

APA MAGAZINE

The Magazine for the Polygraph Professional

January/February 2016
Volume 49,1

**51st APA Annual
Seminar
Aug 28-Sep 2
Baltimore
Maryland**

**Personality Based
Interview P. 71**

**A Second Look
at Successive
Hurdles P. 115**



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Contents

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Steven Duncan
Walt Goodson
Mark Handler
Lisa Jacocks
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Deadlines

This issue closed on
January 31, 2016.

Deadline for March/April 2016
issue is March 31

Submission of Articles

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Membership News

- 4 APA Board of Directors
- 5 Editor’s Corner
- 11 In Memoriam
- 69 APA Election 2016

Training & Seminars

- 14 Polygraph Examiner Training Schedule
- 15 APA Annual Seminar Program
- 22 APA Registration Form
- 25 New Jersey Seminar Registration Form/Program
- 28 Kentucky Seminar Registration Form/Program
- 127 Polygraph Schools Accredited by The APA

From the Board

- 29 President’s Message
- 34 Board of Directors’ Reports
- 44 Secretary’s Report of Board Actions
- 45 Strategic Plan 2016-2020
- 52 Anti-trust Compliance Program

Regular Features

- 85 Practicum - The Risk of “Self-fulfilling prophecy” in polygraph tests” by Tuvya T. Amsel
- 93 Polygraph Abroad: Destination Russia by Yaroslava Komissarova and Said R. Khamzin

Special Features

- 71 Personality Based Interviewing by C. Gerald Carter
- 91 Remembering the Pioneers
- 105 The Myth of Numerical Scoring by Robert Peters
- 111 Editorial Review for Miscarriages of Justice- Actual Innocence, Forensic Evidence and the Law by Mark Handler
- 115 Five Minute Science Lesson: A second Look at Successive Hurdles Screening by Raymond Nelson

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EDITOR'S CORNER

By Mark Handler

Greetings from the editor's desk- I hope this finds my fellow members well and warm. For those who endured the recent rash of foul weather, we pray you and your loved ones are safe and sound. As I prepare to close out the January-February 2016 magazine I wanted to reach out and encourage you to think and write. Sometimes the mere act of writing seems daunting, especially if you have not done it in a while. Once you start, it gets easier- I promise. We have near 3000 members in this association, all of whom have something to share; an idea, an interesting case, a polygraph experience. This month three members with the better part of a century's experience share some of their thoughts. C. Gerald Carter, Robert Peters, and Tuvya T. Amsel provide some insightful ideas that can improve your performance and outcome. Advice

like this is priceless and is only available through their generosity and willingness to write. But they represent about 1/10th of a percent of the association – there are more of you out there.

I will make this promise, if you write it, I will help edit it. Please don't feel that your work for the magazine has to be rise to a level of journal-worthy content. We will require that scientific statements be backed by empirical evidence, we owe the association that much. But, interesting cases and experiences are simply that. They are anecdotal, and sometimes just interesting to read. For those foreign members we would love to have you contribute to our "Polygraph Abroad" series. I learned so much about how polygraph is used in other countries and it reminds me how small this big world can really be.



Thinking through Base Rates, Accuracies, & Test Outcome Confidence

In this magazine our current Chair, Raymond Nelson, writes for us on Bayes Rule (Bayes Theorem). As always, Raymond does a thorough job of covering the content in great detail. I wanted to take a moment and just write about something called the “base rate phenomenon”, and provide some examples. Ask yourself, how often do you consider how the base rate of the target can affect your confidence in the test result. Most of us just report the result and move on. But base rates can have an enormous impact on the confidence in the outcome. Let’s take a look.

To begin, we need to define ‘base rate’ for our discussion. Base rate will simply be how much of something we are looking for exists in the testing population. So if we are conducting specific-issue test for the police or an attorney, it would be what is the prior probability (prior chance) the examinee is actually guilty¹ of the crime. If we are screening (i.e. PCSOT or public safety) it is the proportion of the examinees who are lying to one or more of the test questions, so it is still the prior probability of Guilt.

Here are some examples of the interaction of test accuracy, base rates, confidence in test outcomes. I want to show you how this base rate phenomenon can change the way we might think about the test result. My hope is to get you thinking about the prior probability of the targeted behavior so you can better explain the test result. But we need a few operational definitions here before we start:

Positive Test Result- Deception Indicated (DI) or Significant Response (SR)

Negative Test Result- No Deception Indicated (NDI) or No Significant Response (NSR)

Sensitivity- the proportion of correct “hits” with the Guilty cases or true positives (TP)

Specificity- the proportion correct “rejections” with the Innocent cases (TN)

False Positive- an incorrect positive, DI, or SR decision on an Innocent subject (FP).

¹ I realize “innocent” and “guilty” are used as legal terms and are determined by triers of fact. But in scientific testing they are also used to denote actual ground truth state.



