

Recommendations for Uniform Polygraph Examinations for Preemployment Screening of Law
Enforcement Applicants

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RECOMMENDATIONS FOR UNIFORM POLYGRAPH EXAMINATIONS FOR
PREEMPLOYMENT SCREENING OF LAW ENFORCEMENT APPLICANTS

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Abstract

RECOMMENDATIONS FOR IMPLEMENTATION OF POLYGRAPH EXAMINATIONS FOR PREEMPLOYMENT SCREENING OF LAW ENFORCEMENT APPLICANTS

Purpose of the Study

The purpose of this study is to recommend a uniform polygraph screening process for all law enforcement entities in an attempt to increase polygraph validity, increase quality of law enforcement applicants and decrease asymmetric information. This study will identify numerous aspects of polygraph examinations and their implementation. Additionally, the study can be used to validate polygraph examinations as part of hiring practices, assist in repealing the Employee Polygraph Protection Act of 1988 (EPPA) and altering state employee polygraph examination laws (U.S. Department of Labor, 2020). The aforementioned purposes can be achieved by arguing the validity and effectiveness of polygraph in conjunction with identifying the current hiring practices and issues within law enforcement in the United States.

Methods

This seminar paper is based on qualitative and quantitative secondary data received from the Karmann Library's electronic databases and internet searches. The primary method of research was conducted through the criminal justice abstracts on EBSCOhost. Additionally, internet searches were conducted to determine state laws on employee polygraph examinations.

Findings

The EPPA and state statutes currently do not allow polygraph examinations within their states, which would eliminate the possibility of a uniform polygraph process across all law enforcement organizations. Based off empirical research, TES/DLCT is the most accurate format and the empirical scoring system is the most accurate scoring method in polygraph examinations. Additionally, there is need for a uniform educational standard for polygraph examiners. Lastly, a quality control process has to be implemented to remove examiner bias and provide secondary source supporting results of each polygraph examination. In order for there to be a uniform polygraph examination process across all law enforcement organizations the EPPA and state statutes would have to be repealed and the most accurate and reliable polygraph formats and evaluation methods would have to be adopted.

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Introduction:

According to Law Enforcement Management and Administration Statistics (LEMAS) data, only 38 out of 2,985 law enforcement organizations surveyed conducted pre-employment polygraph examinations (Wood, 2017). Law enforcement entities are lowering standards to meet hiring requirements because there are less people applying for law enforcement positions due to current political, social and cultural issues (McDougall, 2020). In order to increase public relations with law enforcement, it is recommended that all law enforcement organizations require their applicants to undergo polygraph examinations as part of the preemployment process. Additionally, this process should be uniform across the board, regardless if the law enforcement organization is at the local, state or federal level.

In one study at the University of Utah (Raskin et al., 2019), accuracy of polygraph in criminal investigations of confirmed deceptive and truthful cases were between 85% and 96% accurate. If all law enforcement entities use the same standardized methods and employ the empirical scoring system (ESS) method of test data analysis (TDA), the accuracy of the polygraph instrument increases (Nelson et al., 2011). With the effectiveness of polygraph results in criminal investigations and the accuracy of the standardized polygraph process it could potentially increase the quality of applicants that successfully complete the hiring process for each organization, while also increasing public perception of law enforcement.

Statement of the Problem:

There is a need for a uniform polygraph examination process to screen applicants for law enforcement positions. Due to asymmetric information, law enforcement agencies struggle to identify the best qualified candidates to hire higher quality law enforcement officers. With

current hiring practices there is a problem uncovering the asymmetric information (Hilal, 2017). Law enforcement applicants can potentially conceal information for perspective law enforcement employers in attempt to bypass certain procedures and attain employment. Current practices may have background investigations and other methods to circumvent these issues, but they can be easily sidestepped. Besides from the aforementioned hidden information, the current inability to have standardized testing methods of detecting the hidden information is equally as problematic.

This study will examine law enforcement and intelligence organizations and their hiring standards. The primary hiring standard this study will focus on is the utilization of the polygraph instrument for preemployment screening. The U.S. Customs and Border Protection is the only organization that is currently mandated by the United States Congress to conduct preemployment polygraph examinations on applicants for law enforcement positions (McSally, 2019). By reviewing the hiring standards and comparing relevant officer related crime data, provided by the Henry A. Wallace Police Crime Database, it should show a correlation to how polygraph effects officer related crime (Stinson, 2020). Additionally, a polygraph examination process should be uniform across all organizations to ensure the most accurate and valid testing procedures are employed. By applying the empirical scoring system method of test data analysis with an accurate polygraph testing format should result in a higher decision agreement (Nelson et al., 2011)

Purpose of the Study

The purpose of the study is to increase quality standards of law enforcement applicants, which will then increase the quality of the law enforcement departments. Additionally, the

research can be used to validate polygraph examinations as part of hiring practices, assist in repealing the Employee Polygraph Protection Act of 1988 (EPPA) and altering state employee polygraph examination laws (U.S. Department of Labor, 2020). The aforementioned purposes can be achieved by arguing the validity and effectiveness of polygraph in conjunction with identifying the current hiring practices and issues within law enforcement in the United States.

