

Polygraph

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**A NATIONAL SURVEY OF PRACTICES, POLICIES AND EVALUATIVE
COMMENTS ON THE USE OF PRE-EMPLOYMENT POLYGRAPH SCREENING IN
POLICE AGENCIES IN THE UNITED STATES**

by

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ABSTRACT

The purpose of this study was to determine the extent and circumstances of use of pre-employment polygraph screening (PEPS) in police agencies in the United States. To carry out this survey research, a questionnaire was developed that included questions in six broad general areas: agency characteristics, why and how PEPS was (or was not) used, agency evaluations of PEPS, the use of other screening processes and techniques, and agency plans to implement PEPS.

The survey was carried out in two waves. In the first, 699 of the largest general purpose police agencies in the U.S. were included in the sampling frame. The head of each of these agencies was mailed a copy

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of the prepared questionnaire. In the second wave, a random sample of 2,192 of the nations' almost 16,000 small police agencies was surveyed. Of the 699 agencies in the first wave, 626 usable responses were returned, a response rate of 90%. In the second wave, 1482 usable responses yielded a response rate of 67%.

Among large agencies, 62% (386/626) of the respondents indicated they were current Users of PEPS, 7% were Former Users and 31% were Nonusers. Among small agencies, 13% (199/1482) indicated they were current PEPS Users, 4% were Former Users and 83% had never used it. Large agencies were significantly more likely than small agencies to employ PEPS in their screening protocol [$X^2(1)=510.7$, $p<.001$; $\Phi=.49$].

Both large and small agencies used PEPS primarily because it reveals information not available otherwise, it deters undesirable applicants, and it makes background information easier to establish. Among the different issues that could be investigated with PEPS, Users indicated that illegal drug use, felonies committed and dishonesty in employment were the most important.

Other major findings showed that: 99% of the large and 90% of the small agencies required all applicants for sworn positions to take PEPS exams. Admissions to unsolved, serious crimes during PEPS exams occurred in all of the crime categories investigated. Users indicated that the use of PEPS led to more honest applications, higher quality personnel and fewer undesirable applicants. The great majority of Users expressed moderate to high levels of confidence in the PEPS process and their estimate of its accuracy was between 76% and 100%. Statistical analysis showed that Large Users were more likely than Small Users to have higher levels of confidence [$X^2(1)=13.1$, $p<.003$; $\Phi=.15$] and to express higher estimates of accuracy, [$X^2(1)=11.3$, $p<.008$; $\Phi=.14$].

The findings also showed that PEPS is not used as a substitute for other techniques. Agencies that employed PEPS used more rather than fewer processes and techniques in their screening protocol than did those who did not use PEPS.

The primary reason large agencies discontinued PEPS was prohibitive legislation whereas the main reason for discontinuance among small agencies was a lack of confidence in the process. However, a substantial percentage of Large and Small Former Users

said they would consider use of PEPS if: (1) research evidence showed PEPS to be an effective pre-employment screening device; and (2) further restrictions were placed on their performance of background investigations.

Twenty-one percent of the Large Nonusers and 25% of the Small Nonusers said they would consider the use of PEPS. The top three circumstances in which they would do so were (1) a major court decision favorable to such screening; (2) a further restriction on their ability to do an adequate background investigation; and (3) research evidence showing the effectiveness of PEPS. There was a strong correlation between the two agency groups [$r_s=.86$], showing substantial agreement on their reasons for considering PEPS usage.

These findings regarding the value of PEPS are remarkably consistent with those that have been reported over the past three decades. The motivating reasons for the use of PEPS are well-established and the benefits in its use appear to be repeatedly validated as more and more agencies implement it in their selection protocol.

* * * * *

During the past three decades polygraph testing has been used extensively to screen job applicants for both private and public sector employment in the United States. During this period, however, the use of such testing became increasingly controversial. In 1963, for example, only three states had passed legislation banning the use of pre-employment polygraph screening (PEPS) as a condition of employment (Gooch, 1964). By 1988, over 30 states had legislation regulating its use and in that year the U.S. Congress passed the Employee Polygraph Protection Act (EPPA). Although EPPA was initiated ostensibly because of congressional concern about the increasing use of polygraph testing in federal employment, in its final form it ironically exempted federal, state and local government agencies from its restrictions but severely curtailed the use of polygraph screening in private industry (Ansley & Beaumont, 1992).

Although EPPA has greatly reduced the use of polygraph screening by private employers, public agency use, particularly in police agencies, is continuing and there is evidence that its use is increasing. Nevertheless, such screening remains controversial. One of the reasons for this is due to the lack of solid, reliable data on the use of PEPS. During the public debate about EPPA, for example, it was clear that in spite of the stated positions of those involved, neither the proponents nor the opponents could produce trustworthy statistics on some of the central issues. For

instance, even such basic questions as the actual extent of use of polygraph screening among different employment sectors and the reasons why employers found PEPS to be advantageous were not known; most of the evidence offered about these and related issues was anecdotal and not based on any reliable, systematically gathered data (Congressional Record, 1987).

There have been some recent reports in the research literature on PEPS. Meesig and Horvath (1993), for example, aggregated a number of earlier studies and showed how the use of PEPS in police agencies expanded over the past several decades. In another report Horvath (1993) described the results of a national survey of large police agencies in the United States regarding their use of PEPS. Although these were welcome additions, there continues to be a need to supplement them. The purpose of this study was to do that. Here, we describe the findings of a survey that addressed a great number of issues about the use of PEPS in a nationally representative sample of police agencies. This survey, in fact, is the most complete, thorough and accurate one that has been carried out in the United States. Before discussing the survey and its findings, however, an overview of the literature regarding the police use of PEPS would be appropriate.

Review of the Literature

In this section of our paper we begin with a general discussion of polygraph testing. Then, studies found in the literature specifically reporting on the extent of use of PEPS by police agencies are described. Following that, information in those studies that pertains specifically to agencies that use PEPS, and then those that do not use PEPS, is presented.

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 (Lombroso, 1895, 1911). 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 & Barland, 1983).

The polygraph instrument of today, after almost a century of development, is a sophisticated one 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 monitors respiratory activity in both the abdominal and thoracic areas; and the galvanograph, which records the changes in resistance to electrical current on the surface of the skin. The

changes in physiological measurements sensed by these components are transmitted to pens which record on a moving chart paper (Ansley & Abrams, 1980). More recently, however, fully computerized instruments, which digitize the physiological signals, have been developed and have been widely adopted by field polygraph examiners. These instruments record essentially the same physiological systems as earlier devices but offer far more promise for collection and analysis of the physiological data (Olsen, Ansley, Feldberg, Harris & Cristion, 1991; Olsen, Harris & Chui, 1994).

The Polygraph Examination Process

A polygraph examination normally consists of a pretest interview, polygraph testing and analysis of the polygraphic data. During the pre-test interview, the examiner explains to the examinee the nature of the polygraph instrument, the purpose of the testing and the pertinent issues to be covered. The examiner also formulates the specific test questions and reviews all of these with the examinee at this time (Horvath, 1987a). During the polygraph testing phase the examiner attaches the polygraph to the examinee and asks the examinee the previously reviewed questions while the polygraph instrument records physiological changes. Using standard testing formats, relevant questions (those pertinent to the issues to be resolved) are typically asked at least once in each of separate repetitions of the question list (Horvath & Reid, 1981; Bureau of National Affairs, 1985). The results of the testing, that is, the charts on which the physiological measurements are displayed, are then 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. Based on this review, the examiner 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 a computerized algorithm, another examiner or a polygraph supervisor as a quality control measure. If there is disagreement, additional testing may be carried out.

Following the testing and analysis of the data, the examinee is usually advised of the results and is given an opportunity to explain or clarify any issue which may be of concern. The testing may be repeated, if necessary, to clarify further the examinee's responses to specific questions (Garwood, 1985). After the examination process is completed, the test results (including information offered by the examinee in explanation to the test questions) are provided to the authority that requested the exam to assist in the decision-making process regarding the examinee.

Specific Issue vs. PEPS Exams

Polygraph testing is used to conduct specific issue examinations to investigate involvement in criminal offenses, and it is also used to conduct examinations of job applicants to determine suitability for employment. Although each type of examination is administered generally as described previously, Horvath (1987a) points out 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 question pertains to a separate area of inquiry (Horvath, 1987a).

Research Issues

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

Accuracy of Polygraph Testing

The research evidence regarding the accuracy of polygraph testing is not well developed, even though since the 1970s numerous studies have been conducted regarding the subject (Buckley, 1988). Most of these, however, dealt with crime-specific testing, not PEPS. Although there is general agreement in the scientific community that accuracy in criminal situations 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). Proponents typically maintain that the accuracy of polygraph testing involving specific crimes 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).

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 there are strong differences of opinion regarding how to interpret the research evidence relating to accuracy, even when it is confined only to that type of testing. In addition, it is agreed that generalization from the research base on specific-issue testing to PEPS can only be done with great caution, if at all (Ansley & Garwood, 1984; Correa & Adams, 1981). For these and other reasons it is difficult to state a single statistic regarding the accuracy of PEPS on which there is agreement (Ansley & Garwood, 1984; Horvath, 1985). Nevertheless, opponents maintain that PEPS does not work well enough to justify its use and this is especially a concern for "honest" persons who are denied legitimate employment (Office of Technology Assessment, 1983). Proponents of PEPS point out, however, that the scientific data now available show that its accuracy is equal to or better than other selection procedures, that its use can be a fairer selection method than others and that because of the way PEPS is actually applied in real-life situations, it does not lead to the kind of outcomes claimed by opponents (Ansley & Garwood, 1984; Horvath, 1987a; Nagle, 1984; Department of Defense, 1994).

Utility

Aside from the accuracy issue, both Ansley and Garwood (1984) and Horvath (1987a) report that their experiences and the available literature show that PEPS has a very desirable utilitarian value in that the information collected during PEPS exams is not obtainable through other methods. One of the key studies specifically addressing this issue was conducted by Blum (1967) to determine the utility of PEPS in real-life situations. Blum's study 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. All of these procedures were used to screen applicants for a police agency, except that the PEPS results were not made available during the selection process. Blum found that of the 57 applicants who had completed all phases of screening, 31 had been chosen for employment. Of these, 17 (55%) admitted during PEPS to having committed serious crimes in their past. Only one of them, however, had been identified by other selection methods as having committed a serious crime. Thus, Blum concluded that PEPS has a utility in revealing such information that is not revealed by other selection procedures, and that other procedures do not reveal information not also revealed by PEPS (Horvath, 1987a). Because Blum did not carry out a longitudinal assessment of how these selectees subsequently performed as police officers, the usefulness of PEPS as a means of predicting subsequent on-the-job performance and

honesty was untested. It is of interest to note, however, that Jayne (1989) has reported a preliminary assessment of the predictive validity of PEPS with some encouraging findings. Unfortunately, neither his results nor his methodology have been further investigated.

Specific Research Findings

There have been ten studies, of varying degrees of quality and generalizability, specifically reporting on the extent of the use of PEPS by police agencies. [We note here that there have actually been eleven studies reported in the literature. The most recent one, reported by Horvath (1993), included data that are also included in the present paper. For that reason, we do not review that study in this section.] One of the earliest of these was by Gugas (1962), who showed that some California police departments were using PEPS as early as the 1950s. Gugas stated he was aware of about 35 police agencies using PEPS as part of their applicant selection 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 was received, 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. Usable responses were received from 237 (237/340=70% response rate) and a total of 105 agencies (44%) reported using PEPS. Fourteen of the Nonuser agencies (6%) reported that they had discontinued use of PEPS and 76 agencies (65% of 117 responses) said they were considering 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 PEPS.

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 a selected group of municipal police agencies to determine their use of polygraph testing. Out of 406 agencies in the sample, 308 (76%) responded and at least 75% of them reported using the polygraph for applicant screening.

Table 1 summarizes the statistical data regarding the extent of use of PEPS as reported in the ten studies on the issue. It can be seen that these studies were conducted over a thirty year period, from 1962 to 1991, and the sample sizes ranged from 99 to 675 agencies; response rates ranged between 54% and 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. It is to be noted, however, that the surveys varied in size, sample selection criteria and definitions of agency size and type. These differences may account for some of the apparent changes over time, although generally the results suggest that the use of PEPS increased during the three decade period.