False Negative- an incorrect negative, NDI, or NSR decision on a Guilty subject (FN).

Example 1-equal accuracies and equal base rates of guilt.

First consider a hypothetical polygraph situation in Table 1. The actual state of the subject is under the Ground Truth column. We test 1000 individuals, 500 of whom are Innocent and 500 of whom are Guilty, so the base rate of Guilt is 50% or .50. Assume the test is 90% accurate with both Innocent and Guilty subjects. For simplicity, ignore the possibility of an inconclusive outcome.

Table 1. Contingency Table with equal accuracy (90%) and equal base rates (50%)			
Ground Truth	Pass Test	Fail Test	Totals
Innocent	450 (TN)	50 (FP)	500
Guilty	50 (FN)	450 (TP)	500
Totals	500	500	1000
Outcome Confidence	0.9 (NPV)	0.9 (PPV)	

The bottom row can be thought of as your confidence in the accuracy of the various outcomes (these proportions also have statistical names.) The proportion of correct truthful outcomes to total truthful outcomes (here, 450/500) is known as the Negative Predictive Value (NPV). The proportion of correct deceptive outcomes to the total number of deceptive outcomes is known as the Positive Predictive Value (PPV), here, 450/500). What is important to see is with equal base rates your confidence in the test outcomes equals the accuracy of the test for both Innocent and Guilty subjects. The results come from Bayes Rule (Theorem) which Raymond Nelson does yeoman’s work explaining in this edition of the magazine. If we were just testing one individual with a test that is 90% accurate for the Guilty and Innocent and a prior probability of Guilt of 50%, the confidence in the outcome is the same. We could be 90% confident with an NDI (NSR) or a DI (SR) outcome.

Example 2- equal base rates of guilt and different accuracies.



Let's change things up. Table 2 shows what happens when we have equal base rates or an equal prior probability of Guilt, but where the test has an accuracy of 95% with Guilty, but is only 85% accurate with Innocent. There are a number of techniques listed in the APA meta-analytic review where the sensitivity and specificity are different. This is not a 'bad' thing. It really depends on your testing goals and technique preference.

The not-so-intuitive finding from Table 2 is when the test is more accurate with Guilty, you have more confidence in Pass Test outcomes (NPV = .94) than you do in Fail Test outcomes (PPV = .86). If you have a test with higher sensitivity than specificity, the confidence in an NDI (NSR) result is higher! That's because the number of Guilty and Innocent subjects who pass or fail the test changes disproportionately due to the imbalanced accuracies. This is reflected in the trade-off in Outcome Confidence. If you were testing a criminal subject with a technique that was better at identifying Guilt, a passed test can be more informative than a failed test.

Table 2. Contingency Table with equal base rates (50%) but different accuracies (Guilty = 95%, Innocent = 85%)			
Ground Truth	Pass Test	Fail Test	Totals
Innocent	425 (TN)	75 (FP)	500
Guilty	25 (FN)	475 (TP)	500
Totals	450	550	1000
Outcome Confidence	0.94 (NPV)	0.86 (PPV)	

Example 3- different base rates of guilt and equal accuracies.

Our third example shows how a change in base rate (or prior probability) affects the confidence in outcome. Table 3 illustrates an example where the target of the screening test (or prior probability of Guilt in a diagnostic test) is low. Ten percent of the people tested are Guilty. We will assume a test with equal accuracy of 90% for both Innocent and Guilty subjects. In this situation your confidence in a Pass Test



outcome is extremely high (NPV = .99) but your confidence in a Fail Test outcome is low (PPV = .50). Half of the subjects who failed the test are actually Innocent. This is because we are testing mostly Innocent subjects with an imperfect test, so the number of false positive errors is high.

If an agency selects a very low base rate target, they can expect similar results – even with a highly accurate test. Or if they test someone who is more likely Innocent than Guilty, the same thing can happen. So if your agency is asking applicants a question that probably (hopefully) has a low base rate (i.e. physical acts of domestic violence) a passed test is way more informative than a failed test.

Table 3. Contingency Table with equal accuracy (90%) but a rare target (BR of Guilt = 0.1)			
Ground Truth	Pass Test	Fail test	Totals
Innocent	810 (TN)	90 (FP)	900
Guilty	10 (FN)	90 (TP)	100
Totals	820	180	1000
Outcome Confidence	0.99 (NPV)	0.50 (PPV)	

The opposite would happen if the base rate of Guilt was high. Criminal investigators usually refer suspects to polygraph who they feel are more likely than not to be Guilty of a crime. Table 4 shows the results of a 90% accurate test with a prior probability (or base rate of guilt) of 90%. Let’s say after a thorough investigation, the probability of your suspect being the culprit is now 90%. If that suspect fails your polygraph test, the confidence in outcome is quite high (PPV=.99). However, with this high base rate of Guilt, a pass test is uninformative. So base rate and prior probability can have a profound effect on the investigative actions, depending on the test result. A careful review of the prior probability of Guilt can really help you think through the test result with the referring investigator or the attorney.