Significance or Implications of the Study

The hiring process for most law enforcement officer positions is extensive in order to ensure proper applicants are hired (Wood, 2017). The issue is that quality of the hiring process can be improved to ensure applicant integrity. When law enforcement officers are responsible for the safety of all communities, but the communities are more afraid when they are around, the quality of the officers should be questioned (Wald, 2020). By increasing the quality of law enforcement officers, the quality of law enforcement and public perception of law enforcement should increase, as well. The significance of this specific study is to identify the need to utilize a uniform polygraph screening method to reduce hidden information in law enforcement applicants, while also providing evidence of the validity of polygraph testing. The information from this study could increase the number of agencies that conduct polygraph exams and change the way they collect and report officer related crime data.

Methods

This seminar paper is based on qualitative and quantitative secondary data received from the Karmann Library's electronic databases and internet searches. The primary method of

research was conducted through the criminal justice abstracts on EBSCOhost. Additionally, internet searches were conducted to determine state laws on employee polygraph examinations.

Limitations

This study is limited to the data that is provided by law enforcement entities. Due to lack of officer related crime data provided by law enforcement agencies and a lack of polygraph examinations being utilized across the country, this study is small in scope with a limited data set. This study is also limited to the polygraph methodology and data that is available through academic resources. Due to the nature of polygraph examinations, many polygraph schools (i.e. Department of Defense National Center for Credibility Assessment) safeguard information pertaining to the polygraph examination process and only publicly distribute minimal data.

Assumptions

Creating a uniform polygraph examination process would allow for a streamline hiring method that could be adopted nationwide. By implementing a polygraph process as part of applicant screening, this should reduce asymmetric information and increase applicant quality. This would simplify law enforcement hiring methods and allow polygraph examiners from multiple entities to follow the same requirements. This would allow for better information sharing between agencies, expand polygraph reciprocity for hiring candidates with previous polygraph exams, and make it possible for a single polygraph examination database to be created for data sharing and statistical evaluation.

Overall, the aim of the study will be to explore current hiring practices conducted by law enforcement and intelligence organization, officer committed crime data in respect to their hiring

policies, and how a uniform polygraph program can be implemented. The objective of the study will be to recommend how a uniform polygraph screening process for hiring applicants can increase law enforcement officer quality and reduce officer related crime.

Section II

The review of the literature is comprised of four parts. The first section describes a brief history of the polygraph examination process and how detection of deception evolved throughout time. The second, third and fourth segments will discuss different law enforcement and intelligence organizations hiring methods with and without the use of polygraph. There will be a correlation made between employee criminal misconduct and the use of the polygraph instrument as a screening process within applicant hiring and aperiodic examinations for current employees.

History of Polygraph

Since the Bedouins of Arabia would use hot irons on the tongue of an accused deceitful person in 300 B.C., there have been many methods attempting to detect deception. It was not until Cesare Lombroso invented a device in 1881 that recorded blood pressure changes in response to truthful and deceptive answers that the detection methods were supported by scientific data. This invention was then improved upon by William Marston during World War I to question German prisoners of war. Marston, who later became the creator of the popular Wonder Woman comic, utilized this technology in criminal investigations and uncovered a positive association concerning deception and systolic blood pressure (Lewis & Cuppari, 2009).

In 1914, Vittorio Benussi discovered a direct link between respiration cycles and dishonesty. This led to the invention of the pneumograph tubes that monitor breathing patterns (Lie Detector, 2020). In 1921, John Larson combined the inventions that monitored changes in blood pressure and the pneumograph tubes that monitored respiration into a single device and named it the polygraph instrument. It was not until 1938, that Larson's understudy Leonarde

Keeler discovered galvanic skin response, or sweat gland activity, could be added for a third component to detect deception (Galianos, 2006).

From 1938 to 1990, many components of the polygraph instrument were improved for better chart quality; however, what remained the same was the device had to have paper and ink to constantly print the charts and examiners had to score the charts as the examination unfolded. In the early 1990's, the major manufacturers of traditional polygraph instruments started making devices and software to turn the analog world of polygraph into the new age digital format. The digitalization of the polygraph instrument allowed examiners to decrease the weight of their bulky polygraph instruments and increase the data quality on a digital screen. It also allowed for computerized algorithms for test data analysis, which provided a probability of truthfulness and deception (Peters, 2011).

The modern-day polygraph instrumentation is manufactured by a handful of companies, which are consistently providing software updates and improved components (Peters, 2011). Test data analysis and test question construction is consistently being monitored and evaluated by the National Center for Credibility Assessment, to validate the accuracy of the polygraph examination process. Additionally, polygraph examinations vary dependent on local, state and federal guidelines. Most importantly, polygraph examiners must be trained and certified before conducting polygraph examinations for any law enforcement and/or intelligence organization (Department of Defense, 2006).

Agency Hiring Standards

U.S. Customs and Border Protection

The U.S. Customs and Border Protection (CBP) is an agency that falls under the Department of Homeland Security. Under CBP's umbrella are Air and Marine Operations, Office of Field Operations (formerly U.S. Customs) and United States Border Patrol. All the departments that fall under CBP have the same hiring requirements for law enforcement positions. Civilian, non-law enforcement, positions do not have the requirement as law enforcement positions, but there are significantly less of them in the agency. CBP currently has a total of 60,000 employees in civilian and law enforcement positions (U.S. Customs and Border Protection, 2021).

