpose of pre-employment screening?

- a.) Polygraph only []
- b.) Voice Stress Analyzer only []
 (e.g., Psychological Stress Evaluator, Mark II, etc.)
- c.) Both Polygraph and Voice Stress Analyzer []

18. Are all or most of the pre-employment polygraph examinations for your agency administered by your agency's own examiners?
- Yes ☐ If yes, go to question #19
 No ☐ If no, skip to question #20
19. How many examiners does your agency employ who do pre-employment screening? _____[Skip to question #22]
20. Who does this testing for your agency?
- a.) Examiners employed by another law enforcement agency ☐
 - b.) Examiners in a commercial (private) testing firm ☐
 - c.) A combination of both internal and outside examiners ☐
21. Why does your agency choose to have examinations conducted by examiners not employed by your agency? (respond to each statement)
- A. Agency does not employ its own examiner Yes ☐ No ☐
- B. Outside examination is less expensive Yes ☐ No ☐
- C. Outside examiners are better trained in pre-employment screening Yes ☐ No ☐
- D. To protect the confidentiality of the information Yes ☐ No ☐
- E. Other (please specify) _____

22. In the last five years, what is the approximate number of pre-employment polygraph examinations conducted by (or for) your agency? _____
23. In the last 12 months, what is the approximate number of pre-employment polygraph examinations that were conducted by (or for) your agency? _____
24. In the last 12 months, what is the approximate percentage of applicants who were given pre-employment polygraph examinations who:
- A. were disqualified from consideration because of the polygraph examination results (either admissions or a deceptive test outcome) _____
 - B. were found to be "deceptive" to one or more of the important issues covered during the polygraph examination _____
 - C. either refused to undergo polygraph testing or discontinued an examination in progress _____
 - D. who "passed" all selection devices, including polygraph test, and were found to be eligible for employment _____

25. Does your agency conduct pre-employment examinations on applicants for other law enforcement agencies in your area?

Yes ☐ If yes, go to question #26

No ☐ If no, skip to question #27

26. Listed below are reasons some law enforcement agencies have reported using pre-employment polygraph screening. Based on your agency's experience with pre-employment polygraph testing, please indicate your extent of agreement with each statement using the following scale: Strongly Disagree (SD), Disagree (D), Undecided (U), Agree (A), or Strongly Agree (SA) with each statement.

Polygraph Testing . . .	<u>SD</u>	<u>D</u>	<u>U</u>	<u>A</u>	<u>SA</u>
A. is less expensive than other comparable screening devices	[]	[]	[]	[]	[]
B. is faster in producing results than other methods	[]	[]	[]	[]	[]
C. reveals information not available by any other means	[]	[]	[]	[]	[]
D. makes background information about applicants easier to establish	[]	[]	[]	[]	[]
E. is more effective than traditional background investigations	[]	[]	[]	[]	[]
F. produces more useful information about applicants than other methods	[]	[]	[]	[]	[]
G. produces less faulty information than background investigations	[]	[]	[]	[]	[]
H. deters some undesirable applicants from applying for police employment	[]	[]	[]	[]	[]
I. identifies potential problem personnel better than other methods	[]	[]	[]	[]	[]
J. is generally easier to administer than other screening devices	[]	[]	[]	[]	[]
K. Other (please explain)_____					

28. Which applicants for positions in your agency, as indicated below, are asked to undergo pre-employment polygraph examinations? (Check all that apply)

a.) Applicants for civilian positions	[]
b.) Applicants for sworn positions	[]
c.) Applicants for "critical" or special positions	[]
d.) Other (please specify)_____	

29. What is your agency's policy regarding an applicant's refusal to take a pre-employment polygraph examination? (Check only one)
- a.) Refusal to take the examination leads to automatic rejection for employment []
 - b.) Refusal to take the examination leads to use of other screening devices (i.e., background investigation, psychological exams) not normally required but does not lead to automatic rejection []
 - c.) Refusal to take examination results in no additional procedures but may delay processing []
 - d.) Refusal to take the examination is not penalized in any way []
 - e.) Other (please specify) _____
-
30. What is your agency's policy with respect to a re-examination of an applicant who is reported to be "deceptive" to one or more important issues (without significant admissions) in an initial polygraph examination? (Check one only)
- a.) A second exam is administered (scheduled) automatically []
 - b.) A second exam is administered at the applicant's request []
 - c.) A second exam is given only with administrative approval []
 - d.) A second exam is given only in exceptional circumstances []
 - e.) A second exam is never provided []
31. The following statements are some of the ways in which law enforcement agencies make use of polygraph testing. For each of these statements, indicate whether or not it is one of the purposes your agency uses polygraph testing.
- A. To verify basic information derived from the application form and/or the background investigation Yes [] No []
 - B. To verify questionable or incomplete information provided by other selection devices Yes [] No []
 - C. To develop information not revealed by other selection steps or devices Yes [] No []
 - D. To substitute for a background investigation Yes [] No []
 - E. Other (please specify) _____
-
32. When are applicants for employment made aware of the need to complete a pre-employment polygraph examination? (Check all that apply)
- a.) In newspaper or other media announcements of openings []
 - b.) In the information distributed to all persons inquiring about job openings []
 - c.) In the information distributed with agency or civil service application forms []
 - d.) After the application material is filled out and turned in []
 - e.) Other (please specify) _____
-

33. The following statements have been reported as being among the benefits of using pre-employment polygraph screening. Indicate for each of these whether or not your agency's experience shows it as a primary benefit.