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	Large Agency Population	Large (100,000+ population)	116 (64)	19 (16)
Gooch	1964	167 Federal, State, Local	Purposive	Large	118 (71)	23 (19)
Eisenberg, Kent & Wall	1973	668 State, County, Local	Large Agency Population	Large (50+ sworn employees)	493 (74)	153 (31)
Roper	1981	675 State, County, Local	Large Agency 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	Large Agency Population	Large (50 largest cities)	62 (63)	35 (56)
McCloud	1991	406 State, Municipal	Purposive	Unknown	308 (76)	Estimated 231 (75)

It is important to point out that because of the sampling methods employed in the studies, only the Horvath and Shelton (1982) results, based on a nationally representative random sample of all federal, state and local agencies, were generalizable to all such agencies in the U.S. The Eisenberg, Kent and Wall (1973), Roper (1981) and Ash, Slora and Britton (1990) studies were limited to specific populations of large agencies. In the remaining six studies, the sampling methods were either not clearly specified or were non-random. Hence, the generalizability of those findings is not known.

PEPS Users

In this section additional information reported in the available studies pertaining to PEPS Users is reviewed. The term Users refers to police agencies who reported they currently used PEPS in their applicant selection programs. In particular, the characteristics of Users, why and how they use PEPS, and their evaluations of it as a screening device are described.

Characteristics of Users

Five of the above studies reported information comparing police agency characteristics with the use of PEPS. Agency characteristics included: agency size (based on both the number of agency sworn employees and the number of persons in the population in the agency's area of jurisdiction), the type of agency (i.e., municipal, county, state), the geographic region in which the agency was located, 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.

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 sample included only large agencies (all state, sheriff and municipal agencies employing 100+ sworn personnel). On the other hand, Eisenberg, Kent and Wall (1973) 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 size, also noted that smaller agencies were less likely to use PEPS than larger agencies. Thus, there is reason to suggest that agency size is related to usage of PEPS.

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 municipal agencies were significantly more likely to use PEPS than state police agencies. This finding may have been affected by the small number of Users in the study (a total of 35 state and municipal agencies - see Table 1). The bulk of the data, therefore, suggest that agency type is not related to the use of PEPS.

Table 2

Agency Characteristics and Their Relationship to
Use of PEPS by Police Agencies in Reported Studies

Survey	Agency Size (sworn emps)	Agency Size (pop. served)	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	-	-

Geographic region.

Only the Roper (1981) study assessed PEPS usage within geographic regions of the U.S. When she analyzed PEPS usage by U.S. Census Regions, she found 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 related to statewide requirements regarding its legality. However, the matter was not further pursued in her study.

Why Police Agencies Use PEPS

In this section information available in the studies that provides insight as to why police agencies use PEPS is presented and analyzed. In his early study, Gugas (1962) showed that PEPS examinations of 510 applicants (in seven police agencies) resulted in the rejection of 233 (46%) of them based on information that had not been detected by other techniques. The type of information that was revealed dealt with serious 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 least desirable applicants from further consideration.

Horvath and Shelton (1982) reported the primary reason agencies said they 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 was not otherwise detected included: felonies and misdemeanors committed, drug and alcohol abuse, dishonesty on jobs, homosexual activities and finance/credit matters.

How Agencies Use PEPS

In this section the studies are reviewed for information regarding the circumstances, policies and procedures pertaining to the use of PEPS.

Circumstances of use.

Horvath and Shelton (1982) reported the following information:

- Almost 94% of their 105 User respondents reported using only the polygraph instrument to conduct screening exams. About 2% reported using voice stress analyzers and 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 precluded in-house programs, 5% said it was less expensive and 25% indicated multiple reasons.

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

Horvath and Shelton (1982) further reported the following information:

- On average, 242 PEPS exams were conducted annually by or for User agencies (Range=0 to 2100; Median=125).
- About 54% began using PEPS exams prior to 1972; 45% began between 1973 and 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 forms, 26% made individuals aware during the time the forms were filled out, and 14% made them aware after the forms were completed.

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 and 12 indicated they used it after. Lopez (undated) reported that 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. They also reported that in 82% of the agencies an applicant's refusal to undergo a PEPS exam leads to automatic rejection of the application. In addition, they found 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 procedures (67%). Only 3% of their respondents used PEPS only when questionable or apparently incomplete information was discovered.

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.

Gugas (1962) did not specifically evaluate the importance of the types of information revealed by PEPS, but he did report that the most frequent reason for the rejection of applicants based on PEPS outcomes was health problems; other reasons included admissions regarding arrests, military service, prior work records, abnormal sex behavior and credit problems.

In the Gooch (1964) study, agencies reported that the three primary benefits from using PEPS were "higher quality employees" (74%), "fewer employee 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" was ranked fourth (33%) and several other miscellaneous benefits were also listed.

Non-PEPS Screening Techniques

Of the studies reviewed, only Roper (1981) presented information regarding PEPS usage in conjunction with non-PEPS screening procedures. She found 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 process. Agencies in the Eastern U.S., where the fewest Users were located, tended to incorporate the smallest number of screening procedures. However, further exploration of the association between PEPS usage and the use of other screening procedures was not done.

It is important to recognize that all of the studies reviewed here were published well before the passage of EPPA in 1988. Thus, the data do not reflect the potential impact of EPPA or of other legislative actions in recent years.

Summary

Three (Eisenberg, Kent & Wall, 1973; Horvath & Shelton, 1982; Lopez, undated) of the ten studies reviewed in this section indicated that User agency size may be associated with use of PEPS; one study (Roper, 1981) suggested a possible relationship between geographic region and usage. There is no consistent evidence that either agency type or state legal requirements are associated with usage. Two studies (Gugas, 1962; Horvath & Shelton, 1982) indicated that the primary reason why police agencies use PEPS is because it reveals information not otherwise available. Information about how agencies use PEPS is quite minimal. However, when similar areas were covered in the studies reviewed, there was agreement on the use of in-house rather than outside examiners (Horvath & Shelton, 1982; Kendrick, 1983), and that PEPS should be administered after interviews and before psychological testing in the applicant screening process (Horvath & Shelton, 1982; Lopez, undated). In two studies (Gooch, 1964; Horvath & Shelton, 1982), User evaluations of PEPS indicated positive and tangible benefits: higher quality employees, fewer employee problems, and lower turnover.

Nonusers of PEPS

In this section, information in the studies pertaining to Former Users, police agencies that reported they had discontinued the use of PEPS, and Nonusers, agencies that had never used PEPS, is reported.

Former Users

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

Kendrick (1983) was the only other study that reported data regarding Former Users. In that study, 13 agencies (14% of 91 respondents) identified themselves as Former Users but there was no further exploration of their views on PEPS.

Nonusers

Gooch (1964) and Horvath and Shelton (1982) asked agencies why they did not use PEPS. (In both studies the responses for Former Users and Nonusers were grouped together. It was not possible, therefore, to sort the Former User responses from the Nonusers.) The reasons offered by these agencies were recently re-tabulated by Meesig and Horvath (1993). Their results are presented in Table 3, which shows the rank ordering of the reasons according to the percentage of agencies that listed them.

Table 3
Rank Order and Percentages of Nonusers' Reasons for Not Using PEPS, 1964 and 1982

<u>Reason</u>	<u>Study</u>					
	Gooch (1964) (N=95)			Horvath & Shelton (1982) (N=125)		
	<u>n</u>	<u>Rank</u>	<u>%</u> ¹	<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 in Table 3 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 methods of screening; in Gooch (1964), 39%, and in Horvath and Shelton (1982), 54%, of the agencies cited this reason. In the Gooch (1964) study, the second-ranked reason was that the agencies had never been approached about initiating a PEPS program, 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 study and Gooch's (1964) study, in which the lack of awareness was ranked second (17%).

It should be noted here that Lopez (undated) reported that many of the small agencies that did not use PEPS listed budgetary constraints as the primary reason.

In several studies agencies were asked 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. 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. Among the 76 responding agencies (58%) the top three reasons were (1) research 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

Nonusers (including Former Users) in two studies (Gooch, 1964; Horvath & Shelton, 1982) reported that the primary reason why they did not use PEPS was that they were satisfied with their current methods of screening. Three studies (Yeschke, 1962; Gooch, 1964; Kendrick, 1983) indicated that some agencies (between 14% and 27%) were considering using PEPS in the future. In one study (Horvath & Shelton, 1982), when asked under what conditions they would consider employing PEPS, agencies said that research evidence showing effectiveness and a favorable court decision would be the major reasons.

Research Questions

Based on our review of the literature and the general comments made about PEPS in various documents pertinent to that topic in legislative and judicial hearings, three general research questions were identified. These were:

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

Method

This study was initiated to address the use of pre-employment polygraph screening by police agencies as an applicant selection procedure. Although our interest was in a national sample of police agencies (excluding those at the federal level) in the United States, funding limitations made it necessary to conduct the survey in two waves. Because agency size had been identified in previous studies as an important variable associated with PEPS usage, it was decided that the sampling frame in the two waves would be developed on that basis. The first wave of the study, therefore, dealt with large police agencies and the second with small agencies.

To initiate the study a draft questionnaire was developed. 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, either the American Polygraph Association or 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 consisted of 41 questions of various types organized into the following general categories:

- Agency demographic data
- Factors related to PEPS usage
- User questions
- Former User questions

- Nonuser questions
- Other screening techniques used by Users, Former Users and Nonusers

Within each of these six broad general areas, a number of specific questions were included. These allowed us to address issues such as: PEPS usage, agency size, agency type, geographic region of location, and the existence of state laws affecting the use of PEPS. Moreover, questions were included that asked for responses to the following issues:

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

In the second wave (small agencies) the same questionnaire was used with some modifications. The answer choices to one question (#24, regarding the proportion of applicants who passed or "failed" PEPS) were increased and their wording was clarified based on experiences with the questionnaire in the first wave; 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.

Populations of Interest

In the first wave of the research (the large agency survey), the population consisted of 699 of the largest general purpose (having full arrest powers) police

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

In the small agency survey, the study population was approximately 16,000 agencies identified in the Directory Survey of Law Enforcement Agencies, a listing of U.S. law enforcement agencies maintained by the Bureau of Justice Statistics (BJS, 1986). This listing was provided to the researchers on a computer-readable data tape.

Sample Selection

In the large agency survey, the entire population of 699 agencies was surveyed. The sample in the small agency survey was derived as follows: 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 agencies for its survey. One group, large agencies, consisted of all police agencies in the directory with 100 or more sworn employees, including all state agencies. The second group, small agencies, 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, identifying 721 large agencies, differed somewhat from the PERF listing used in the first wave of our study, which included, as stated previously, 699 large agencies. The difference of 22 agencies was due to variations in the manner in which size was operationalized in the two instances.

The discrepancy between the BJS and PERF sampling frames was resolved as follows: After BJS made available the computerized listing of small agencies in their sampling frame (n=2210) it was determined that 18 of the 2210 LEMAS small agencies had already been included in the PERF sampling frame and thus, also in the population for the large agency survey. These 18 agencies were therefore excluded from the LEMAS sampling frame, leaving a total of 2192 small agencies (697 sheriff and 1495 local) in the sampling frame for the second wave of the present research.

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. The letter assured that individual agency responses would be held in confidence and requested the participation of the head of each agency. The letter also explained that all questionnaires were numbered so that follow-up mailings could be done efficiently, with minimal cost. Copies of the letter and the questionnaire, together with stamped, pre-addressed return envelopes, were mailed to the chief law enforcement administrators identified in the two sampling frames.

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.

Respondent Characteristics

Because information about certain characteristics of the respondents is of interest before presentation of more substantive findings, those data are reported here.

Questionnaire distribution and response rates.

In Table 4, the number and percentage of questionnaires distributed and received in each of the two survey waves are summarized. As shown in that table, in the large agency survey questionnaires were mailed to 699 agencies and 635 were returned, an overall response rate of 91%. Eight of the respondents declined to participate and one respondent was eliminated because it was determined from the response that the agency did not currently fit within the defined population. As a result, there were 626 usable responses out of 699 mailings, a usable response rate of 90%.