CBP is the only agency that is mandated by congress to conduct polygraph examinations on every applicant for law enforcement positions. The Anti-Border Corruption Act of 2010 was set into place requiring the polygraph to be administered; however, allowed for specific applicants and current employees to obtain a polygraph waiver. This allowed everyone who was hired prior to the act in 2010 to bypass the polygraph (McSally, 2019). The agency established the Credibility Assessment Division, under the Office of Internal Affairs, which was later renamed the Office of Professional Responsibility.

The majority of jobs in the United States Government are announced through a career portal, www.usajobs.gov. CBP will post announcements on the portal for their law enforcement applicants, which consist of multiple-choice questions to be answered to ensure the applicants applying can lawfully hold the position. A qualified applicant pool is generated from the questionnaire results and those candidates go on to a screening/review phase by human resources personnel. Applicants are then assigned a testing site, based on their location. Each applicant is

required to obtain a passing grade on the entrance examination for each position they are applying to. In addition to the written entrance exam, a medical and fitness exam must be successfully completed (U.S. Customs and Border Protection, 2021).

Like all federal agencies, all CBP applicants that successfully complete the written test are required to fill out the Standard Form 86 (SF-86) or the e-QIP, which is the digital version of the SF-86. This form has numerous pages and requires the applicant to fill out their background information, previous jobs, previous addresses, criminal history, illegal drug activity, mental health, foreign contacts, and numerous other questions. Upon completion of the document(s), it is then submitted to agency personnel to review for errors. From there, applicants appear in front of a panel interview to determine their decision-making skills and suitability for employment with CBP. Upon receiving favorable results from the panel of interviewers, the applicants then move on to the polygraph process (U.S. Customs and Border Protection, 2021).

CBP conducts full scope polygraph examinations on all law enforcement applicants but may only require a counterintelligence scope polygraph for current employees or applicants who have previously passed a polygraph with another federal agency. The polygraph examination process utilizes 7-position test data analysis and the comparison question method. The formats utilized by CBP are Terrorism, Espionage, Sabotage and Corruption (TES-C) and Air Force Modified General Question Test (AFMGQT). The TES-C format is specific to CBP, since it is their reformatting of the traditional Terrorism, Espionage and Sabotage (TES) method that is widely used throughout the polygraph community (U.S. Customs and Border Protection, 2019). According to the Department of Homeland Security Office of the Inspector General (2018), approximately 28% of CBP applicants who were subject of the polygraph examination between 2013 and 2016 have passed their exam. The report additionally adds that 26% provided

disqualifying admissions in the pretest discussion of the polygraph examination, 41% failed the exam and only 5% had inconclusive results (Department of Homeland Security Office of Inspector General, 2018).

Upon successful completion of the polygraph examination, candidates move forward in the process to the drug screening exam and the background investigation is initiated.

Background investigators contact references on the SF-86/e-QIP and ask them a series of questions to ensure the suitability of the applicant for a law enforcement position. After all of the aforementioned steps are completed, the candidate may be awarded with an official offer to become an employee with the U.S. Customs and Border Protection. The hiring process is a multiple step procedure, which is consistent among most agencies in the federal government (U.S. Customs and Border Protection, 2021).

CBP has an intranet, wherein all the current employees can access official databases, CBP news is published and many other functions to support each employee. One of the functions of the intranet is a section that is identified as “Honor Betrayed.” This section reveals all CBP employees who have been involved in criminal activity within the agency. Between 2013 and 2014, there were 15 employees that conducted serious criminal activity and identified on the intranet (Government Attic, 2019). According to the Director of the Credibility Assessment Division of CBP, Alex Blais (2019), none of the employees who are on “Honor Betrayed” have been subject of a polygraph for their pre-employment screening. This could mean that they are not in law enforcement positions or that they were hired prior to the polygraph requirement.

With this rigorous preemployment hiring process CBP requires of every candidate, it could take over a year for an applicant to obtain a position as a law enforcement officer. The

process ensures each candidate is suitable for employment with CBP, but with a significant cost of time. After applicants are hired, they are not subject to anymore polygraph examinations and may not have to take any more physical and/or medical examinations, either. Only 87% of the applicants who apply for law enforcement positions with CBP make it to the polygraph and approximately 26% of the applicants who make it to the polygraph pass (Department of Homeland Security Office of Inspector General, 2018). The thorough screening process for applicant at CBP is a direct reflection of the low crimes rates and absence of crime with CBP employees that have undergone polygraph testing.

Defense Intelligence Agency

The Defense Intelligence Agency (DIA) is the leading intelligence agency for the Department of Defense. Headquartered at the Pentagon in Washington, D.C., DIA employs approximately 16,500 government employees throughout the world. The government employees make up only approximately 20% of the agency, with the remaining 80% being filled out by military personnel and contractors. Regardless of status within DIA, all personnel working in DIA spaces are required to undergo a hiring process and counterintelligence scope polygraph examination (Defense Intelligence Agency, 2020).

Government employees with DIA undergo a similar process, as with CBP. An announcement is released on either www.usajobs.gov or www.DIA.mil for each available position DIA is looking to hire. Applicants fill out the required questionnaires, their resumes are screened, they complete the SF-86/e-QIP and are required to undergo a written examination. DIA does not require their applicants to undergo medical and/or fitness evaluations. Upon successful screening of their resumes, applicants undergo a panel interview and are notified at a

later date if they are moving on in the process. If selected, they move on to the polygraph examination. Unlike the full scope polygraph examination that is administered at CBP, DIA only requires a counterintelligence scope polygraph (Defense Intelligence Agency, 2020).