Table 4. Contingency Table with equal accuracy (90%) but a high probability of Guilt (BR of Guilt = 0.90)

Ground Truth	Pass Test	Fail test	Totals
Innocent	90 (TN)	10 (FP)	100
Guilty	90 (FN)	810 (TP)	900
Totals	180	820	1000
Outcome Confidence	0.50 (NPV)	0.99 (PPV)	

Hopefully these contingency tables help you better wrap your heads around how base rates can affect the types and numbers of errors we make, which can affect the confidence in a test outcome. These are not necessarily the kinds of things a field examiner might think about. They are certainly not the kind of things most end-users or consumers think about.

My goal here is to introduce examiners to the concept of the base rate phenomenon in hopes of improving their understanding of the test outcome. Outcome confidence is relatively straightforward when the base rates, sensitivity, and specificity are equal. But once those move away from being balanced, things change. Even with a highly accurate test, a low or high base rate can markedly affect the confidence in the test result. In cases where the base rates, sensitivity and specificity are unbalanced, a pass and a fail don't mean the same thing, and don't carry equal weight.

Having a better understanding of these will allow you to better help others understand how much faith to have in your reported result. Also, having an understanding of these concepts can help you to better develop test targets and better select testing techniques.

The base rate phenomenon is sometimes referred to as the "base rate problem". It is only a problem if you fail to understand it and take it into consideration when assessing what the test result means and how it informs you. Thanks for taking time to read this. Feel free to contact me at editor@polygraph.org.



IN MEMORIAM

KRISTIN BARLAND

1943 - 2016



Kristin Buttenschön Barland, 73, daughter of Max and Liselotte Ackermann Buttenschön, was born on January 14, 1943 in wartime Berlin, Germany. To escape the bombing raids, as an infant she was evacuated first to the village of Obra in western Poland, then in January, 1945 to escape the advancing Soviet army, to Lomitz in what became the British zone of occupation, finally returning to Berlin in 1948 just as the Berlin Airlift was starting. Her childhood fantasy was that a huge dome of steel, concrete, and stone would cover her city to protect people. But the sun would still shine.

While attending the Free University of Berlin she went on a blind date with an American army officer, Lt. Gordon Barland on Sunday, July 28, 1963 and changed his universe forever. They married on May 22, 1964. She gave up everything - her family, friends, education, and homeland - to start a new life in America. She never looked back, developing a circle of close friends wherever they moved: Baltimore, MD; Eau Claire, WI; Salt Lake City (1969-1986); Anniston, AL; Columbia, SC; and returning to Salt Lake City in retirement in 2002 to be with their friends. She was a doer, not a complainer.

Kristin enjoyed working with her hands, painting and making pottery, decorating her home with works of art she made or purchased. Kristin sewed and made many of her children's clothes when they were young. She loved gardening and grubbing through the soil with her fingers tending her flowers and vegetable garden, which she decorated with whimsical gnomes, statuettes, carvings, and a water sprite. Kristin was an avid reader and longtime member of a book club. She was an excellent cook and devoted her life to nurturing her husband, their two children and three grandchildren.

Kristin was adventuresome and loved to travel, seeing Europe from Lapland to the Mediterranean; China and Tibet; by train from Beijing to Moscow; cruising the Caribbean,



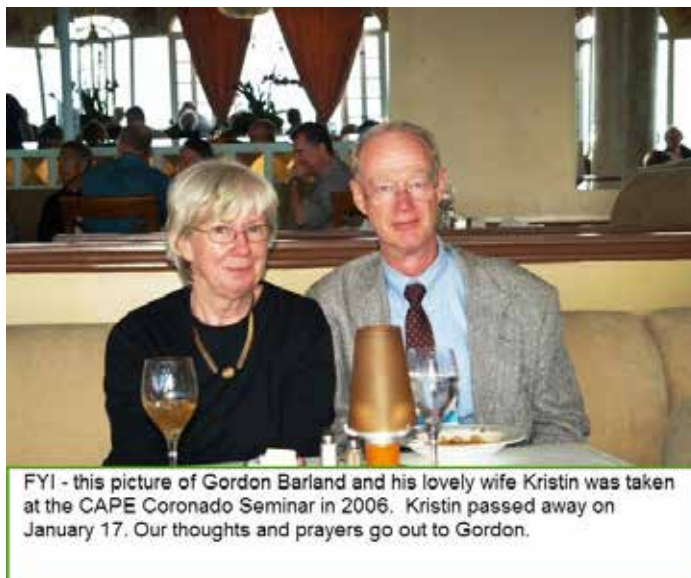
trips to South America, and northern and southern Africa.

On Sunday, January 17th she suffered a head injury in a fall and died a week later without regaining consciousness. We are indebted to the knowledgeable and caring neurosurgeon, nurses, and staff of the Intermountain Medical Center.