In the small agency survey, questionnaires were distributed to 2192 agencies and 1512 were returned, an overall return rate of 69%. Nonusable responses included 14 agencies that declined to participate and 16 returned by the postal service because the police agency no longer existed. As a result, there were 1482 usable responses, a usable response rate of 67%. A total of 25 of the 1482 respondents reported that the number of sworn officers now employed was in excess of 100. In spite of this, these respondents were included in the small agency sample.

Table 4

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

Questionnaires	Survey Wave				Combined	
	Large		Small		n	%
	n	%	n	%		
Number distributed	699	100	2192	100	2891	100
Overall responses	635	91	1512	69	2147	74
Usable responses	626	90	1482	67	2108	73

The third column of data shown in Table 4, the "combined" column, displays the sum of results for both the large and small agency respondents. This combined column of data is used in many subsequent tables to serve as a basis for organizing responses.

Size of respondent agencies.

Table 5 displays data pertaining to the size of the agency respondents by both the number of sworn employees and the size of population served.

It can be seen that the number of sworn employees among large agencies ranged between 17 and 26,000 and among small agencies between 1 and 291. There is an overlap between the two groups for 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 sampling frame for 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. This was primarily due to changes in size that occurred over time.

Table 5
Size Statistics of Agencies that Provided Usable Responses
in the Large and Small Survey Waves

Statistics	Survey Wave		Combined (N=2108)
	Large (N=626)	Small (N=1482)	
<u>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>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 also shows that the populations served by the respondents ranged between 50,000 and 28 million among the large agencies and between 50 and 860,000 among the small agencies. Here again the overlapping of population sizes between the two surveys was a result of the factors that were described earlier.

Type of agencies represented by respondents.

Table 6 presents the number and percent of usable responses received from the large and small agency surveys broken down by agency type, whether local, county, state or other. Although all major state agencies were included in the large agency survey, as indicated in Table 6 two respondents in the small agency survey identified themselves as state level agencies.

Table 6
 Number and Percent of Types of Agencies that Provided Usable Responses
 in the Large and Small Survey Waves

Characteristic	Survey Wave					
	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%.

Results

The survey findings 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. Section E presents the results of comparisons of Users, Former Users and Nonusers on certain issues. In all sections our purpose is to describe what our findings revealed about PEPS usage (or non-usage) rather than to explore them for policy analysis or other purposes. Unless otherwise noted, the .05 level was used for assessing statistical significance.

Section A - Overview of PEPS Usage

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

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

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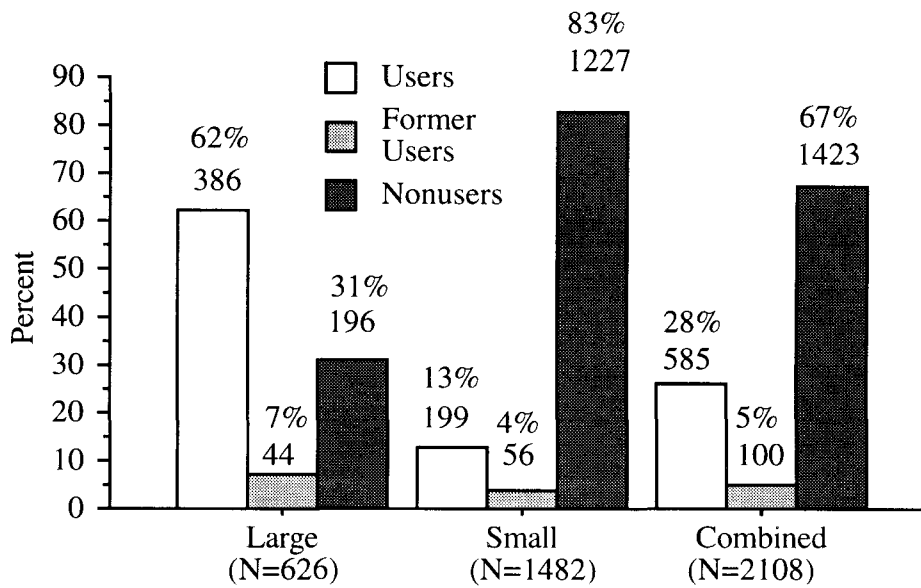


Figure 1

Number and Percent of Users, Former Users and Nonusers by Agency Size and for All Agencies Combined

When the respondents from the two survey waves 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 combined with the Nonusers. The results are displayed in Table 7.

As indicated in Table 7, there was a significant relationship between agency size and PEPS usage [$\chi^2(1)=510.7$, $p<.001$; $\Phi=.49$]. 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 moderately strong.

Table 7
Comparison of Large and Small Agencies by PEPS Usage

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

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

*Significant relationship between agency size and PEPS usage [$X^2(1)=510.7, p<.001$].

Because of the demonstrated relationship between PEPS usage and agency size, the latter variable was used to sort the data for Users, Nonusers and Former Users in Sections B, C and D. For example, the data regarding Users in the tables shown in Section B are presented in separate columns for Large and Small Users. Similarly, the data regarding Former Users and Nonusers shown in the tables in Sections C and D are presented in separate columns for large and small agencies. Moreover, we note here that the tables in all sections contain a third column that displays the data for all agencies when they are combined. This column was used primarily as a basis for organizing responses.

In some tables, where individual item responses are set forth in percentages, the total responses may exceed 100% because some questions called for multiple responses. In other words, some questions provided several response choices and asked respondents to mark all that applied.

Summary

These findings showed a significant relationship between agency size and PEPS usage; large agencies are more likely than small agencies to be PEPS Users.

Section B - Description of Users

In this section Users are described in terms of their characteristics (size and type), why and how they use PEPS, their evaluations of it, and also their use of non-PEPS screening techniques.

Characteristics of Users

Presented in Table 8 are the data showing the size of Large and Small Users based on the number of sworn employees and the size of the population served. As reflected in Table 8, the mean number of sworn employees in Large Users was 447 (Median=215) and the mean number of sworn employees in Small Users was 35 (Median=28). The mean size of the population served was 522,105 (Median=142,000) in Large Users and 31,267 (Median=17,500) in Small Users.

Table 8

Size Statistics for Large and Small Users

Statistics	<u>Agency Size</u>		
	Large (N=386)	Small (N=199)	Combined (N=585)
<u>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>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

Table 9 shows Large and Small Users compared by agency type. In that table it can be seen that 68% of the Large Users were local agencies, 24% were county agencies, and 8% were state or "other" agencies. Among the Small Users 79% were local agencies, 18% were county, and 3% were in the state or "other" category.

Table 9

Number and Percent of Large and Small Users by Agency Type

Agency Type	Agency Size					
	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
State/Other	32	8	7	3	39	7
Total	385	100	198	100	583	100

Why Police Agencies Use PEPS

The major reasons for using PEPS and the issues of greatest importance to PEPS Users are presented in the following paragraphs.

Reasons for use.

Users were provided a list of 10 different reasons for using PEPS and 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 shown in Table 10; the responses are rank ordered according to the "combined" mean scores.

Table 10 shows that the three highest mean scores were the same for both Large and Small Users; PEPS is used because 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} =4.2; Small User \bar{M} =4.0). Clearly, the primary reasons for the use of PEPS do not differ as a function of agency size..

To determine the extent of agreement between the Large and Small User rankings, the Spearman rank-order correlation coefficient was calculated on the mean scores. This calculation revealed a very strong relationship between the two rank orders [$r_s=.86$]. Thus, there was very strong agreement on all of the reasons for using PEPS between 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 regardless of their rank order, all of the reasons substantially contributed to agency decisions to use PEPS.

Table 10
Large and Small Users' Reasons for Using PEPS
by Mean Scores and Rank Order

Reason	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
	n	Mean ¹	Rank	n	Mean	Rank	n	Mean	Rank
Reveals information 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 information	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 information 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.

Issues of greatest importance.

Users were presented a list of 16 different issues that could be investigated with PEPS and they were asked to indicate the importance of using PEPS to investigate each given the following scale: 1=Very Unimportant, 2=Unimportant,

3=Important, 4=Very Important. The results are shown in Table 11.

Table 11
Testing Issues of Greatest Importance in PEPS
by Mean Score and Rank Order

Test Issues	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
	n	Mean ¹	Rank	n	Mean	Rank	n	Mean	Rank
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 in 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 Table 11, the two issues showing the highest mean scores for both Large and Small Users were illegal drug use (Large Users \underline{M} =3.9; Small Users \underline{M} =3.7) and felonies committed (Large Users \underline{M} =3.6; Small Users \underline{M} =3.5). The relative position of these two issues may be a result of a perception that they are more difficult to investigate by other means.

The Large and Small User rankings were subjected to analysis to determine the extent of agreement on them. This calculation showed an $r_s=.96$, indicating a very high correspondence on the ordering of the items between Large and Small Users. Moreover, the mean scores for all of the issues shown in Table 11 ranged between Important (3) and Very Important (4), indicating that both Large and Small Users found 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 the use of PEPS and User policies and procedures governing PEPS.

Circumstances of use.

Table 12 displays Large and Small Users' responses regarding the circumstances of use of PEPS.

Table 12 shows that Large Users were more likely than Small Users to employ their own polygraph examiners to conduct PEPS exams [$X^2(1)=108.4$, $p<.001$; $\Phi=.43$]. Also, Large Users employed between one and 26 ($\underline{M}=2$) examiners per agency and Small Users employed on average only one to two examiners ($\underline{M}=1$). Large Users conducted a significantly greater number of exams than Small Users during the five year period ($\underline{M}=779$ vs. $\underline{M}=54$) [one-tail $z=8.6$, $df=562$, $p<.001$] and during the 12 months before the survey ($\underline{M}=176$ vs. $\underline{M}=13$) [one-tail $z=8.6$, $df=557$, $p<.001$].

Table 12
Circumstances of Use of PEPS by Large and Small Users

Circumstance	Agency Size		Small (N=199)	Combined (N=585)
	Large (N=386)			
<u>Type Instrument</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>
Polygraph	374	98	187	98
Voice stress	5	1	5	3
<u>Both</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>-</u>
Total	381	100	193	100
<u>Test Given by</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>
Own examiner	268	70*	46	24
<u>Outside examiner</u>	<u>116</u>	<u>30</u>	<u>146</u>	<u>76</u>
Total	384	100	192	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

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

*Significant difference between Large and Small Users. [$X^2(1)=108.4$, $p<.001$; $\Phi=.43$]

**Significant difference between means shown for Large and Small Users. [One-tail $z=8.6$, $df=562$, $p<.001$]

***Significant difference between means shown for Large and Small Users. [One-tail $z=8.6$, $df=557$, $p<.001$]

Table 13 displays the extent to which Large and Small Users relate to other agencies regarding the conduct of PEPS exams.

Table 13

Large and Small Users' Conduct of PEPS Exams for Other Police Agencies

Circumstance	Agency Size					
	Large (N=386)		Small (N=199)		Combined (N=585)	
<u>Conduct Exams for Other Agencies</u>						
	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	87	23*	20	10	107	19
No	296	77	174	90	470	81
Total	383	100	194	100	577	100
<u>For Agencies that Answered Yes to Above- Number of Exams Conducted 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	
<u>For Agencies that Do Not Conduct Their Own Exams- Why Use Other Agencies</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
Less expensive	46	54	2	49	56	2
Better trained	29	41	4	43	51	3
Confidential	33	42	3	32	36	4
<u>Other Agencies Used</u>						
	<u>n</u>	<u>%¹</u>		<u>n</u>	<u>%</u>	
Commercial	96	79***		69	47	
Other police	12	10		66	45	
Combination	13	11		12	8	
Total	121	100		147	100	

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

*Significant difference between Large and Small Users. [$X^2(1)=13.1, p<.003; \Phi=.15$]

**Significant difference between means shown for Large and Small Users. [One-tail $z=1.9, df=100, p=.03$]

***Significant difference between Large and Small Users. [$X^2(2)=39.7, p<.001$]

As can be seen in Table 13, Large Users were more likely than Small Users to conduct PEPS exams for other law enforcement agencies [$X^2(1)=13.1$, $p<.003$; $\Phi=.15$] and, consequently, they also conducted more exams for other agencies than Small Users ($M=47$ vs. $M=9$) during the 12 months preceding the survey [one-tail $z=1.9$, $df=100$, $p=.03$].