A counterintelligence scope polygraph solicits if the examinee has ever been involved in terrorism, espionage, sabotage, compromising of classified information and if they are intentionally hiding any foreign contacts. A full scope polygraph examination asks the same questions as a counterintelligence scope polygraph, in addition to soliciting if the applicant has been involved in criminal activity. A full scope polygraph can take between two and eight hours to complete, wherein a counterintelligence scope polygraph can take between 45 minutes and four hours (Department of Defense, 2006).

All employees at DIA are subject to preemployment polygraph examinations, aperiodic examinations and random examinations. Every five years DIA employees will have their aperiodic polygraph examination in conjunction with their background investigation. Random polygraph examinations can occur for any employee but is specifically used for individuals in Special Access Programs (SAP) or Information Technology (IT) employees. Due to the unrestricted access IT employees have to all the sensitive information, they have more strict regulations (Defense Intelligence Agency, 2020). DIA has not published the polygraph test data analysis, nor the format of polygraph examinations utilized for preemployment and aperiodic screening.

DIA does not publish any statistics on criminal activity conducted by their employees, which they also do not solicit during the polygraph examination. What is published is if any of the employees, military members or contractors conduct espionage against the United States. Since the establishment of DIA in 1961, only five individuals working for the agency have been

charged with acts of espionage. In 1983, Waldo Dubberstein was charged with providing classified information to Libya; however, Dubberstein committed suicide before his court date. Dubberstein never submitted to a polygraph examination (Ayres, 1983). In 2018, Ronald Hansen was charged selling classified information to China. He successfully passed a polygraph previously, but did not take an exam after he started selling classified information to China (Department of Justice Office of Public Affairs, 2019). In 2019, Henry Kyle Frese was charged with providing his old roommate, a journalist, with classified information. Frese also successfully passed a polygraph examination, but compromised the classified information after his polygraph examination (Fredericks, 2019).

In 2001, Ana Belen Montes was charged with espionage against the United States. She was the lead intelligence analyst on Cuban affairs for DIA and was passing classified information to the Cuban government. She was trained by Cuban intelligence on how to “beat” the polygraph, which she did prior to being caught. At the time of her polygraph examination, DIA polygraph examinations were conducted with pneumograph tubes, electrodermal activity plates and a cardiograph cuff. Montes was trained in countermeasures to pass the polygraph by moving parts of her body that were not caught by the instrument, nor the polygraph examiner. After Montes was caught, a thorough review was conducted and movement sensors were added to negate the countermeasures in the future (Carmichael, 2007).

In 2019, Peter Rafael Dzibinski Debbins failed a polygraph at the Defense Intelligence Agency and admitted to transmitting classified information to Russian intelligence officers. Debbins was a former Green Beret in the U.S. Army and a defense contractor with DIA, wherein he has taken polygraph examinations previously. Debbins was charged with conspiracy to commit espionage, which he plead guilty to in 2020 (Weiner, 2020). It cannot be definitively

identified as the only element causing minimal acts of espionage, but it plays a significant role in deterring intelligence professionals from wrongdoing.

New York Police Department

The New York Police Department (NYPD) is the only law enforcement entity on this study that does not fall under federal hiring guidelines and regulations. Employing 36,000 law enforcement officers, the NYPD is the largest police department in the United States. Spanning over the five boroughs of New York City, NYPD is responsible for the majority of law enforcement operations. A large area of enforcement requires a substantial amount of law enforcement officers, which requires a significant hiring process to ensure all areas are staffed (New York Police Department, 2020).

The NYPD hiring process consists of six phases. The first phase is the initial written entrance exam conducted by the Department of Citywide Administrative Services. Second, a medical exam is required to ensure each applicant is healthy enough to become a law enforcement officer. Third, applicants must complete a written and oral psychological exam. The fourth phase is a background investigation to review any criminal history and/or family history with criminal activity. Fifth, all applicants have to pass the Job Standards Test, which is a series of physically demanding activities that have to be completed in a set amount of time. Lastly, applicants must successfully pass a drug screening test (New York Police Department, 2020).

With the rigorous hiring process the NYPD has each applicant complete, it lacks the requirement of the polygraph examination process. Under the New York Labor Law § 733 to 739, no employer can require an applicant to undergo polygraph examination (Public

Technology LLC, 2016). This was enacted after the Employee Polygraph Protection Act was enabled in 1988 restricting private businesses from requiring applicants to be subject to polygraph examinations (U.S. Department of Labor, 2020). Without the polygraph examination, NYPD's only method of uncovering concealed information is through interviews and background investigations.

The Henry A. Wallace Police Crime Database was created at the Bowling Green University to track data of crime committed by law enforcement officer that are nonfederal throughout the United States. According to Stinson (2020), there were 76 recorded crimes committed by NYPD officers between 2014 and 2015. The crimes consisted of murder, sexual assault, theft, and other profit motivated offenses. Out of the 76 crimes, 16 of them were profit motivated. These profit-motivated crimes have been a consistent research topic in for NYPD and have been an ongoing concern since studies in the 1970's. The most prevalent of these conducted by NYPD officers is receiving bribes, which makes up 18 percent of the profit motivate offenses (Stinson, 2020).