Kristin is survived by her husband Gordon, her son Ian (Meredith McCree), daughter Britt (Robert Dubil), and grandchildren Elsa and Ethan Dubil and Corwyn Barland.

Published in Salt Lake Tribune on Feb. 2, 2016

-See more at: <http://www.legacy.com/obituaries/saltlakatribune/obituary.aspx?pid=177539032#sthash.zmW8XQL0.dpuf>



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Polygraph Examiner Training Schedule

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The Kentucky Polygraph Association Polygraph Seminar

March 15-18, 2016 Gatlinburg, TN

New Jersey Polygraphists Training Seminar

May 23-25, 2016 Atlantic City, NJ

American Association of Police Polygraphists

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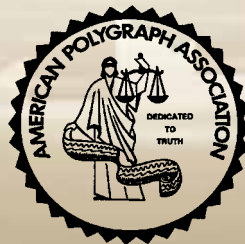
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SUNDAY, AUGUST 28, 2016

CLASSROOM A

1:00 - 3:00 PM

3:00 - 5:00 PM

SCHOOL DIRECTOR'S MEETING
1:00 - 3:00 PM
(ROOM TO BE ANNOUNCED)

APA WELCOME RECEPTION
6:30 - 8:30 PM



MONDAY, AUGUST 29, 2016	
CLASSROOM A (disponible en Espanol)	
7:30 - 8:00 AM Break Sponsored by: Baltimore Hilton	
8:00 - 9:30 AM OPENING CEREMONIES	
Call to Order -	Walt Goodson, APA President
Master of Ceremonies -	Michael C. Gougler, Seminar Program Chair
The National Anthem -	
Presentation of Colors -	
Pledge of Allegiance -	Walt Goodson, APA President
Taps -	Richard Pascuito, APA Member
Welcome to Baltimore -	Joe Bradley, Chief, FBI Polygraph Program
Invocation -	Barry Cushman, APA Director
9:30 - 9:45 AM Break Sponsored by: Baltimore Hilton	
9:45 - 12:00 NOON	
APA Standards of Practice	
Walt Goodson, APA President	
Patrick O'Burke, APA President-Elect	
12:00 NOON - 1:00 PM Lunch on your own	
1:00 - 5:00 PM	
SHIELD: Strength and Honor in Everyday Lawful Decisions	
Melvin Allick, Texas DPS	
Lacy Wolff, Texas DPS	
2:45 - 3:00 PM Break Sponsored by:	
(CONT'D)	
SHIELD: Strength and Honor in Everyday Lawful Decisions	
Sgt. Melvin Allick Texas DPS	
Lacy Wolff, Texas DPS	
BLUE JAYS vs. ORIOLES 7:05 PM	
Stadium just across the street	



TUESDAY, AUGUST 30, 2016

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 9:45 AM Discussion of Valid Polygraph Principles James B. McCloughan APA Director	8:00 - 9:45 AM PCSOT Model Policy Guillermo "Gil" Witte San Diego Police Department PCSOT hours	8:00 - 9:45 AM Building your SHIELD: Practical Application of Resilience Strategies Lacy Wolff, Texas DPS

9:45 - 10:00 AM Break Sponsored By:

APA ANNUAL BUSINESS MEETING
10:00 AM - 12:00 NOON
CLASSROOM A

12:00 Noon - 1:00 PM Lunch On Your Own

1:00 - 2:30 PM PLE Principles Mark Handler, APA Editor Pam Shaw, APA Past President	1:00 - 2:30 PM Current Issues in PCSOT Testing Benjamin Blalock Director, Academy of Polygraph Science PCSOT hours	1:00 - 2:30 PM APA Applicant Screening Model Policy Barry Cushman, APA Director
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POLYGRAPH INSTRUMENTS WORKSHOP
2:30 - 4:00 PM