A. Application forms tend to be more honestly completed	Yes ☐	No ☐
B. There are fewer undesirable applicants	Yes ☐	No ☐
C. Persons hired are of higher quality	Yes ☐	No ☐
D. There is lower turnover of personnel	Yes ☐	No ☐
E. There are fewer internal personnel problems	Yes ☐	No ☐
F. There are fewer misconduct problems	Yes ☐	No ☐
G. There are fewer citizen complaints against officers	Yes ☐	No ☐
H. Other (please specify)_____		

34. Pre-employment polygraph testing may be used to investigate a number of different issues in an applicant's background. Given your agency's experience, indicate how important it is to use polygraph testing to investigate each of these issues using the following scale: Very unimportant (VU), Unimportant (U), Important (I), or Very Important (VI).

	VU	U	I	VI
A. Medical problems	☐	☐	☐	☐
B. Mental problems	☐	☐	☐	☐
C. Employment history	☐	☐	☐	☐
D. Dishonesty in prior employment	☐	☐	☐	☐
E. Traffic violation history	☐	☐	☐	☐
F. Financial/credit problems	☐	☐	☐	☐
G. Illegal drug use	☐	☐	☐	☐
H. Misdemeanors committed	☐	☐	☐	☐
I. Felonies committed	☐	☐	☐	☐
J. Physical disabilities	☐	☐	☐	☐
K. Abuse of alcohol	☐	☐	☐	☐
L. Involvement in illegal sexual activities	☐	☐	☐	☐
M. Involvement in homosexual activity	☐	☐	☐	☐
N. Involvement in subversive organizations/activities	☐	☐	☐	☐
O. Acceptance or payment of bribes	☐	☐	☐	☐
P. Use of excessive force	☐	☐	☐	☐

35. In your agency, is pre-employment polygraph testing administered to applicants . . .

	Yes	No	Does not apply
A. before a background investigation	☐	☐	☐
B. before a psychological interview	☐	☐	☐
C. before a medical examination	☐	☐	☐
D. before an oral board	☐	☐	☐

36. Overall, on a 100 point scale, with 100 indicating extreme importance and 1 indicating very little importance, how important do you consider polygraph testing to be in your selection process?
-

37. Assume that the overall usefulness of polygraph testing is used as a standard of comparison for other selection procedures and devices. Use the following scale to show the usefulness of each of these other procedures relative to polygraph testing: (1) Less useful than polygraph; (2) About the same as polygraph; (3) More useful than polygraph.

	1	2	3
A. Background investigation	[]	[]	[]
B. Written psychological testing (MMPI, CPI)	[]	[]	[]
C. Interview with psychologist	[]	[]	[]
D. Interview with psychiatrist	[]	[]	[]
E. Interview with selection board	[]	[]	[]
F. Personal interview	[]	[]	[]

38. In your agency's experience, how much confidence do you feel you can have in the results obtained from polygraph testing? (Check only one)

a.) Minimal degree of confidence (0-50%)	[]
b.) Fair degree of confidence (51%-75%)	[]
c.) Moderate degree of confidence (76%-85%)	[]
d.) High degree of confidence (86%-100%)	[]

39. In your agency's experience, what do you feel is a reasonable estimate of the accuracy of polygraph testing results as it is used in your agency for pre-employment screening? (Check only one)

a.) Correct less than 50% of the time	[]
b.) Correct between 50% and 75% of the time	[]
c.) Correct between 76% and 85% of the time	[]
d.) Correct between 86% and 95% of the time	[]
e.) Correct between 96% and 100% of the time	[]

40. Has your agency ever had an applicant admit to an unsolved . . .

A. homicide	Yes []	No []
B. arson	Yes []	No []
C. forcible rape	Yes []	No []
D. armed robbery	Yes []	No []
E. burglary	Yes []	No []
F. Other serious felony crime(s)	_____	

PART III

41. Listed below are some of the common tests and procedures (other than polygraph testing or voice stress analysis) law enforcement agencies use in pre-employment screening. For each procedure, indicate whether or not your agency uses it as a regular part of the applicant screening process.