With 76 criminal offenses conducted by NYPD officers in a two-year period, it is significantly higher than CBP who had only 15 offenders in the same time span. CBP also has 60,000 employees in comparison to NYPD's 36,000 law enforcement officers. DIA had the least amount of reported criminal acts with only five since 1961. NYPD does not have polygraph examinations for preemployment screening and has the most crimes conducted by employees, CBP has the second most and they conduct initial preemployment screenings, and DIA has the slightest quantity of crimes committed and they have preemployment and aperiodic polygraph examinations.

Polygraph examinations on this scale prove to be an effective screening tool; however, both agencies in this study require their polygraph examiners attend the same federally mandated polygraph school, utilize the same polygraph equipment, and have quality control procedures. Having varying requirements for polygraph screening could drastically change the validity and effectiveness of polygraph process. With hiring standards in law enforcement varying across state, local and federal entities, there is a need for a uniform polygraph examination screening process that uncovers asymmetric information for law enforcement applicants.

Section III: Theoretical Framework

Signalling Theory

Law enforcement agencies throughout the United States utilize different methods of recruiting and hiring standards to get the best qualified candidates. The issue with finding the most qualified candidates is more difficult than checking boxes on a predetermined checklist. These organizations must find quality applicants that can meet a set of requirements, while also reflecting the communities they will work for. Law enforcement organizations spend approximately 85% of their budgets on personnel costs, which makes recruiting a vital interest (Hilal et al., 2017).

Each organization has a set of requirements each applicant must pass to acquire employment. Oral board, written examinations, background investigations, drug tests, and polygraph examinations are a few of these steps that test the status of each candidate. The argument lies on which of the aforementioned steps has legitimate predictors of how the applicant would perform as a law enforcement officer. When facing a potential problem of adverse selection, organizations look for a viable solution to ensure compatibility of goals for both prospective candidate and law enforcement entity (Hilal et al., 2017)

Signalling theory is based of the concept of signallers and receivers. In the case of law enforcement hiring, the signaller is the applicant and the receiver is the party responsible for hiring at the organization. The receiver looks for certain signals the applicant produces in order to show their potential quality. A signal is a costly accomplishment an applicant has earned. This could be educational background, professional certifications, physical fitness, or many other things that display their ability to conform to institutional setting, follow directions, or supports their work ethic and intent to become law enforcement officers (Hilal et al., 2017).

In Minnesota, law enforcement officers are required to obtain at least a two-year degree and their own Professional Peace Officer Education, which is the only state in the U.S. that has this requirement. This is an educational signal that shows the applicant is willing to put four years of effort and money to become a law enforcement officer (Hilal et al., 2017). Even with this high-quality signal, there were 35 criminal acts conducted by Minnesota law enforcement officers between 2013 and 2015 (Stinson, 2020). Although the police officers displayed high educational standards for employment, it did not negate criminal activity.

Education was the leading signal for law enforcement entities in Minnesota because it showed commitment and intelligence of incoming candidates; however, it does not prove an applicant is fit for law enforcement operations. When 40 chiefs of the largest law enforcement organizations in Minnesota were interviewed about what they were looking for in an applicant, the overwhelming responses indicated that interpersonal skills, honesty, and integrity were at the forefront (Hilal et al., 2017). An oral board can provide insight into interpersonal skills and a background investigation could provide a small amount of information regarding how others feel about an applicant's honesty and integrity, but asymmetric information could still exist.

Polygraph as a Receiver for Signals

Signalling theory identifies the concern for asymmetric information between signaller and receiver. The potential police applicant must overcome many obstacles throughout the hiring process, many of which are attempting to discover concealed information. During a background investigation, the receiving entity conducts interviews of people that the signaller has identified as someone they know well. These, generally, are people the signaller has known for awhile and/or has a positive relationship with. Signallers may hide individuals that may say

negative remarks regarding the signaller to conceal that information (Hilal et al., 2017). One method of revealing concealed information is conducting polygraph examinations.

Polygraph examinations are conducted to uncover hidden information of applicants who have completed all other prerequisites. The polygraph examiner and instrument act as a receiver for the signals being produced by the applicant. This reduces the concern about asymmetric information and allows the organization to make certain the signaller is of high quality. Although many applicants may signal their quality through education or certifications, the polygraph will act to clarify the quality of the information provided (Hilal et al., 2017).

In order to utilize the polygraph examination as a viable technique there are multiple hurdles to overcome. Polygraph must be a validated technique of detecting deception, examiners must be trained and certified, and implementation of the polygraph (i.e., formats, test question construction, test data analysis, etc.) should be uniform. Much like law enforcement applicants, polygraph examiners and instrument implementation vary throughout local, state, and federal levels of government. To confirm signallers are of high quality, the polygraph, as a receiver, must be of high quality as well. The next section will describe various techniques and technology that detect deception to uncover asymmetric information. In order to ascertain which method should be used in a uniform setting, prior research should support the validity of each process.

Section IV

Technology and Techniques

The framework of Signalling Theory identifies the need to discover asymmetric information; however, it does not provide a conclusive method of uncovering that information. Currently, there are many methods of detecting deception that are used by local, state and federal law enforcement agencies. On top of the technology is the techniques that vary between each organization. This will be a thorough review of the technology, techniques, and implementation of each device to identify the most valid practice for a uniform process to uncover asymmetric information.