The Users who hired outside examiners to carry out PEPS examinations 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%). Large Users that used outside examiners were more likely to use commercial agencies as opposed to other police agencies than were small Users [$X^2(2)=39.7$, $p<.001$].

Policies and procedures.

User policies and procedures regarding the routine administration of PEPS exams are displayed in Table 14.

As indicated in Table 14, 99% of the Large Users and 90% of the Small Users require all applicants for sworn positions to take PEPS exams. The percentage of both Large and Small Users requiring all applicants for civilian positions to take PEPS exams was not nearly so high, 54% and 33%, respectively. PEPS, therefore, is primarily used to screen applicants for sworn police positions.

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. (They were asked to indicate as many stages as applied). As shown in Table 14, the rank orderings for both Large and Small Users were identical. Moreover, the great majority of Users said the PEPS requirement was made clear to applicants in the initial stage of the hiring process, generally upon inquiry about job openings.

User responses about when they administered PEPS exams showed that the majority offered that process 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%).

Pre-employment Polygraph Screening in Police Agencies

Table 14

Policies and Procedures Related to the Administration
of PEPS Exams for Large and Small Users

Policy/Procedure	Agency Size					
	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	

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

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

Table 15

Policies and Procedures Regarding the Disposition of
PEPS Exam Results for Large and Small Users

Policy/Procedure	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
<u>Re-exam Policy</u>	n	% ¹		n	%		n	%	
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>	n	% ¹	Rank	n	%	Rank	n	%	Rank
Verify application/ background information	366	97	1	184	98	1	550	97	1
Develop unique information	338	91	2	149	81	2	487	88	2
Verify questionable/ incomplete information	299	82	3	135	76	3	434	80	3
Substitute for background investigation	7	2	4	2	1	4	9	2	4
<u>Release of Test Results</u>	n	%		n	% ¹		n	%	
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 on request				24	14				

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

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

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--refusal leads to automatic rejection. Thus, PEPS was considered to be a mandatory requirement for applicants, and alternatives to PEPS generally were not offered. In the small agency survey, respondents were provided an additional option to indicate that they had no policy regarding refusals, and 20 agencies selected that option.

Table 15 displays Large and Small Users' policies and procedures regarding the disposition of PEPS examination results. As shown, 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 small percentage of Large and Small Users said a second exam was administered automatically (11% and 13%, in order). The great majority of both Large and Small Users (89% and 87%) placed at least some restrictions on the re-examination of 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 application form (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%). Only a very small percentage of 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 the proportion of applicants who pass or fail PEPS examinations and the proportion who make admissions of certain types during that process. We also present data on agency evaluations of PEPS.

Applicant pass/fail proportions.

Users were asked to indicate the approximate percentage of applicants who "passed" and "did not pass" PEPS examinations during the 12 months preceding the survey. They also indicated the proportions of applicants who produced "deceptive" outcomes and who refused or discontinued PEPS examinations. Their responses are displayed by mean percentages in Table 16.

Table 16

Mean Percentages of PEPS Outcomes for Applicants Tested
During the 12 Month Period Before the Survey

Item	Agency Size		
	Large (N=386)	Small (N=199)	Combined (N=585)
	Mean % ¹	Mean %	Mean %
Passed selection/found eligible	49	63	54
PEPS disqualified	25	11	21
Found deceptive on PEPS	21	11	16
Refused/discontinued PEPS	1	1	1
Passed PEPS	N/A ²	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.

Table 16 shows that 49% of all Large User applicants and 63% of all Small User applicants passed all selection techniques, including PEPS, and were found 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.

Small 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, and they responded that an average of 75% of their applicants had done so.

Admissions.

Among large agencies, Users were presented with a list of crime types--burglary, arson, robbery, rape and homicide--and were asked whether they had ever had an applicant admit to any unsolved crimes in these categories during the PEPS process. Respondents also had the option of writing in additional crimes. In the first (large agency) wave of the survey, the most frequently written-in crimes were

drug abuse, larceny and sex offenses. Therefore, in the subsequent wave (small agencies), the list of crime types was expanded to include these additional items. The results pertaining to this issue are shown in Table 17, displayed according to the number and percentage of agencies that responded to each crime type.

As shown in Table 17, both Large and Small Users reported that applicants admitted to unsolved serious crimes during PEPS exams in all of the crime categories. It is also to be noted that significantly larger proportions of Large Users than Small Users reported admissions in four of the five listed categories: burglary (70% vs. 31%, $z=5.57$, $p<.001$), arson (44% vs. 11%, $z=2.75$, $p=.003$), robbery (38% vs. 5%, $z=2.02$, $p=.023$), and rape (34% vs. 6%, $z=1.8$, $p=.04$).

Table 17
Applicant Admissions to Crimes During PEPS Examinations

Crime	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
	<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>
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 for small agencies only.

*Significant ($p<.05$) difference between proportions shown for Large and Small Users.

Evaluations of PEPS.

Table 18 shows User evaluations of PEPS with respect to the outcomes it produces. Also shown are Users' confidence in PEPS and their estimates of its accuracy based on their experience.

Users were provided with a list of seven potential benefits of using PEPS and were asked to indicate whether each one was or was not considered to be a primary benefit. As shown in Table 18, 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 agency groups [$r_s=.93$], indicating a very high agreement on the ordering of benefits. 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 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 by selecting one of four answer choices: (minimal confidence=0-50%; fair confidence=51-75%; moderate confidence=76-85%; high confidence=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 [$X^2(1)=13.1$, $p<.003$; $\Phi=.15$]. However, as indicated by the Phi coefficient, this relationship was weak.

Users were asked to estimate the accuracy of PEPS by selecting one of five answer choices: (1) less than 50%; (2) 51-75%; (3) 76-85%; (4) 86-95%; and (5) 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 75%, and 76-100%). Analysis showed that Large Users were more likely than Small Users to estimate high accuracy [$X^2(1)=11.3$, $p<.008$; $\Phi=.14$]. However, this relationship was weak.

Table 18

Large and Small Users' Evaluations of the Benefits of, Confidence in and Estimates of Accuracy of PEPS

Item	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
<u>Benefits</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>
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 PEPS</u>	<u>n</u>	<u>%¹</u>		<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 PEPS</u>	<u>n</u>	<u>%¹</u>		<u>n</u>	<u>%</u>		<u>n</u>	<u>%</u>	
Less than 50%	2	1		4	2		6	1	
51 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	

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

In Table 19, User evaluations of PEPS with respect to its importance and relative usefulness in the selection process are presented. As can be seen in Table 19, 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 (\underline{M} =84 and \underline{M} =75). The rating of Large Users was significantly higher than that of Small Users [one-tailed $z=4.8$, $df=569$, $p<.001$].

Table 19

Large and Small Users' Evaluations of PEPS Regarding its Importance and Relative Usefulness in the Selection Process

Item	Agency Size								
	Large (N=386)	Small (N=199)	Combined (N=585)						
<u>Importance of PEPS in Selection Process</u> (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						
<u>Relative Usefulness of Selection Procedures</u> (Mean: 1=Less Useful than PEPS; 2=About the Same Usefulness as PEPS; 3=More Useful than PEPS)									
	<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.

*Significant difference between means shown for Large and Small Users. [One-tailed $z=4.8$, $df=569$, $p<.001$]

Users were also asked to rate the usefulness of six other selection procedures relative to PEPS given the following scale: 1=Less Useful than PEPS; 2=About the Same Usefulness as PEPS; 3=More Useful than PEPS. When the mean scores of the

Large and Small User responses were rank-ordered and compared, a very strong relationship between the two User groups was observed [$r_s=.83$]; both groups, therefore, found PEPS to be relatively more useful than most other screening procedures. 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).

Non-PEPS 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 it as a regular part of their applicant screening. The responses are set forth in Table 20.

Table 20 shows that 90% or more of all Users used the same six techniques in their applicant screening process (criminal history, reference check, background investigation, medical exam, application form and oral board). When the rank orders of the Large and Small User responses were compared across all 13 techniques, there was a very strong correlation between the rankings of the two groups [$r_s=.98$], showing considerable agreement on their preference for screening techniques.

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

Summary

Overall, about 28% of the responding agencies were Users (62% Large and 13% Small). Large and Small Users agreed on the three main reasons why they employ PEPS (it reveals information not otherwise available, it deters undesirables, and it facilitates background investigations). The four most important issues to investigate with PEPS were: illegal drug use, felonies committed, dishonesty prior to police employment, and acceptance/payment of bribes.

With respect to how agencies used PEPS, Large and Small Users differed regarding the circumstances of use: Large Users employed more examiners, conducted more exams for themselves and for other agencies, and were more likely to use commercial examiners. Both groups of Users were in general agreement on policies and procedures regarding PEPS usage. When asked to evaluate PEPS, Large

and Small Users agreed on the benefits of PEPS and they rated it relatively high on importance and usefulness in their selection processes. It was found, however, that Large Users obtained more applicant admissions to crimes during PEPS exams and reported higher confidence and accuracy evaluations of PEPS than did Small Users. Both Large and Small Users showed considerable agreement on their use of non-PEPS screening techniques.

Table 20

Non-PEPS Applicant Screening Techniques Used by Large and Small Users

Technique	Agency Size								
	Large (N=386)			Small (N=199)			Combined (N=585)		
	n	% ¹	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
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.

Section C - Description of Former Users

In this section, Large and Small Former Users are described in terms of their characteristics (size and type), when and why they discontinued PEPS, their evaluations of PEPS, what screening methods they currently use, and their future plans to use PEPS.

Characteristics of Former Users

Table 21 shows Large and Small Former Users' size by the number of sworn employees and the populations served. As indicated, 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 agencies and 23,518 (Median=8,000) in small agencies.

Table 21

Size Statistics for Large and Small Former Users

Statistics	<u>Agency Size</u>		
	Large (N=44)	Small (N=56)	Combined (N=100)
<u>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>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

The number and percentage of Large and Small Former Users compared by agency type are set forth in Table 22. In that table it can be seen that 73% of the Large Former Users were local agencies, 23% were county agencies and 4% were state or other level agencies. Additionally, 73% of the Small Former Users were local, 25% were county and 2% were state or other level agencies.

Table 22

Number and Percent of Large and Small Former Users by Agency Type

Agency Type	Agency Size					
	Large (N=44)		Small (N=56)		Combined (N=100)	
	n	% ¹	n	%	n	%
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 23

Circumstances of Use of PEPS by Large and Small Former Users

Circumstance	Agency Size					
	Large (N=44)		Small (N=56)		Combined (N=100)	
	n	% ¹	n	%	n	%
<u>Type Instrument</u>						
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%)		1973 - 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.

Circumstances of Use of PEPS by Former Users

The type of instrument used by Former Users and the time frames during which they began and discontinued the use of PEPS are shown in Table 23. Large Former Users started using PEPS as early as 1940 and at least half (52%) started using it by 1973. The earliest date that Small Former Users started using PEPS was 1959, almost two decades after the first use by large agencies. The Large Former Users reported they discontinued PEPS starting in about 1965, and about half (54%) had done so by 1982. The earliest reported date that Small Former Users discontinued PEPS 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 PEPS

Former Users were presented with a list of 11 reasons for discontinuing the use of PEPS and were asked to indicate which of them led to their decision. Table 24 shows the results, including the number and percent of responses given to each reason.

As can be seen in Table 24, there were clear differences between Large and Small Former Users reasons for discontinuing PEPS. The top reason for Large Former Users was prohibitive legislation (47%); yet this same reason was ranked ninth (9%) by Small Former Users. 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 to be noted, of course, that discontinuance due to "prohibitive legislation" implies an involuntary rationale, whereas a lack of confidence suggests a more agency-evaluative decision.

In order to determine the degree of similarity between Large and Small Former Users' reasons for discontinuing PEPS, their rankings were correlated; the result showed a very slight relationship [$r_s=.20$], indicating quite a bit of disagreement on the ordering of reasons for discontinuance.