CLASSROOM A
LAFAYETTE
INSTRUMENT

CLASSROOM B
LIMESTONE
TECHNOLOGIES

CLASSROOM C
ACXITON

CLASSROOM D
STOELTING
COMPANY

7:00 - 11:00 PM THE NATIONAL AQUARIUM

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WEDNESDAY, AUGUST 31, 2016		
7:30 - 8:00 AM Break Sponsored By:		
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8:00 - 12:00 NOON Current Issues: A Panel Discussion Moderator, Gordon Vaughan Walt Goodson Mark Handler Barry Cushman Jack Trimarco Joe Bradley	8:00 - 12:00 NOON TBA National Center for Credibility Assessment Faculty	8:00 - 12:00 NOON Reducing Inconclusive Exams Benjamin Blalock, Director Academy of Polygraph Science
9:45 - 10:00 AM Break Sponsored By:		
(CONT'D) Current Issues: A Panel Discussion Moderator, Gordon Vaughan Walt Goodson Mark Handler Barry Cushman Jack Trimarco Joe Bradley	(CONT'D) TBA National Center for Credibility Assessment Faculty	(CONT'D) Reducing Inconclusive Exams Benjamin Blalock, Director Academy of Polygraph Science
12:00 Noon - 1:00 PM Lunch On Your Own		
1:00 - 5:00 PM TBA National Center for Credibility Assessment Faculty	1:00 - 3:00 PM Interview & Interrogation: The Peace Model Andy Griffiths England, United Kingdom	1:00 - 5:00 PM PCSOT Question Construction & Target Selection Guillermo "Gil" Witte San Diego Police Department PCSOT hours
2:45 - 3:00 PM Break Sponsored By: TEXAS ASSOCIATION OF POLYGRAPH EXAMINERS		
(CONT'D) TBA National Center for Credibility Assessment Faculty	3:00 - 5:00 PM Law Enforcement, Federal, and Government Examiners: Starting a Private Practice and Keeping it Going George Baranowski APA Director	(CONT'D) PCSOT Question Construction & Target Selection Guillermo "Gil" Witte San Diego Police Department PCSOT hours



THURSDAY, SEPTEMBER 1, 2016

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 3:00 PM Quality Assurance Lt. Matt Mull, Texas DPS Lt. Dennis Westerman, Texas DPS Lt. Matt Hicks, Texas DPS TDLR credit	8:00 - 10:00 AM TBA Andy Griffiths England, United Kingdom <hr/> 10:00 - 12:00 NOON TBA - PCSOT Patrick O'Burke APA President-Elect PCSOT credit	8:00 - 12:00 NOON Domestic Violence Testing & Model Policy Rob Lundell PCSOT credit

9:45 - 10:00 AM Break Sponsored By:

12:00 Noon - 1:00 PM Lunch On Your Own

(CONT'D) Quality Assurance Lt. Matt Mull, Texas DPS Lt. Dennis Westerman, Texas DPS Lt. Matt Hicks, Texas DPS TDLR credit	1:00 - 5:00 PM Discovering Countermeasures Mark Hander, APA Editor Pam Shaw, APA Past President	1:00 - 2:45 PM Recent Cases: Interrogations & Confessions Gordon Vaughan APA General Counsel
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2:45 - 3:00 PM Break Sponsored By:

3:00 - 5:00 PM Psychological Issues that Affect Polygraph Exams Tiffany Collier University of Texas, Permian Basin	(CONT'D) Discovering Countermeasures Mark Hander, APA Editor Pam Shaw, APA Past President	3:00 - 5:00 PM APA Examinee Suitability Model Policy Raymond I. Nelson APA Chairman of the Board
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SCHOOL INSPECTOR TRAINING 3:00 - 5:00 PM
(ROOM TO BE ANNOUNCED)

APA ANNUAL BANQUET AND AWARDS
 KEYNOTE SPEAKER - RICK DEMPSEY - FORMER BALTIMORE ORIOLES CATCHER
 6:30 - 7:00 PM COCKTAILS
 7:00 PM DINNER



FRIDAY, SEPTEMBER 2, 2016

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 12:00 NOON Interviewing and Eliciting Information from Resistant Subjects Lori L. Hauser, PhD, ABPP	8:00 - 10:00 AM Contemporary Polygraph Theory: Evidence Based Answers to Common Questions Raymond I. Nelson APA Chairman of the Board	8:00 - 12:00 NOON Examiner Well Being: Dealing with Stress Tiffany Collier University of Texas, Permian Basin PCSOT credit

9:45 - 10:00 AM Break Sponsored By:

(CONT'D) Interviewing and Eliciting Information from Resistant Subjects Lori L. Hauser, PhD, ABPP	10:00 - 12:00 NOON Algorithm Development - Artifact Detection via Machine Learning and Statistical Learning Theory Raymond I. Nelson APA Chairman of the Board	(CONT'D) Examiner Well Being: Dealing with Stress Tiffany Collier University of Texas, Permian PCSOT credit
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12:00 Noon - 1:00 PM Lunch On Your Own

1:00 - 3:00 PM TBA	1:00 - 3:00 PM TBA	1:00 - 3:00 PM Testing the Juvenile Sex Offender Sabino Martinez, Co-Director Veridicus International Polygraph Academy PCSOT credit
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3:00 PM
CLOSING REMARKS
J. Patrick O'Burke
APA PRESIDENT





51ST ANNUAL APA SEMINAR

AUGUST 28 - SEPTEMBER 2, 2016

HILTON BALTIMORE

401 WEST PRATT STREET

BALTIMORE, MARYLAND 21201

ADVANCED REGISTRATION IS REQUIRED



(All room reservations must be made individually through the hotel's reservation department, or using the On-Line Group Page)

1-800-444-8667 - In house 443-573-8700

(insert On Line Group Page link)

APA FED ID #52-1035722

ROOM RATE: \$132.00, Single/Double occupancy, plus taxes (currently 15.5%), all reservations must be guaranteed by a major credit card or advance deposit in the amount of one night's lodging. Reservations not guaranteed will be automatically cancelled at the cut-off date.