One instrument utilized by law enforcement agencies is the Computer Voice Stress Analyzer (CVSA). The instrument was given this name by the National Institute for Truth Verification, Inc. in the late 1980's. The purpose of the CVSA was to determine if an individual was telling the truth or lying based on their voice. The principle of this specific instrument is that pitch parameters that are related with actions of the nervous system have involuntary responses based on deception. In the late 1990's and early 2000's, the Department of Defense Polygraph Institute, now the National Center of Credibility Assessment (NCCA), conducted research to determine the validity of the CVSA instrument. The researched revealed that inter-examiner agreements were low and the parameters of the CVSA were not valid or reliable discriminators of determining deception (Krapohl et al., 2002).

The other instrument that is primarily used to detect deception in law enforcement is the polygraph. Considered the "gold standard" of detecting deception, polygraph is used by state, local, federal and private organizations all over the world (Krapohl et al., 2002). In a law enforcement setting, polygraph can be used in the preemployment hiring process, during criminal

investigations and many other event-specific causes requiring the vetting of single or multiple issues (Nelson & Blalock, 2020). Unlike the CVSA, the polygraph is much more intrusive and has many components that require a qualified examiner to properly maintain and evaluate.

A polygraph examinee has to sit in a chair that has two pneumograph tubes that go around the chest and abdomen, a cardiograph cuff on their arm, electrodermal activity sensor leads for the fingers or palm, and numerous movement sensors. The examiner is required to evaluate each channel based on their specific brand of instrument, their training, the format they are currently using, and the TDA method approved by their organization (Crewson, 2001). Validity of the polygraph directly correlates to a uniform process where all examiners have similar parameters and instruction, which is not currently the case. Each state and local law enforcement entity has different polygraph requirements based on their state laws, availability of polygraph education, background of their polygraph examiners, and numerous variables that reduce the legitimacy of polygraph validity. Only in the federal government are all examiners required to attend the same academy at NCCA for a uniform education (APA, 2017).

The validity of polygraph instrumentation is specific to the type of exam conducted, TDA utilized and format of exam. According to Raskin et al., (2019), a study conducted between 1983 and 1985 portrayed polygraph accuracy in criminal cases to range between 95% and 96% for both confirmed truthful and deceptive cases. Criminal cases and screening exams are exceedingly different in scope and accuracy. The Comparison Question Test (CQT) format is widely used as a screening format, but research indicates accuracy varies greatly depending on the specific study. On study conducted in 1985 identifies that out of 10 different field studies, the accuracy to identify guilty responses was between 70.6% and 98.6% (Han, 2016). By changing the comparison question variable to a probably lie question comparison, the accuracy

increased to 94% in a study in 2011 (Ginton, 2016). With varying percentages and variables to determine validity of the polygraph, a more uniform process needed to be implemented to narrow the margin of error.

The first important variable to be evaluated is the testing format. Each valid format will be addressed and identified to determine the most accurate method for a uniform polygraph process. The primary testing formats used in polygraph are the TES, Directed Lie Comparison Tests (DLCT), AFMGQT, Law Enforcement Pre-employment Test (LEPET), Relevant/Irrelevant Test (RIT), Guilty Knowledge Test (GKT), and Concealed Information Test (CIT). Since GKT and CIT are not used in screening examinations and are criminal examination specific, they will be removed from the evaluation. TES and DLCT exams utilize directed lie comparison questions, AFMGQT and LEPET exams use probable lie comparison questions and RIT does not use any comparison questions (Nelson and Blalock, 2020).

TES and TES-C are DLCT's for screening potential candidates for law enforcement and intelligence positions. TES is a counterintelligence scope polygraph; wherein, TES-C is a full scope polygraph that also asks questions regarding the candidate's criminal history. Each DLCT contains relevant, irrelevant, and directed lie questions, which can be evaluated globally and numerically. A global analysis is conducted to evaluate how labile the tracings are, it provides a condensed view to determine what spots should be artifacted or evaluated, and it allows examiners to verify if there is any countermeasure activity (Krapohl & Shaw, 2015). An artifacted spot means that the data in at least two of the channels cannot be evaluated, making the entire spot unevaluable. Numerical analysis is conducted to assign a passing, failing, or inconclusive result of the exam, as a whole. TES/DLCT has a 90.7% accuracy rate of

determining truth and deception, making it the most accurate polygraph format currently in use (Department of Defense Polygraph Institute Research Division Staff, 1998).

Unlike TES/DLCT, AFMGQT and LEPET formats utilize probable lie, relevant and irrelevant questions. Using probable lie questions requires the examiner to build salience into the question in order for the format to work properly. Additionally, this format utilizes the spot analysis method of evaluation (Department of Defense, 2006). Global analysis is more difficult on AFMGQT and LEPET exams since each exam consists of multiple charts. Numerical analysis can be conducted utilizing the same TDA methods as TES/DLCT exams. Although numerous research studies have been conducted to verify the validity of AFMGQT/LEPET exams, it is most effective identifying deceptive examinees. The AFMGQT method has a 90.8% chance of identifying deceptive examiners, but only a 72.6% chance confirming examinees to be truthful (Crewson, 2001).