Former User Evaluations of PEPS

Former Users were asked to indicate how much confidence they had in the results obtained from PEPS testing by selecting one of four answer choices: (1) minimal confidence=0-50%; (2) fair confidence=51-75%; (3) moderate confidence=76-85%; and high confidence=86-100%. The majority (63%) of Large Former Users said they had moderate to high (76-100%) levels of confidence in the results, but only 48% of the Small Former Users indicated a similar level of confidence, as shown in Table 25. 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 shown in Table 25. This analysis showed no significant relationship between responses based on agency size [$\chi^2(1)=2.1, p=.15$].

Table 24

Large and Small Former User Reasons for Discontinuance of PEPS

Reason	Agency Size								
	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.

Former Users were asked also to estimate the accuracy of PEPS testing results as it was used in their agency by selecting one of five answer choices: (1) less than 50%; (2) 50-75%; (3) 76-85%; (4) 86-95%; and (5) 96-100%. The majority of Large Former Users (69%) and Small Former Users (56%) estimated the level of accuracy to be between 76-100%.

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 75%, and 76-100%) and the collapsed data are set out in Table 25. Statistical analysis showed no significant relationship between agency size and estimates of accuracy of PEPS [$X^2(1)=1.5$, $p=.21$].

Table 25
Former User Evaluations of PEPS

Item	Agency Size		Small		Combined	
	Large (N=44)		(N=56)		(N=100)	
<u>Confidence in PEPS</u>	n	% ¹	n	%	n	%
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 PEPS</u>	n	% ¹	n	%	n	%
Less than 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.

Non-PEPS Screening Techniques Currently Used

Former 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, respondents were asked to indicate whether or not they used it in their screening process. The results are shown in Table 26, where it can be seen that more than 80% of both the Large and Small Former Users used the same six techniques in their applicant screening process (reference check, criminal history, background investigation, medical exam, application form and oral board). When the rank orders were compared, there was a very strong correlation between the rankings of the two groups [$r_s=.94$], showing considerable agreement on their preferences for screening techniques.

Table 26

Screening Techniques Currently Used by Large and Small Former Users

Technique	Agency Size								
	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 the "Other" option.

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

In addition to selecting from the 13 listed techniques, a number of large agencies wrote in additional procedures in an "Other" answer choice. Those most frequently written in were drug tests, credit checks and driving records. Because drug testing was of particular interest, the listing of 13 techniques was expanded in the subsequent wave of the survey to include drug tests as a "Yes" or "No" option. The results indicated that drug tests were used by 56% of the responding Small Former Users.

Future Plans to Use PEPS

Former Users were asked to indicate whether they planned to implement a PEPS program in the next one to three years, and if so, to indicate what were their reasons for planning to do so. The number and percent of responses are shown in Table 27.

Table 27
Large and Small Former Users' Plans to Implement PEPS

Issue	Agency Size					
	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	<u>38</u>	<u>93</u>	<u>46</u>	<u>85</u>	<u>84</u>	<u>88</u>
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 investigation not feasible	1	17	6	5	50	6
Background investigation 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.

It can be seen in that table that 7% of the 41 Large Former Users and 15% of the 54 Small Former Users planned to implement PEPS in the next one to three years. The primary reason for doing so for both groups was to assist in background investigations by having advance knowledge of possible problem areas.

Former Users who were not planning to implement PEPS were asked whether there were any circumstances in which they would consider doing so and under what circumstances. The number and percent of agency responses to these issues are indicated in Table 28.

Table 28

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

Circumstance	Agency Size					
	Large (N=44)		Small (N=56)		Combined (N=100)	
<u>Would Consider Implementing</u>	<u>n</u>	<u>%¹</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	17	46	25	61	42	54
No	<u>20</u>	<u>54</u>	<u>16</u>	<u>39</u>	<u>36</u>	<u>46</u>
Total	37	100	41	100	78	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>
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 Table 28 shows, 46% of the 37 Large Former Users and 61% of the 41 Former Users said they would consider use of PEPS. The two primary circumstances in which they would do so were: (1) if research evidence showed PEPS to be an effective pre-employment screening device; and (2) if further restrictions were placed on performance of background investigations. Comparison of the rank orders of the two Former User groups' responses revealed a very strong correlation, $r_s=.90$, indicating substantial agreement on the ordering of the response items.

Summary

About 5% of the responding agencies were Former Users (7% Large and 4% Small). The majority of Large Former Users started and discontinued using PEPS earlier than the majority of Small Former Users. The top reason given by large agencies for discontinuing PEPS was prohibitive legislation, whereas the main reason given by small agencies was lack of confidence in the testing; however, there was no significant difference between the two groups with regard to their confidence in and accuracy evaluations of PEPS. Both Large and Small Former Users showed considerable agreement on their use of non-PEPS applicant screening techniques. A minority of Large (7%) and Small (15%) Former Users indicated they planned to implement PEPS in the next one to three years, and their primary reason for doing so was to assist in background investigations by having advance knowledge of possible problem areas. About half of the Large (46%) and Small (61%) Former Users that were not planning to implement PEPS said they would consider doing so for the same two reasons: if research showed the effectiveness of PEPS and if there were further restrictions on background investigations.

Section D - Description of Nonusers

In this section, the characteristics (size and type) of Large and Small Nonusers are described, as are the screening techniques they currently use and their future plans to use PEPS.

Characteristics of Nonusers

Table 29 displays the number of sworn employees and the size of the population served by Nonusers. As shown, the mean number of sworn employees was 578 (Median=165) in large Nonuser agencies and 15 (Median=8) in the small agencies. The mean size of populations served was 828,021 (Median=125,000) in the large agencies and 17,912 (Median=6,300) in the small agencies.

Table 29

Size Statistics for Large and Small Nonusers of PEPS

Statistics	Agency Size		
	Large (N=196)	Small (N=1227)	Combined (N=1423)
<u>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>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

Table 30 displays the number and percent of Large and Small Nonusers compared by agency type. It can be seen in the table that 58% of the Large Nonusers were local agencies, 33% were county agencies, and 9% were state (or other) level agencies. Among Small Nonusers, 57% were local, 34% county and 9% were state or other agencies.

Table 30

Number and Percent of Nonusers by Agency Types

Agency Type	Agency Size					
	Large (N=196)		Small (N=1227)		Combined (N=1423)	
	n	% ¹	n	%	n	%
Local	112	58	695	57	807	57
County	65	33	420	34	485	34
State/Other	19	9	105	9	124	9
Total	196	100	1220	100	1416	100

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

Non-PEPS Screening Techniques Currently Used

Nonusers were presented with a list of 13 common tests and procedures that police agencies use in pre-employment screening. They were asked to indicate whether or not they used each of these in their applicant screening process. The results are revealed in Table 31.

Table 31

Non-PEPS Screening Techniques Currently Used by Large and Small Nonusers

Technique	Agency Size								
	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.

As indicated in Table 31, more than 80% of Large Nonusers and Small Nonusers used the same six techniques in their applicant screening process (reference check, criminal history, background investigation, application form, medical exam and oral board). When the rank orders of the agencies' responses were compared across all 13 techniques, there was a moderately strong correlation between the two groups [$r_s=.73$], showing considerable agreement on their preference for screening techniques.

In addition to selecting from the 13 listed techniques, a number of large agencies (in the first wave of the survey) wrote in additional procedures in an "Other" answer choice. Drug tests, credit checks and driving records were the most frequently mentioned items. Because drug testing was of particular interest, the list of 13 techniques was expanded in the small agency survey to include drug tests as a "Yes" or "No" option. The results indicated that drug tests were used by 45% of the responding Small Nonusers.

Future Plans to Use PEPS

Nonusers were asked to indicate whether they planned to implement a PEPS program in the next one to three years, and if so, their reasons for doing so. The number and percent of agency responses to these issues are shown in Table 32.

As displayed in Table 32, only 4% of the 191 Large Nonusers and 5% of the 1211 Small Nonusers planned to implement PEPS. The two primary reasons offered for such plans were to assist in background investigations (by having knowledge of possible problem areas before the investigation) and to reduce the number of undesirable applicants.

Nonusers were also asked whether there were any circumstances in which they would consider the use of PEPS, and if so, what those were. The number and percentage of agency responses on these items are indicated in Table 33.

As can be seen in Table 33, 21% of the 179 responding Large Nonusers and 25% of the 1130 responding Small Nonusers said they would consider the use of PEPS. The top three circumstances in which they would do so were: (1) a major court decision favorable to such screening; (2) a further restriction on their ability to do an adequate background investigation; and (3) research evidence showing the effectiveness of PEPS. When the rank order of responses was compared, there was a very strong correlation between the two groups [$r_s=.86$], showing very high agreement between both Large and Small Nonusers on their views regarding their reasons for considering PEPS usage.

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Table 32

Large and Small Nonusers' Plans to Implement PEPS

Issue	Agency Size								
	Large (N=196)			Small (N=1227)			Combined (N=1423)		
<u>Plan to Implement in One to Three Years</u>	n	% ¹		n	%		n	%	
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>	n	% ¹	Rank	n	%	Rank	n	%	Rank
Assist background investigations	8	89	2	50	86	1	58	87	1
Reduce undesirable applicants	9	100	1	49	84	2	58	87	2
Save money	6	60	3	29	50	3	35	51	3
Increase in number of applicants	5	56	4	25	44	4	30	45	4
Background investigation restricted	2	22	6	23	38	5	25	36	5
Background investigation not feasible	3	33	5	20	36	6	23	35	6
Legislative/judicial actions	2	22	7	17	30	7	19	29	7
Citizen complaints increased	1	11	8	4	8	9	5	8	8
Budget increased	-	-	9	5	9	8	5	8	9

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

Table 33

Circumstances in which Large and Small Nonusers Would Consider Use of PEPS

Circumstance	Agency Size								
	Large (N=196)		Small (N=1227)		Combined (N=1423)				
<u>Would Consider Implementing</u>	n	% ¹	n	%	n	%			
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>	n	% ¹	Rank	n	%	Rank	n	%	Rank
Favorable court decision	25	78	2	204	78	2	229	78	1
Background inves. restrictions	24	73	3	205	78	1	229	77	2
Research showing effectiveness	24	80	1	193	75	3	217	75	3
Budget increase	16	53	4	183	71	4	199	69	4
Increased citizen complaints	11	37	7	177	69	5	188	66	5
Improved examiner qualifications	16	52	5	141	60	6	157	59	6
Licensing legislation	15	50	6	140	58	7	155	57	7
Increase in applicants	4	14	8	111	46	8	115	42	8

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

Summary

About 67% of the responding agencies were Nonusers (31% Large and 83% Small). Large and Small Nonusers showed considerable agreement on the types of non-PEPS applicant screening techniques they used. A minority of Large (4%) and Small (5%) Nonusers indicated they planned to implement PEPS in the next one to three years, and they agreed on the top two reasons for doing so: to assist in background investigations and to reduce the number of undesirable applicants. Less than one-fourth of the Large (21%) and Small (25%) Nonusers that were not planning to implement PEPS said they would consider doing so for the same three reasons: a major court decision favorable to PEPS, further restrictions on background investigations, and if research showed the effectiveness of PEPS.

Section E - Comparisons of Users, Former Users and Nonusers

In this section, we compare selected results among the three groups of respondents: Users, Former Users and Nonusers. Respondents' evaluations of PEPS, their use of other screening techniques and their future plans to use PEPS are considered, in order. Additionally, as demonstrated previously, agency size was strongly related to PEPS usage. For this reason, agency size was included, where appropriate, in the statistical analyses reported in this section.

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 did this by selecting one of four answer choices: (1) minimal confidence=0-50%; (2) fair confidence=51-75%; (3) moderate confidence=76-85%; and high confidence=86-100%. The number and percent of responses for each of the four answer choices for both Users and Nonusers are displayed in Table 34. As shown, a very high proportion of Users (89%) and a majority of the Former Users (55%) indicated a moderate to high (76-100%) level of confidence in PEPS results.

Table 34

Comparison of Users and Former Users on Level of Confidence in PEPS Results

Confidence Level	PEPS Usage					
	Users (N=585)		Former Users (N=100)		Combined (N=685)	
	n	% ¹	n	%	n	%
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.