CUT-OFF DATE for hotel reservation is 7/15/16 or until APA's room allotment is fulfilled. Number of rooms is limited. Individual departure dates will be reconfirmed upon check-in. (72 HOUR CANCELLATION NOTICE)

REGISTRATION HOURS: Sunday, 8/28/16 10:00am - 5:00pm
Monday, 8/29/16 7:00am

Seminar Sessions: Sunday-Friday, 8/28/16 - 9/2/16
APA Cancellations and Refund Policy: Cancellations received in writing prior to 7/15/16 will receive a full refund.

Registration fee includes professional instruction, seminar materials, refreshment breaks, Sunday Reception and Thursday banquet)

MONDAY NIGHT 7:05 PM
BLUE JAYS vs. ORIOLES
Tickets \$___ each
#___=\$___

TUESDAY NIGHT EVENT
TBA

THURSDAY NIGHT BANQUET
___ #attending
___ will not attend
___ vegetarian meal(s)

NAME: _____ PHONE: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

EMAIL: _____

NAME ON BADGE: _____ GUEST NAME ON BADGE: _____

ADDITIONAL \$50 FOR THOSE WHO PAY AT THE SEMINAR

PAYMENT RECEIVED BY JULY 15, 2016

___ \$400 - MEMBER/APPLICANT

___ \$550 - NON-MEMBER

___ \$175 - PER GUEST (Cannot Attend classroom presentations)

(Guest fee includes: Sunday Reception, Guest Brunch Monday and Banquet Thursday)

PAYMENT RECEIVED AFTER JULY 15, 2016

___ \$450 - MEMBER/APPLICANT

___ \$600 - NON-MEMBER

___ \$225 PER GUEST (Cannot Attend classroom presentations)

(Guest fee includes: Sunday Reception, Guest Brunch Monday and Banquet Thursday)

Your nametag is your admission to all events and activities. Please wear it at all times during the conference.

___ \$100 - Translation Equipment Fee (must be paid to use the translation equipment)

PLEASE MAKE CHECKS PAYABLE TO: APA

REMIT TO: APA, P O BOX 8037, CHATTANOOGA, TN 37414

CREDIT CARD PAYMENTS: Card Number _____

Expiration date: _____ cvv2: _____

Signature: _____

By signing here, I give my permission for my name and email address to be listed on the APA Mobile App

PLEASE CONTACT THE APA NATIONAL OFFICE IF YOU HAVE QUESTIONS

LISA JACOBS, MANAGER

1-800-272-8037

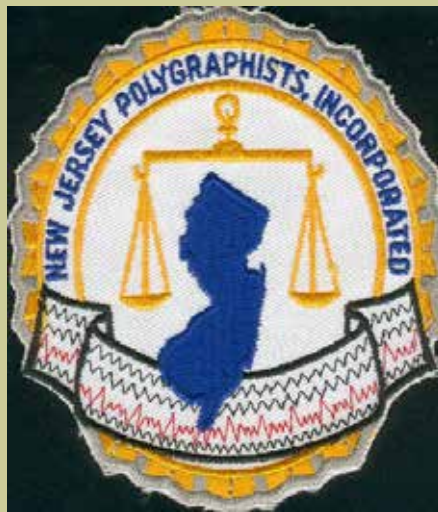
manager@polygraph.org



New Jersey Polygraphists

2016 TRAINING SEMINAR

“Evidence-Based Interviewing
Techniques”



*May 23-25, 2016
Tropicana Hotel and
Casino
1-800-THE-TROP
www.Tropicana.net*

New Jersey Polygraphists, Inc. is the only statewide organization of certified polygraph examiners in New Jersey. We are comprised of polygraph examiners in private practice, police agencies, and various government entities. All of our members use only validated test formats and follow APA published best practices.

New Jersey Polygraphists is a national leader in providing premier polygraph training at our annual seminars, which are offered at minimal cost to all examiners. Past speakers have included the leading names in polygraph research in the world including Dr. John Kircher, Dr. David Raskin, Don Krapohl, Dr. Charles Honts and Raymond Nelson.

New Jersey Polygraphists embraces and supports scientific research to improve and advance polygraph testing.

NEW JERSEY POLYGRAPHISTS:

Mark Conroy, President
Jim Shilling, Secretary
Mark Smith, Treasurer
Jerry Lewis, Board Chair

Evidence-Based Questioning Techniques

The methods most investigators use to obtain confessions have increasingly come under fire for being coercive, unethical and often unconstitutional. The results: Statements barred from criminal trials and civil jury awards in the millions of dollars. Fortunately, the science of eliciting information has greatly advanced in the past 20 years.

Honts, Handler, & Hartwig, LLC will present a brand new training to share those advances with police, investigators and anyone else involved in the questioning process.