The Relevant and Irrelevant Test (RIT) is a format that does not contain any comparison questions, but only relevant and irrelevant questions. The format allows the examiner to adjust the question string as the test progresses as one long exam. Global analysis is the method of evaluation and no numerical evaluation can be effectively conducted. The method requires the examiner to look for a relevant question that has a more significant physiological significance than the others by the global analysis (Department of Defense, 2006). Unlike other formats, RIT conclusive calls are determined by the examiner and inconclusive calls are subjective.

According to a study conducted by Krapohl and Rosales (2014), RIT format has a 87.2% chance at identifying deceptive responses, but only a 37% chance at distinguishing truthful examinees.

The formats have been studied, tested, and used by many organizations around the world, but a uniform polygraph process requires a single format to be utilized. RIT does not contain a

numerical analysis and is subjective to the experience of the examiner. Additionally, RIT has a low accuracy rate for the truthful examinee. AFMGQT/LEPET exams have a high accuracy rate, but also require a more skilled examiner to properly set probable lie questions. The most accurate and easiest format to use is TES/DLCT exams. The format is a vital pillar in the polygraph structure; however, the TDA method of evaluation is just as important.

The primary TDA methods of evaluation are global analysis, 7-position, 3-position, and the Empirical Scoring System. Each method has been researched and is currently in use by multiple polygraph programs across the United States. In order to identify the most valid method for a uniform polygraph process, the TDA method should be easy to use and be supported by empirical research. The easier a method is to teach a polygraph examiner the easier it is to explain to non-polygraph professionals in a hiring management and legal settings (Nelson et al., 2011).

Global analysis is a zoomed-out approach of viewing the entire polygraph chart to determine if anything specifically stands out and if there are any anomalies. It is a secondary method of reviewing all formats, but the primary method of evaluation RIT. It allows the examiner to see how labile each channel is, what spots can be evaluated and if any countermeasures are being attempted (Krapohl & Shaw, 2015). Although effective in the aforementioned ways, global analysis is not an effective method of TDA to determine truth or deception of an examinee.

The next evaluation method is 7-position, which uses the “bigger is better” methodology. When comparing a relevant question to a comparison question, the bigger response in each channel gets a numerical score of -3, -2, -1, 0, +1, +2, +3 or artifact. If the channel in the relevant question has the larger response, the channel gets a score of -1, -2 or -3 depending on

the severity of the response; wherein, if the channel of the comparison question is larger the score would be +1, +2, or +3. The “bigger is better” methodology refers to the channel get a +1 or -1 on the larger response, but higher scores (i.e. +/-2 or +/-3) are evaluated if the responses are two, three or four times the amplitude of the comparative response. Each channel has a different rule of determining the larger score, but for the purpose of this study it is important to understand there are specific rules for assigning a numerical value more significant than +/-1 (Krapohl & Shaw, 2015).

Similar to the 7-position method of analysis, 3-position scoring revolves around the “bigger is better” method without expanding past -1, 0, +1 or artifact. Ratios and severity do not play a role in the evaluation of each channel in each spot, but the larger response gets the value. If the responses are similar and there is no visually discernable difference, the channel receives a score of a zero. The scores of determining truth or deception are the same for both 7-position and 3-position evaluation and a final call is based on evaluating each spot (Krapohl & Shaw, 2015).

The Empirical Scoring System (ESS) is another “bigger is better” method of evaluation with slight differences than 7-position and 3-position evaluation. The design around ESS was to develop a valid, accurate and easy to use evaluation method backed by empirical research. According to Nelson et al. (2011), numerous studies suggest that the electrodermal activity sensor is the greatest contributor to identifying truth or deception in polygraph, ESS was created to exhibit that research. The pneumograph and cardiograph channels still receive the same scoring as 3-position, but the EDA channel receives a -2, 0, +2 or artifact. This provides the ease of 3-position scale with greater conclusive rates than 3-position. Additionally, ESS allows the

examiner to evaluate the final call of the series based on a grand total and/or the spot total to increase the likelihood of a conclusive call (Nelson et al., 2011).

All numerical methods of evaluation are backed by research and are effective for polygraph evaluation; however, a uniform polygraph process can only utilize one method of TDA. The 7-position of evaluation yields a high rate of conclusive calls but is more difficult to properly implement. The 3-position method of evaluation is easier to implement but yields lower conclusive call rates. The ESS method of evaluation is both easy to implement and yields valid and conclusive results, which makes it the most effective method of evaluation for a uniform polygraph process.

Section V

RECOMMENDATIONS FOR UNIFORM POLYGRAPH EXAMINATIONS FOR PREEMPLOYMENT SCREENING OF LAW ENFORCEMENT APPLICANTS

Law enforcement hiring and practices will continue to occur throughout the world based on practices that each organization deems appropriate. There will also be ongoing political and ideological concerns about hiring practices and training of law enforcement officers, regardless of the process. The best way to mitigate concerns is reducing the variables of each department to have a set standard in hiring law enforcement officers. One variable that can be removed is asymmetric information through a uniform polygraph examination process throughout local, state, and federal law enforcement (Hilal et al., 2017).