A. Detailed application form	Yes [] No []
B. Civil Service examination	Yes [] No []
C. Written test of basic knowledge	Yes [] No []
D. Written test of aptitude for police work	Yes [] No []
E. Written personality test (e.g., MMPI, CPI, Inwald)	Yes [] No []
F. Written "honesty" test	Yes [] No []
G. Interview with police (oral) board	Yes [] No []
H. Interview with psychologist or psychiatrist	Yes [] No []
I. Physical agility test	Yes [] No []
J. Medical examination	Yes [] No []
K. Reference check	Yes [] No []
L. Background investigation, including neighbors and employers	Yes [] No []
M. Criminal history check	Yes [] No []
N. Other (please specify) _____	

Thank you for your participation in this study. Place your completed questionnaire into the enclosed, stamped, self-addressed envelope and return it to the APA Research Center, Frank Horvath, Ph.D., Director, 560 Baker Hall, Michigan State University, E. Lansing, Michigan 48824. If you would like to receive a summary of the results when they are available, indicate in the space below the name and address where you would like the results sent.

PLEASE SEND A SUMMARY OF THE RESEARCH RESULTS TO:

NAME: _____

AGENCY: _____

ADDRESS: _____

APPENDIX C

Modified Questions Used in the Small Agency Survey Questionnaire

APPENDIX C

Modified Questions Used in the
Small Agency Survey Questionnaire

24. In the last 12 months, what is the approximate percentage of applicants who were given pre-employment polygraph examinations who . . .

- A. Either refused to undergo polygraph testing or discontinued an examination in progress _____%
- B. Successfully "passed" the polygraph testing _____%
- C. Did not "pass" the polygraph testing _____%
- D. Were found to be "deceptive" during polygraph testing _____%
- E. "Passed" all selection procedures, including polygraph testing, and were found to be eligible for employment _____%

41. What is your agency's policy regarding release of pre-employment polygraph screening results? (Check all that apply)

- A. Results are released to the applicant upon request Yes [] No []
- B. Results are released to other law enforcement agencies upon request Yes [] No []
- C. Results are released to other law enforcement agencies only in exceptional circumstances Yes [] No []
- D. Results are not released to outside agencies Yes [] No []
- E. Do not have a policy on this issue Yes [] No []
- F. Other (please specify): _____

42. Listed below are some of the common tests and procedures (other than polygraph testing or voice stress analysis) law enforcement agencies use in pre-employment screening. For each procedure, indicate whether or not your agency uses it as a regular part of the applicant screening process.

- A. Detailed application form Yes [] No []

- | | |
|--|----------------|
| B. Civil Service examination | Yes [] No [] |
| C. Written test of basic knowledge | Yes [] No [] |
| D. Written test of aptitude for police work | Yes [] No [] |
| E. Written personality test (e.g., MMPI, CPI, Inwald) | Yes [] No [] |
| F. Written "honesty" test | Yes [] No [] |
| G. Interview with police (oral) board | Yes [] No [] |
| H. Interview with psychologist or psychiatrist | Yes [] No [] |
| I. Physical agility test | Yes [] No [] |
| J. Medical examination | Yes [] No [] |
| K. Reference check | Yes [] No [] |
| L. Background investigation, including neighbors and employers | Yes [] No [] |
| M. Criminal history check | Yes [] No [] |
| N. Drug testing | Yes [] No [] |
| O. Other (please specify)_____ | |
-

APPENDIX D

ANOVA Tables

APPENDIX D

Table 36A

ANOVA Tables Testing Difference in
Agency Mean Confidence Level Scores with Respect to
PEPS Usage and Agency Size

ANOVA Table for a Two-Factor Analysis of Variance
on Confidence

Source	df	Sum of Squares	Mean Square	F-test	P value
Usage (A)	1	55.092	55.092	87.85	.0001
Size (B)	1	7.187	7.187	11.46	.0008
AB	1	0.013	0.013	0.02	.8873
Error	667	418.267	0.627		

AB Incidence Table

Source	Small	Large	Totals
User	193 3.295	381 3.606	574 3.502
<u>Former User</u>	54 <u>2.481</u>	43 <u>2.767</u>	97 <u>2.608</u>
Total	247 3.117	424 3.521	671 3.373

APPENDIX D

Table 37A

ANOVA Tables Testing Difference in
Agency Mean Accuracy Level Scores with Respect to
PEPS Usage and Agency Size

ANOVA Table for a Two-Factor Analysis of Variance
on Accuracy

Source	df	Sum of Squares	Mean Square	F-test	P value
Usage (A)	1	67.104	67.104	70.236	.0001
Size (B)	1	8.351	8.351	8.74	.0032
AB	1	0.128	0.128	0.134	.7143
Error	659	629.614	0.955		

AB Incidence Table

Usage	Small	Large	Totals
User	190 3.811	378 4.095	568 4
<u>Former User</u>	53 <u>2.849</u>	42 <u>3.214</u>	95 <u>3.011</u>
Total	243 3.601	420 4.007	663 3.858

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