This training will improve your skills by making you a **better, more effective, ethical and professional interviewer** while avoiding coercive tactics that lead to lost evidence and lost reputation in court.

HHH, LLC consists of Dr. Charles Honts, Professor of Psychology at Boise State University, Dr. Maria Hartwig, Professor of Psychology at John Jay College of Criminal Justice and Mark Handler, polygraph examiner, researcher, educator, and former police officer.

Registration Form

Cut and mail this section or send
this information to the address below:

Name:

Email:

Phone:

Agency/Company:

Make checks payable to:

New Jersey Polygraphists

Mail check and registration info to:

NJP

P.O. Box 50
Pompton Plains, NJ 07444-0050

Registration Information

Dates:

Monday May 23, 2016
8:00 a.m. to 5:00 p.m.

Tuesday May 24, 2016
8:00 a.m. to 5:00 p.m.

Wednesday May 25, 2016
8:00 a.m. to 12:00 p.m.

Registration Fee:

Non-members: \$350
NJP members: \$250

Registration includes:

- 20 hours of APA approved training.
- Lunch Monday and Tuesday
- All training materials
- Certificate of training upon successful completion
- Continental breakfast all 3 days
- Morning and afternoon snacks

NJP has secured a discounted room rate of \$69 per night. Room is not included in your registration and you must make reservations directly with The Tropicana Hotel. Mention NJP to receive the room discount.

This is a rare opportunity to get the highest quality training at an extremely affordable price.

Questions?

Mark Smith: 973-931-2028
Callmps@aol.com



“Price is what you pay.
Value is what you get.”

- WARREN BUFFET





2016 Polygraph Seminar

March 15-18, 2016 • Gatlinburg, Tennessee

Early Registration: \$175 (must be received by Feb. 26)

At the door: \$200

20 Hours of Quality Polygraph Training
Featuring Chuck Slupski and Pam Shaw



KPA Room Block:
Clarion Inn & Suites
1100 Parkway
Gatlinburg, TN 37738
Reservations: (800) 933-0777 ext 135
Reservation Code: KPA Polygraph Seminar

Kentucky Polygraph Association

Annual Training Seminar Schedule

Tuesday, March 15

Hotel Check-In

Wednesday, March 16

Time	Event	Instructor
7:30a - 8:00a	Registration	
8:00a - 12:00p	Test Question Construction	Chuck Slupski
	Testing Reported Victims of Sexual Assault	Chuck Slupski
12:00p - 1:00p	Lunch on your own	
1:00p - 5:00p	Testing Juveniles	Chuck Slupski
	Juvenile Case Reviews	Chuck Slupski
6:00p	Hospitality Room	KPA

Thursday, March 17

Time	Event	Instructor
8:00a - 12:00p	PPG: How it works and how to analyze it	Pam Shaw
	Test Data Analysis	Pam Shaw
12:00p - 1:00p	Lunch on Your Own	
1:00p - 5:00p	Counter Measures	Pam Shaw
	Current Polygraph Topics	Pam Shaw
6:00p	Hospitality Room	KPA

Friday, March 18

Time	Event	Instructor
8:00a - 12:00p	Extended Polygraph Testing Practices	Chuck Slupski

**This is a tentative schedule and is subject to change without notice*

SEMINAR HOTEL:

Clarion Inn & Suites
1100 Parkway
Gatlinburg, Tennessee 37738
Reservations: 800-933-0777 ext: 135
Reservation Code: KPA Polygraph Seminar

Room rates:

Deluxe Double Queen, \$75.00
Standard Single King, \$75.00
King Suite, \$125.00
Price of rooms does not include taxes and fees

Reservations must be made by February 26, 2016 to get the group rate and all reservations must be guaranteed by credit card

REGISTRATION FEE:

Early Registration Fee: \$175.00
At the door: \$200.00

Checks for early registration must be received by February 26, 2016

KPA does not have the capability to accept credit cards

Mail Check to:

Kentucky State Police
ATTN: Polygraph Section
100 Sower Blvd. Suite 102
Frankfort, KY 40601
Make checks payable to KPA, Inc.

If an invoice is needed for payment please contact the Kentucky Polygraph Association at 502-782-2024 and/or marvin.hayden@ky.gov

FIRST NAME: _____ MI: _____ LAST NAME: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE: (_____) _____ AGENCY AFFILIATION: _____

FAX: (_____) _____ E-MAIL: _____

President's Message

Walt Goodson

The desire of this article is to update you on a few of the items the APA Board is currently addressing. Thank you for taking the time to read it as well as the magazine. I hope they broaden your understanding of the APA and polygraph profession. I do understand your most valuable commodity is time. Thus, I've broken my message into topics to give you the opportunity to spend it as you see fit.