Statistical analysis of respondents' ratings of confidence in PEPS was made by carrying out a two factor Analysis of Variance (ANOVA). In this analysis the two factors were Use of PEPS (User and Former User) and agency Size (Large and Small); the dependent variable was the raw confidence score, from 1 to 4, for each agency, with higher scores indicating greater confidence. The main effect for Use was significant; the mean confidence score for Users was higher than for Former Users,

3.5 and 2.6, respectively [$F(1, 667)=87.9, p<.001$]. The main effect for Size was also significant, with Large agencies showing a mean confidence score of 3.5 and Small agencies a mean of 3.1 [$F(1, 667)=11.5, p<.001$]. The interaction between PEPS usage and agency size was not significant [$F(1, 667)=0.02, p=.8873$]. Thus, PEPS Users showed significantly greater confidence in PEPS than did Former Users and Large agencies showed significantly greater confidence than did Small agencies.

Users and Former Users were asked what they thought was a reasonable estimate of the accuracy of PEPS based on their experience. They indicated this estimate by selecting one of five answer choices: (1) less than 50%; (2) 51-75%; (3) 76-85%; (4) 86-95%; and (5) 96-100%. The number and percent of responses to these choices are displayed in Table 35. It can be seen in that table that the great majority of the Users (91%) and a substantial majority of the Former Users (62%) estimated the accuracy of PEPS to be between 76 and 100%.

Table 35

Comparison of Users' and Former Users' Estimates of the Accuracy of PEPS

Accuracy Estimate	PEPS Usage					
	Users (N=585)		Former Users (N=100)		Combined (N=685)	
	n	% ¹	n	%	n	%
Less than 50%	6	1	26	27	22	3
51 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 was done with confidence ratings, a two factor ANOVA was carried out in which the Use of PEPS (User and Former User) and agency Size (Large and Small) were included as the two independent variables; the dependent variable in this analysis was the raw accuracy score for each agency, between 1 and 5, with higher scores indicating greater accuracy. The main effect for Use was significant; the mean accuracy score of Users was 4.0 whereas for Former Users it was 3.0 [$F(1, 659)=70.2, p<.001$]. The main effect for Size was also significant; large agencies had a higher mean score (4.0) than did small agencies (3.6) [$F(1, 659)=8.7, p=.003$]. The interaction between PEPS usage and agency size was not significant [$F(1, 659)=0.13, p=.71$]. Hence, these findings were similar to those for confidence in PEPS: Users estimated

the accuracy of PEPS to be higher than did Former Users and Large agencies estimated PEPS accuracy to be higher than did Small agencies.

User and Nonuser Use of Non-PEPS Screening Procedures

All respondents were asked to indicate from a list of 13 common procedures, whether or not they used each as a regular part of their applicant screening process. The issue of interest here was if PEPS Users differed from Nonusers regarding the techniques (procedures) employed in the screening process.

The results showed that six of the thirteen techniques were "Common"; that is, they were used by at least 80% of both PEPS Users and Nonusers. (Former Users were combined with Nonusers in this analysis.) The remaining seven procedures were "Uncommon"; they were used by fewer than 80% of all agencies. Therefore, in Table 36, the techniques are presented in two separate groups, based on the frequency with which all agencies used them, and the number and percentage of both User and Nonuser agencies that employed each of the techniques are also displayed. In that table the thirteen procedures have been rank ordered in each group according to the frequency of use shown in the "combined" column.

Statistical analysis of the data shown in Table 36 was carried out by dichotomizing all agencies who used the "Common" techniques into two groups: those who used all six of those techniques and those who used fewer than six of them. This variable was then cross-tabulated with PEPS usage (Users and Nonusers). A Chi-square test revealed that Users were more likely than Nonusers to use all of the Common techniques in their screening protocol; a Phi coefficient of .14 indicated that this relationship was not strong [$X^2(1)=39.7$, $p<.001$; $\Phi=.14$].

Respondents were again dichotomized based on their use of the "Uncommon" techniques. Agencies were categorized as either "High" in their use of Uncommon procedures (They used from five to seven of these procedures.) or "Low" (The "Low" group included those who used from none to four of the seven techniques.) This variable (Technique use, High/Low) was cross-tabulated with PEPS usage, Users and Nonusers. A Chi-square test showed that Users were more likely to be High in use of other techniques and Nonusers Low; a Phi coefficient of .30 showed that this relationship was moderately strong [$X^2(1)=190.2$, $p<.001$; $\Phi=.30$].

In summary, PEPS Users were more likely to use more, not fewer, screening methods in their applicant selection process than were Nonusers.

Table 36

Comparison of Users and Nonusers Regarding Screening Techniques Used

Technique	PEPS Usage								
	Users (N=585)			Nonusers (N=1523)			Combined (N=2108)		
	n	% ¹	Rank	n	%	Rank	n	%	Rank
<u>Common (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>Uncommon (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.

Former User and Nonuser Future Plans to Use PEPS

Former Users and Nonusers 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 which of them would be a factor in their decision. The number and percentages of agencies that responded to these questions are displayed in Table 37, in which responses have been arranged in rank order according to the Nonuser percentages.

Table 37

Comparison of Former Users' and Nonusers' Plans to Implement PEPS

Issue	PEPS Usage					
	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	
No	84	88		1338	95	
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>Rank</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 investigation restricted	5	38	6	25	39	5
Background investigation 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, two additional Former Users responded to the question asking their reasons for doing so.

*Significant difference between Former Users and Nonusers. [$X^2(1)=9.2$, $p=.002$; $\Phi=.08$]

As can be seen in Table 37, 12% (n=11) of the Former Users and 5% (n=64) of the Nonusers indicated they planned to implement PEPS. Statistical analysis disclosed that Former Users were more likely than Nonusers to have such plans, although this relationship was weak [$X^2(1)=9.2$, $p=.002$; $\Phi=.08$].

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.

The rankings of the nine factors governing Former Users' and Nonusers' decisions to implement PEPS were correlated. An r_s of .98 showed very strong agreement on the ordering of reasons for the two groups of respondents.

It can be seen in Table 37 that the majority of Former Users and Nonusers (88% and 95%, respectively) had no specific plans to implement PEPS. These agencies were asked, however, if there were any circumstances in which they would consider doing so. Agencies that responded in the affirmative to this question were then presented with a list of eight circumstances and asked to indicate for each if it would be a factor in their decision. The number and percentage of agencies that responded to these questions are displayed in Table 38. The items in that table have been arranged according to the Nonuser values.

As shown in Table 38, 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 Former Users were statistically more likely than Nonusers to consider implementing PEPS, although this relationship was not strong [$X^2(1)=33.0$, $p<.001$; $\Phi=.15$].

Former Users and Nonusers agreed on the three primary factors that would influence their decision to implement PEPS. These were: (1) a major court decision favorable to such screening; (2) if there were further restrictions placed on their ability to do adequate background investigations; and (3) if there were research evidence showing the effectiveness of PEPS as a screening device. Former Users, however, ranked research evidence as the most important factor; Nonusers ranked judicial support first in significance.

The Former User and Nonuser rankings on all eight items shown in Table 38 were correlated; this revealed an r_s of .83. Thus, Former Users and Nonusers were in general agreement on the ordering of all of the circumstances in which they would consider implementing PEPS.

Table 38

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

Circumstance	PEPS Usage					
	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 investigation 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. [$X^2(1)=33.0$, $p<.001$; $\Phi=.15$]

Summary

Large agencies and Users expressed significantly greater confidence in and had higher estimates of accuracy regarding PEPS than did small agencies and Former Users. PEPS Users were more likely than Nonusers to employ more, not fewer, screening methods in their applicant selection process. Former Users were more likely than Nonusers to have plans to implement PEPS, and both groups agreed on the top three reasons for doing so: to assist in background investigations, to reduce the number of undesirable applicants, and to save money. Former Users and

Nonusers agreed on the top three reasons that would govern their decision to implement PEPS: a major court decision favorable to PEPS, further restrictions on background investigations, and research showing the effectiveness of PEPS.

Discussion

Although there have been previous studies of PEPS usage, all conducted between 1962 and 1991, the sampling frames in these reports varied widely and none of them approached the scope of the present effort. Our study included 2,891 agencies (699 large and 2192 small), or 19% of all 15,430 state and local general purpose police agencies in the U.S. (BJS, 1992). These agencies employed a total of 332,173 sworn officers, or 60% of all such police officers in the U. S. Because the usable response rate in this study was quite high, 73%--an expression, perhaps, of the widespread interest in PEPS in law enforcement--our study provides the most accurate and encompassing description of views on PEPS that has been carried out in the United States. Nevertheless, we believe that many of the concerns about and issues regarding PEPS usage that are raised but unanswered by our data--some of which have been raised in other forums--are worthy of much more intensive and extensive investigation. We state this view at the outset of this section so that the reader will keep it in mind as we highlight some of our major findings and provide our view on what they suggest. We hope that interested readers will recognize the limits of our data and will be encouraged to carry out the additional research that is necessary in order to address important issues pertaining to PEPS in a more directed way than we were able to do in this initial effort.

Prior studies suggested that PEPS usage increased consistently over the past three decades, from a low of 16% in 1962 to an estimated high of 75% in 1991. In the present study, however, the reported 62% usage rate among large agencies versus the 13% in small agencies clearly shows that agency size is strongly related to PEPS usage and, for that reason, it is misleading to generalize across police agencies when the size of agencies has not been considered. This finding and our view of it, of course, is supported by some of the previous studies. Eisenberg, Kent and Walls (1973), Horvath and Shelton (1982) and Lopez (undated) all reported that small agencies were less likely to use PEPS than large agencies. The effect of agency size on PEPS usage, therefore, is a well established finding and, judging from our data, quite pronounced.

Most police agencies in the United States are rather small in size. However, almost all of the available research on policing has focused exclusively on larger departments (Bureau of Justice Assistance, 1994). It is, of course, in such agencies that police officers themselves are concentrated. It is also such agencies that, over the years, have experienced most, if not all, of the personnel problems that seem to

plague policing; brutality, dishonesty, corruption, racial and cultural insensitivity, incompetence and so forth have clearly been problems of large police departments, usually, of course, those that serve urban areas where the population is the most dense and crime most rampant. Whether the presence or dominance of these problems, the availability of more financial and other resources, or other concerns have led the larger police agencies to use PEPS more frequently than smaller agencies is an issue we cannot address with our data. It would, however, be of great practical interest to know the factors that account for PEPS usage. It would also be of interest to evaluate the effects of PEPS usage on agency and personnel performance, perhaps in a longitudinal comparison of User and Nonuser agencies. No one has yet reported a study addressing these and related issues.

Previous studies (Gugas, 1962; Yeschke, 1962; Blum, 1967; Horvath, 1990, 1991 & 1993; Horvath & Shelton, 1982) and a number of reports by knowledgeable persons (Congressional Record, 1987; Horvath, 1993a; Lawrence, 1965; Washnis, 1962) show that police agencies use PEPS because it reveals important, unique information not available by use of other screening procedures. According to many sources, therefore, the primary benefit of PEPS is that the information provided, if not indispensable, contributes heavily to the data necessary for making careful, deliberate decisions about the quality of police applicants. Our findings strongly confirm these prior observations. Here, agency experiences in more than 300,000 PEPS examinations over a five-year period show that PEPS provides unique information of real consequence to service as a police officer. Thus, judging from the available literature and the results in this study, for three decades the unique value of PEPS has consistently been at the forefront of agency experiences. Yet, it is important to note that there has been no research reported in the literature that clearly demonstrates the validity of those experiences. We believe that issue is one of the critical needs that research must soon address.

There are a number of indirect findings in the present study that add an increment of support to the unique benefit of PEPS in police screening. One of these is that PEPS, generally, is used not as a substitute for other screening procedures but as a supplement to them. Our findings show quite convincingly that PEPS Users have more elaborate, thorough and complete screening protocols than do Nonusers. If PEPS produced redundant information--as some critics have suggested--such a result would be unexpected. While our data cannot confirm that PEPS actually leads to better quality and lower turnover among police candidates, clearly our respondents believe this to be the case. The finding that they use PEPS in addition to a wide variety of other procedures shows that among those agencies who go to the greatest lengths in screening their applicants, PEPS plays a prominent role in decisions regarding who to hire and who to reject.