A uniform polygraph screening process provides each organization a streamlined procedure to remove asymmetric information of perspective law enforcement applicants. Previously, the leading high-quality signal for law enforcement applicants was education; however, recent events in Minnesota have shown that education is no substitute for a quality applicant with adequate training. In 2010 and 2020, Minneapolis Police Department had officers that have been accused of killing suspects in their custody due to asphyxiation. In 2017, another Minneapolis Police Department officer pulled up to a suspected sexual assault scene; wherein, the police officer shot and killed the complainant when she ran to talk to the police officer (Montgomery and Noor, 2020). In April 2021, a police officer in Brooklyn Center, MN mistakenly fired her gun instead of her taser and killed a suspect (Siemaszko, 2021). These are prominent cases that occurred in the only state that requires law enforcement officers to have a college degree, which cause significant media coverage and civil unrest with law enforcement.

To increase public perception of law enforcement and quality of law enforcement officers, a uniform polygraph process is recommended.

The polygraph process requires competent and educated examiners to conduct ethical and professional polygraph examinations. Currently, all polygraph examiners are required to have a bachelor's degree, successfully complete a polygraph examination, and complete a polygraph examiners training course that is approved by either the state or federal organization (APA, 2017). For a uniform polygraph process, the polygraph courses should cover the same information over the same period of time. Additionally, the courses should be approved by a single governing body that ensures all courses maintain the same uniform standard.

A uniform polygraph examination process requires all sections of the process to remain the same throughout all entities, which are supported with empirical evidence of their validity. As discussed previously, the TES/DLCT format is the most accurate and easy to administer (Department of Defense Polygraph Institute Research Division Staff, 1998). Using a single format allows law enforcement polygraph examiners to become trained quickly and efficiently without sacrificing quality. The format of each exam is paramount but will also require the TDA evaluation method to be the same, as well. Utilizing the ESS method of TDA will also mitigate unnecessary variables. ESS has been proven to be the most valid TDA method that is easy to learn and lowest probably of inconclusive results (Nelson et al., 2011).

Lastly, the quality control process must be enacted in a similar fashion. Quality control is the unbiased review of the polygraph examination. This includes the charts, audio/video recording, admissions, and examiner notes. Having an unbiased examiner reviewing each case ensures ethical and professional exams are being conducted, while also providing a second perspective to catch any mistakes that may have been made by the initial examiner (Department

of Defense, 2006). Quality control also reviews admissions to determine if admissions are disqualifying in nature based on predetermined adjudicative guidance.

The Quality Assurance Program (QAP) is currently a federal program that has a group of quality control managers from the NCCA that conducts inspections of all federal programs to certify compliance with policy and practices. NCCA trains all federal examiners and maintains the standards of all federal polygraph components with the QAP. Not only does this provide continuity throughout the federal polygraph programs, but also allows polygraph reciprocity for examinees to move throughout different federal law enforcement agencies (Department of Defense Office of the Assistant Secretary of Defense, 2001).

It is recommended that the uniform polygraph process expand to all levels of law enforcement at the local, state and federal level. This recommendation is based on empirical evidence that supports each step of the polygraph process; however, the effectiveness of the process requires each topic discussed to be used in a uniform manner. By altering any part of the polygraph examination procedure would alter the validity and accuracy of the process. Keeping a uniform TDA, format, quality control/assurance, and polygraph examiner education could significantly reduce the asymmetric information by applicants allowing law enforcement hiring officials to choose the best qualified candidates (Hilal et al., 2017).

Section VI: Conclusions

Discussion

A polygraph examination being required for many positions within law enforcement and intelligence positions is a significant hurdle for many applicants to overcome. In order for that applicant to move on in the hiring process they have to obtain favorable results in the polygraph examination. A failed examination could mean years before they can apply for that position again, if ever. Inconclusive results can require additional testing or a complete halt to the applicants application process. This requires the polygraph process to be efficient, accurate and consistent.

The polygraph examination is currently the most effective way of identifying deceptive behavior from applicants (Krapohl et al., 2002). Increasing the accuracy and efficiency of the process requires changes to the currently approved methodology of conducting polygraph examinations. From components to examiner training, each element is important to maintain uniformity. Additionally, it is up to the organization and educational facility to make sure they are hiring and/or training individuals who have the knowledge, skills, and abilities to be a qualified polygraph examiner.

This paper encourages the future implementation of a uniform polygraph process utilizing ESS TDA, TES/DLCT format, standardized training for polygraph examiners, and universal quality control procedures across all law enforcement organizations. This provides higher standards for all organizations to attain, while also providing applicants with a more reliable polygraph examination. This also provides a greater chance for polygraph reciprocity for applicants and career opportunities for polygraph examiners.

Future Research

Research in polygraph science is limited to few scholars that publish the majority of all polygraph related articles. Future research of the already published articles by other sources would be required in order to validate current studies. The process of a uniform polygraph examination for local, state and federal law enforcement agencies will also require implementation and data collection to determine how well all the independent sections work in conjunction with each other. This will have to be done on a large scale across the United States in order for the sample size to be sufficient to support the implementation of a large-scale change in the law enforcement hiring process.

Additionally, the QAP would have to evaluate current American Polygraph Association accredited polygraph schools to make certain they mirror what is being taught at NCCA. This would allow for multiple schools to instruct new and existing examiners on the new methodology of polygraph examinations. This would then allow the QAP to study validity of the uniform polygraph process at each level and if there are any outliers, based upon instruction, implementation, region, applicant requirements, etc. This could be compiled into a central polygraph database that is published to the head of polygraph for each law enforcement organization across the United States.

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