Previous studies reported that Users perceived positive and tangible benefits derived from their use of PEPS. Gooch (1964) and Horvath and Shelton (1982), for example, found the same three primary benefits were reported by PEPS Users: higher quality employees, fewer personnel problems and lower turnover. This is especially significant given that the two studies were conducted 18 years apart.

The present study reported agency evaluations of PEPS in greater depth than in previous research and included evaluations by both Users and Former Users. Both Large and Small Users rated the top three benefits of PEPS as more honest applications, higher quality employees and fewer undesirable applicants. Significantly, higher quality employees was the top-ranked benefit in both the Gooch (1964) and the Horvath and Shelton (1982) surveys and, in addition, was frequently mentioned by private employers who testified in defense of PEPS during the debate over EPPA. Thus, higher quality employees has consistently been considered a major benefit of PEPS by police agencies (as well as other employers) for a period spanning three decades.

In addition to the perceived benefits of PEPS, Users rated the degree of their confidence in that procedure, their assessment of its accuracy based on their experience, and the importance of PEPS relative to other screening techniques in their protocol. Overall, Users showed great confidence in and a quite high rating of the accuracy of PEPS. Generally, however, Large Users were more likely than Small Users to offer positive evaluations. Why this was so is unclear. It is possible, though, that these differences based on agency size are related to the differing environments of large as opposed to small agencies. That is, Large Users process greater numbers of applicants than Small Users; they also typically tend to draw from larger and more widely diversified populations; and, they may find it more difficult to process applicants--for instance, to do an effective background investigation--than Small Users. These factors might enhance their views on PEPS because in the typical circumstances in which they carry out the screening process, non-PEPS procedures may be, or may appear to be, less effective and more error-prone. This hypothesis would seem to gain some credibility when one considers that among Large User agencies there are higher PEPS fail rates and higher percentages of admissions to serious crimes, suggesting, of course, that there may be significant differences in the population of applicants coming to the attention of large versus small agencies.

Although previous studies did not specifically address the type of information considered to be most important in PEPS testing, our findings show that illegal drug use, felonies committed and dishonesty in prior employment predominate. It is noteworthy that all three of these issues are matters of honesty and integrity, critical factors to be considered in hiring persons for positions of public trust. This point, considered in conjunction with the value of PEPS in revealing

unique information, certainly suggests that PEPS outcomes enhance the police screening process in a more desirable way than that of many other screening procedures. This view, of course, is consistent with our finding that relative to most other screening procedures, PEPS is generally seen as being of greater importance to the screening process.

It is also noteworthy that many of the issues which PEPS is used to investigate are those in which the best, most accurate information is available only from the applicant himself or herself. An applicant's past behavior, say in drug use, can, perhaps, be ascertained by chemical tests; such tests, however, have relatively short time-period windows, are expensive and do not speak to the circumstances in which drugs may have been used. Furthermore, drug abuse, like other behavioral items, such as dishonesty in employment, is seldom fully detectable by intensive background investigations, personal interviews, or standardized psychometric tests (Cohen & Chaiken, 1972; Heuer, 1993, 1994; Landy, 1976). PEPS is best used, according to our data, to investigate these areas, areas of behavior that cannot be thoroughly or appropriately investigated by other selection procedures. While one may question whether there should be inquiry into these areas and the legitimacy of using PEPS to do so, there is little doubt that agencies with experience in the police screening process find that there is no alternative to PEPS in this regard and that the information developed is not otherwise available. (See: Horvath, 1985, and Horvath & Phannenstill, 1987, for a discussion of and data regarding these issues.)

In spite of its widespread use PEPS will no doubt continue to be controversial. Certainly one, but not the only, reason for this is that while the utility of PEPS has been clearly demonstrated in a variety of employment settings, there has been very little research on its validity (Ansley & Garwood, 1984; Ansley & Horvath, 1975). While the data that are available are favorable, much more research needs to be carried out (Blum, 1967; Correa & Adams, 1981; Horvath, 1985, 1993; Horvath & Phannenstill, 1987). Furthermore, proponents and opponents of PEPS often fail to articulate the actual way in which PEPS and PEPS-derived information is used in the employment decision-making process. This oversight leads to a great deal of misunderstanding when PEPS is evaluated and when administrators decide to implement a PEPS program. For example, PEPS, as well as polygraph testing generally, is often seen as analogous to standard psychometric employment selection tests (Horvath & Ansley, 1993). Persons who have experience in the use of PEPS and in the way in which decision-making based on PEPS outcomes occurs, however, know that this is an incorrect analogy (Horvath, 1972, 1985, 1993; Horvath & Ansley, 1993). In many ways, PEPS is a quite unique employment screening device that cannot be subjected to analysis in the way that standardized tests often are. In addition to this concern, PEPS is sometimes used as an inexpensive substitute for other screening procedures and sometimes to investigate issues which are or, at least to many persons, appear inappropriate. In other words, as was

pointed out in an earlier paper by one of the authors (Horvath, 1993), when PEPS is being considered, many of the concerns about its use must be dealt with in the context of how it is applied, not merely whether it should be used at all. Like all other screening procedures, the application of PEPS can be abused and poor implementation is not a sound basis for assessing it or any other screening procedure (Horvath, 1972, 1985).

In the studies of Eisenberg, Kent and Walls (1973), Horvath and Shelton (1982) and Kendrick (1983), information regarding how PEPS is used was minimal. But in those areas where comparisons are possible, their findings were quite similar to ours. For example, Horvath and Shelton (1982) noted that PEPS exams were used primarily to verify applicant-provided information and to develop new information. These were also the primary uses of PEPS revealed in the present data. Additionally, the Horvath and Shelton (1982) study reported that 74% of all Users tested all applicants for sworn positions and 14% tested all applicants for civilian positions. The present study percentages were 96% and 46%, respectively, showing a growing dependence on the use of PEPS within User agencies during the past decade. Moreover, a number of large law enforcement agencies have recently supplemented their screening programs with PEPS. The Federal Bureau of Investigation, for example, initiated a PEPS program, primarily directed at the issue of drug use, that applies to all applicants for employment (Associated Press, 1994).

Only two of the previous studies specifically provided for identification of Former Users of PEPS. In the Horvath and Shelton (1982) study 6% of a nationally representative sample of federal, state and local police agencies was identified as Former Users. Kendrick (1983) reported that 14% of his purposive sample had used but discontinued their PEPS programs. Only the Horvath and Shelton (1982) study, however, investigated why these agencies discontinued PEPS; the most frequent reason given was the passage of prohibitive legislation in their jurisdiction. The present study showed the same reason for large agencies, the predominant users of PEPS. Among small agencies, however, there was a greater tendency for discontinuance for reasons other than legislation. Nevertheless, the percentage of agencies that discontinued the use of PEPS during the past decade has remained quite low. Moreover, 12% of the Former Users reported they planned to re-implement PEPS in the next one to three years, and 54% of the remaining Former Users indicated they would reconsider implementation of PEPS under certain circumstances. These results suggest that agency decisions about PEPS can be influenced by a variety of factors. Thus, for those who advocate the use of PEPS and especially for those directly involved in the polygraph examiner community, these findings are suggestive of a course of action that might be taken to improve the situation. The earlier comments by Horvath (1993) make this point clear:

...there is little doubt, that the way in which polygraph screening is carried out can have much to do with whether it is viewed positively or negatively. For example, the asking of test questions which many persons find offensive and unnecessary may also lead to a view that such testing, in principle, is objectionable (Horvath & Phannenstill, 1987; Horvath, 1987). In this regard, the data show that police agencies vary widely in the issues they investigate during pre-employment screening exams. In addition, the variation among agencies with respect to the perceived fairness of treatment of those who "fail" an initial polygraph examination is an important concern. Since the issues covered during an exam and the treatment of those who "fail" are central points in the controversy about polygraph screening, one of the instructive findings revealed here is that professional associations of polygraph examiners could take a leading role in establishing guidelines for the proper application of polygraph screening. The development of professionally recognized standards that set forth, for example, consistent and fair treatment of those found "deceptive" during an examination certainly appears to be a reasonable goal. Individual agencies, of course, may decide to depart from such guidelines, but perhaps at some risk in the event their departure is called into question. In short, it would appear to be in the interest of those in the polygraph testing field to establish and aggressively advocate appropriate principles of practice to be applied in specific situations, such as pre-employment screening. (pp. 82-83)

Only the prior study by Roper (1981) indicated that Users tended to employ more procedures and techniques than Nonusers in their applicant screening protocol. The present study expanded investigation of this issue to include consideration of agency size also. Our findings show that both agency size and the number of screening procedures that agencies employ was related to PEPS usage. While Large Users were more likely than Large Nonusers to employ more of the less frequently used screening techniques, Small Users were more likely than Small Nonusers to use more techniques overall. In other words, PEPS is not used as a substitute for other techniques. It is used predominantly to provide information not otherwise available. Police agencies use PEPS in their screening programs not to be more efficient, but to be more thorough and complete in their applicant processing.

Previous research regarding future plans of Nonusers (including Former Users) addressed two separate questions. The first was whether they were considering implementation of PEPS. The second was if there were any circumstances in which they would do so.

With respect to the first question, three previous studies asked Nonusers about their plans to use PEPS; it was reported that between 14% and 27% were

considering its use (Yeschke, 1962 - 27%; Gooch, 1964 - 14%; 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. However, the two primary reasons that both Former Users and Nonusers gave in support of their interest (to assist in background investigations and to reduce undesirable applicants) were very similar to the top-ranked reasons for using PEPS that were cited by Users. This finding suggests that the utility of PEPS as a supplement to other screening procedures is a well recognized benefit, even among those without direct experience in its use.

With respect to the second question, only the previous study by Horvath and Shelton (1982) asked Nonusers of PEPS under what circumstances they would consider using that procedure. The top three circumstances were: (1) research evidence showing its effectiveness; (2) a favorable court decision; and (3) if law/policies permit. Our study produced similar findings. About 54% of the Former Users and 24% of the Nonusers stated they would consider implementing PEPS. Both groups cited research evidence, a favorable court outcome and further restrictions on background investigations as the major factors that would influence their decision.

There are two important points to be made about these results. First, the interim period between the Horvath and Shelton (1982) and the current study was the time when the controversy over PEPS culminated in the passage of EPPA, legislation which imposed restrictions on PEPS usage in the private sector. It would appear that the issues raised in the debate about EPPA--the need for solid, scientific research, for example--remain paramount in the view of many Nonuser agencies.

The second point to be made is that the major factors governing plans to use PEPS are related. Horvath's (1993) earlier report speaks directly to this issue:

...the two most important concerns for those who would implement polygraph screening are: (1) research on its effectiveness as a screening device, and (2) a major favorable judicial decision. These points, of course, are not independent of each other. While it is always risky to try to predict the outcome of judicial deliberations, favorable judicial decisions seem more likely to follow scientifically sound research on polygraph screening than would otherwise be the case. This is to say nothing of the likelihood that such research would also go a long way towards helping legislative bodies deliberate the issue. At the present time there is no scientifically sound research on the validity of polygraph screening in police agencies and there is only limited, albeit favorable, research on what that screening actually contributes to the selection of police applicants (Blum, 1967; Horvath, 1985).

It is clear from the present results, of course, that User agencies believe that such testing is very effective and that it makes a useful contribution; holding that belief and providing evidence, however, are not the same. This is not to say, though, that since the evidence is not compelling, the opponents' views ought to prevail in the public policy arena. There are many matters of public policy on which the scientific community is divided and which have not been confronted in the legislative or judicial arenas. Nevertheless, only a careful, well-constructed and sustained research effort on pre-employment polygraph screening is likely to resolve the critical issues in the controversy. The usual clarion call for continued research is certainly warranted in this instance. (pp. 84-85)

Our findings regarding the value of PEPS are remarkably consistent with those that have been reported over three decades. The use of PEPS has increased significantly during this period, suggesting, of course, that the agencies that have implemented PEPS recently experience the same benefits as longer-term Users. Additionally, these findings do not appear to have been significantly affected by the controversy or the legislative or judicial actions that have occurred regarding PEPS 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 & Horvath, 1993).

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 data available in this regard, its value beyond description is limited. Although the results are highly supportive of PEPS usage, they are necessarily based only on experiential data. They are only suggestive of answers to questions about the value of PEPS and other related issues that have arisen in the debate about this procedure. As pointed out earlier in this paper, empirical data on many issues is sorely lacking, despite the fact that such research has been clearly identified for more than a decade as a critical need in the field (Ansley & Garwood, 1984; Horvath, 1972; Horvath & McCloud, 1990; Horvath & Shelton, 1982; Meesig & Horvath, 1993). Thus, while police agencies report positive experiences using PEPS, and while these are clearly different from what has been expressed by critics in public and other forums where the issue of PEPS has been considered, neither these findings nor studies of this nature are capable of addressing many of the critical issues directly.

If these experience-based views of the value of PEPS are correct, then the proper use of PEPS should be encouraged and developed. One need only be reminded of police "scandals" such as occurred in Miami when normal screening processes were discontinued, and of the Michael Dowd corruption scandal in the New York City Police Department in 1992 ("Corruption Scandal," 1992), to recognize

the importance of honesty and integrity among police officers, and to see the impact that these issues have on public perceptions of the police. If the actual value of PEPS in addressing these issues can be demonstrated to be consistent with Users' perceptions, then its use may have very positive consequences for police work and the police agency selection protocol.

We hope that the results reported here and the general research questions we have raised--as well as those we have left for others to determine--will encourage more intensive investigation of this area. The important issues in the controversy about PEPS as a screening technique for police applicants cannot be addressed without solid, reliable data. Police agency decisions and public policy regarding police selection in general and PEPS in particular clearly need a better foundation of more and better information than is now available (Burbeck & Furnham, 1985; Hogan, 1971; Horvath, 1991a; Landy, 1976; Sanders, Hughes & Langworthy, 1995; Strawbridge & Strawbridge, 1990). While this research contributes to that need, there is much more to be done.

* * * * *

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References

Ansley, Norman, & Abrams, Stanley. (1980). The polygraph profession. Linthicum Heights, MD: American Polygraph Association.

Ansley, Norman, & Beaumont, Lawrence S. (1992). Quick reference guide to polygraph admissibility licensing laws, and limiting laws (16th ed.). Severna Park, MD: American Polygraph Association.

Ansley, Norman, & Garwood, Marcia. (1984). The accuracy and utility of polygraph testing. Washington, DC: Department of Defense.

Ansley, Norman, Horvath, Frank, & Barland, Gordon H. ((1983). Truth and science: A comprehensive index to international literature on the detection of deception and the polygraph (lie detector) technique (2nd ed.). Linthicum Heights, MD: American Polygraph Association.

Ash, Philip, Slora, Karen B., & Britton, Cynthia F. (1990). Police agency officer selection practices. Journal of Police Science and Administration, 17(4), 258-269.

Associated Press. (1994, March 8). FBI to ask about use of drugs in polygraphs for applicants. Fort Lauderdale Sun-Sentinel, p. 5A.

Blum, Richard H. (1967, November-December). The polygraph examination in law enforcement personnel selection. Police, 12, pp. 60-70.

Buckley, Joseph P. (1988). The use of the polygraph in the workplace: The American Polygraph Association's view. Polygraph, 17, 80-90.

Burbeck, Elizabeth, & Furnham, Adrian. (1985). Police officer selections: A critical review of the literature. Journal of Police Science and Administration, 13 (1), 58-69.

Bureau of Justice Assistance. (1994). Neighborhood-oriented policing in rural communities: A program planning guide. Washington, DC: United States Department of Justice. (NCJ Publication No. 143709)

Bureau of Justice Statistics (BJS). (1986). Directory survey of law enforcement agencies. Washington, DC: United States Government Printing Office.

Bureau of Justice Statistics. (1992). State and local police departments, 1990. Rockville, MD: Justice Statistics Clearinghouse, National Criminal Justice Reference Service. (NCJ Publication No. 133284)

Bureau of National Affairs. (1985). Polygraphs and employment: A BNA special report (Product Code 02-GERR-96). Rockville, MD: The Bureau of National Affairs.

Carter, David L., & Sapp, Allen D. (1990). The evolution of higher education in law enforcement: Preliminary findings from a national study. Journal of Criminal Justice Education, 1(1), 59-85.

Cohen, Benjamin, & Chaiken, Jan. (1972). Police background characteristics: Summary report. Washington, DC: United States Government Printing Office.

Congressional Record. (1987, November 4). Proceedings, House of Representatives, 133, 9528-9598.

Correa, Eileen I., & Adams, Henry E. (1981). The validity of the pre-employment polygraph examination and the effects of motivation. Polygraph, 10, 143-155.

Corruption scandal rocks NYPD; Internal affairs unit under fire. (1992, 30 June). Law Enforcement News, 18, pp. 1, 11.

Department of Defense. (1994). Department of Defense polygraph program report to Congress for fiscal year 1994. Polygraph, 24, 13-33. [See also reports for preceding years.]

Eisenberg, Terry, Kent, Deborah A., & Wall, Charles R. (1973). Police personnel practices in state and local governments. Washington, DC: Police Foundation.

Employee Polygraph Protection Act of 1988 (EPPA), -- U.S.C. S (1988). {June 27, 1988. Public Law 100-347 (H.R. 1212)}

Garwood, Marcia. (1985). Two issues on the validity of personnel screening polygraph examinations. Polygraph, 13, 209-216.

Gooch, Charles. (1964). An inquiry into the use of the polygraph in applicant evaluation and personnel screening. Unpublished master's thesis, Michigan State University, East Lansing.

Gugas, Chris. (1962, July-August). Better policemen through better screening. Police, 6, pp. 54-58.

Heuer, Richards. (1993). Alcohol use and abuse. Polygraph, 22, 17-45.

Heuer, Richards. (1994). Crime and security risk. Polygraph, 23, 24-60.

Hogan, Robert. (1971). Characteristics of highly rated patrolmen. Personnel Psychology, 24, 679-686.

Horvath, Frank. (1972). The police candidate polygraph examination: Considerations for the police administrator. Police, 16 (10), 33-39.

Horvath, Frank. (1985, September-October). Job screening. Society, 22, pp. 43-46.

Horvath, Frank. (1987). Public attitudes on polygraph testing: A national survey. Polygraph, 16, 1-17.

Horvath, Frank. (1987a). The selection of candidates for employment in the Philadelphia Police Department: An analysis of the major issues in the use of polygraph screening. Unpublished manuscript.

Horvath, Frank. (1990). Screening candidates for police work: Polygraph testing in U.S. law enforcement agencies. Paper presented at American Polygraph Association, Louisville, KY.

Horvath, Frank. (1991). Polygraphic screening of candidates for police work in large police agencies in the United States: A survey of practices, policies and evaluative comments. Paper presented at Academy of Criminal Justice Sciences, Nashville, TN.

Horvath, Frank. (1991a). Recruitment and selection of police officers: Future implications. Invited paper presented at International Symposium on the Future of Law Enforcement, Federal Bureau of Investigation, FBI Academy, Quantico, VA, April 4.

Horvath, Frank. (1993). Polygraphic screening of candidates for police work in large police agencies in the United States: A survey of practices, policies and evaluative comments. American Journal of Police, 12, 67-85.

Horvath, Frank. (1993a). Pre-employment polygraph screening in police agencies in the United States: Preliminary findings of a national survey. Paper presented at the American Polygraph Association, Newport Beach, CA.

Horvath, Frank & Ansley, Norman. (1993). Book Review: Ben-Shakhar, G. & Furedy, J. (1990). Theories and applications in the detection of deception. New York: Springer Verlag; 169 pp. (1993). Criminal Justice Review, 18(2), 304-306.

Horvath, Frank, & McCloud, Douglas. (1990). A national survey of techniques, assignments and policies relating to polygraph use in police agencies in the U.S. Paper presented at American Polygraph Association, Louisville, KY.

Horvath, Frank, & Phannenstill, Richard J. (1987). Pre-employment polygraph testing: The attitudes of applicants and their relationships to personal characteristics. Polygraph, 16, 18-32.

Horvath, Frank, & Reid, John E. (1981). The reliability of polygraph examiner diagnosis of truth and deception. Journal of Criminal Law, Criminology and Police Science, 62(2), 276-281.

Horvath, Frank, & Shelton, Eddie. (1982). The use of polygraphic pre-employment testing in police agencies in the United States. Paper presented at the American Polygraph Association, Vancouver, Canada.

Hubble, David. (1990, May). 1990 Law Enforcement Management and Administrative Statistics Survey Sample. Unpublished memorandum, dated May 14, 1990, to Diana M. Cull, Chief, Governmental Organization and Criminal Justice Statistics Branch, by the author, Statistical Methods Division, Bureau of the Census, U.S. Department of Commerce.

Jayne, Brian. (1989). A comparison between the predictive value of two common preemployment procedures. Polygraph, 18, 203-207.

Kendrick, Delvin. H. (1983). Use of polygraph by law enforcement agencies. (Report available from Fact Finders Polygraph Service, Alvin, TX.)

Landy, Frank. (1976). The validity of the interview in police officer selection. Journal of Applied Psychology, 61, 193-198.

Lawrence, George. (1965). Noted psychiatrist views the polygraph. Police, 10, 46-48.

Lombroso, Cesare. (1895). L'Homme Criminel (2nd ed.) (Vols. 1-2). Paris: Felix Alcan.

Lombroso, Cesare. (1911). Crime: Its causes and remedies. Boston: Little, Brown. [Excerpts printed in Polygraph, (1991), 20, 52-53.]

Lopez, Edward. (undated). Oceanside Police Department police applicant survey. Unpublished manuscript.

McCloud, Douglas. G. (1991, September). A survey of polygraph utilization. Law and Order, 39, pp. 123-124.

Meesig, Robert T. (1994). Usage, practices, and policies of polygraph ("lie detector") screening in police agencies in the United States. Unpublished master's thesis, Michigan State University, East Lansing.

Meesig, Robert T., & Horvath, Frank. (1993). Changes in usage, practices and policies in pre-employment polygraph testing in law enforcement agencies in the United States: 1964-1991. Polygraph, 22, 1-16.

Nagle, David. E. (1984). The polygraph in employment: Applications and legal considerations. Polygraph, 13, 1-20.

Office of Technology Assessment. (1983). Scientific validity of polygraph testing: A research review and evaluation (Technical memorandum OTA-TM-H-15). Washington, DC: U.S. Government Printing Office.

Olsen, Dale, Ansley, Norman, Feldberg, Ian, Harris, John, & Cristion, John. (1991). Recent developments in polygraph technology. Johns Hopkins APL Technical Digest, 12(4), 347-357.

Olsen, Dale, Harris, John, & Chui, Wendy. (1994). The development of a physiological detection of deception scoring algorithm. SPR Abstracts, S 11-12.

Roper, Leah E. H. (1981). Law enforcement selection requirements: A national analysis. Unpublished doctoral dissertation, Sam Houston State University, Huntsville, TX.

Sanders, Beth, Hughes, Thomas, & Langworthy, Robert. (1995, March). Law enforcement recruitment and selection: A survey of major police departments in the U.S. Paper presented at the meeting of the Academy of Criminal Justice Sciences, Boston, MA.

Strawbridge, Peter, & Strawbridge, Deidre. (1990). A networking guide to recruitment, selection, and probationary training of police officers in major police departments of the United States of America. New York: John Jay College of Criminal Justice.

Sweet, Elizabeth. (1990, June). Sample selection specifications for the 1990 Law Enforcement Management and Administrative Statistics (LEMAS) survey. Unpublished memorandum for documentation, dated June 7, 1990, by the author, Statistical Methods Division, Bureau of the Census, U.S. Department of Commerce.

Washnis, George. (1962, July). Polygraphic tests for city employees. Public Personnel Review, 23, 192-198.

Yeschke, Charles. (1962, August). The advantages and limitations of police applicant testing with the polygraph. Report presented at American Academy of Polygraph Examiners, Chicago, IL.