2016 Baltimore Seminar – Our 51st seminar and workshop is shaping up nicely and is on pace to be the largest seminar in our history. The dates of the event are August 28 to September 2, 2016. In this magazine, you will find a preliminary schedule of presenters and events as well as an article by Seminar Chair Mike Gougler that provides an overview of the seminar. You will also find information regarding the seminar at: <http://www.polygraph.org/apa-2016-seminar-update> Mike's message will elaborate on more of the intricate details of the seminar, but with the risk of repetition, I still want to touch on a few highlights I think will set this conference apart. The Baltimore Hilton, the host hotel, is a massive 757-room hotel overlooking Oriole Park at Camden Yards and has a commanding view of the baseball field. This hotel is another first class property you have come to expect with APA seminars, and if you like baseball, you will not find a better location. You can see an Orioles game from outside our conference rooms, our hospitality suite balcony and many of the hotel rooms. Additionally, we have reserved a block of tickets for a Monday night game vs. the Toronto Blue Jays if you wish to cross the street to enjoy the game close-up. Our Tuesday night event will include hors d'oeuvres and dinner at the National Aquarium. The National Aquarium is considered one of the premier aquariums in the world boasting over 17,000 species and has an annual attendance of 1.5 million guests. We will have the whole place to ourselves for an exclusive event. A very short walk beyond these activities is the Baltimore Harbor, which is rich in history, food and entertainment. However, the best part of the seminar is the depth of talented instructors who have committed to offering presentations. The title of this year's symposium is "Fortifying the Examiner." My commitment to the APA from the beginning was to do everything I could to make us





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better. This commitment includes setting APA members apart from other examiners by giving them the training and the tools to become better. Getting better means improving our polygraph skill as well as improving our wellbeing. Thus, as you will see, there are courses at this year's seminar providing an opportunity to improve mental and physical health. I look forward to another outstanding conference and hope to see you there.

APA 2016-2020 Strategic Plan – Included in this edition is the 2016 to 2020 APA Strategic Plan. This plan is similar to a document I presented to the APA Board when I began my term as president. The goal of that document was to bring clarity to this issues I wished to address during my term. As I worked on the paper, it occurred to me the APA was without a current plan and seemed to lack a clear vision of its mission and direction. As a remedy, I retitled the document the 2016-2020 Strategic Plan, and I sent it to Director Donnie Dutton, incoming President Patrick O'Burke and a few other distinguished APA board members for feedback. The document published in this edition is the result of what we believe needs addressing in the next five years. Since this plan seems to change every time we review it and as our understanding of the critical issues we face evolves, flexibility is key. Thus, this document is intended to provide vision and direction as we see things now, but it is adaptable to the goals and needs of our future leadership. I believe this plan will help keep our current and future leadership moving us forward.



APA Elections – You will find information regarding the 2016 APA elections inside this magazine as well as posted on our website at: <https://apoa.memberclicks.net/2016-apa-elections> APA Editor Mark Handler will be overseeing the integrity of this election process. I urge anyone who has ideas, energy and a desire to move this profession forward to seek office. I especially encourage the fastest growing APA demographic, our international membership to seek office. Our international members need a voice on the APA Board.

Now what I'm about to offer are my independent thoughts on a difficult and polarizing issue, and I will take the blame for asking this question. Has our current electronic voting process achieved its desired effect or would we be better served by our old process of holding our elections at the annual business meeting? Right now I'm just asking the question with a plan to have some healthy discussions about it with the APA Board of Directors and our membership. The last thing I want to do is seek change for change's sake. There are many pros and cons to both processes, but I'll leave you with the one concern that has caused me to ask this question. With the current process, our membership is invited to cast a vote based on a 500-word candidate statement and a photo. Unless you know the candidate, there is little chance for interaction or feedback to clarify a candidate's position on the issues. We don't have the luxury of televised debates, public appearances, and the media exposing the good, the bad and the ugly on our candidates. Thus, votes may be cast based on a photo and how well a candidate can write a compelling candidate statement. An opposing point of this argument is access to the polls. Not every member can attend a seminar, so it's difficult for those members interested in APA politics to cast their vote. But if this is the argument you wish to make, please consider that 548 members cast their vote last year for president-elect while we had nearly 700 in attendance at the 2015 Chicago seminar. Although to be fair, many in attendance at the Chicago seminar were not APA members. We have to determine what is more important to us, easier access to the polls or more informed voters. Who knows, there may be some middle ground, but I think this is an issue worthy of your consideration.

APA Website/Member Profiles – One of the original goals of the new APA website was to include member profiles on the site. Unfortunately, this feature has not come to fruition. Currently, the APA Board is exploring ways to offer such an option to our membership. We all understand that APA members are set apart from other polygraph examiners because of our high educational, ethical and professional standards. As a result of these high standards, much of the polygraph customer base seeks polygraph services from APA members. The National Office receives many calls each year because



our customers cannot find our members on our website. Hopefully, we will have this quickly resolved within our current website or via a secure application to link to our site that will perform this function. I hope we can offer member profiles that will provide opportunities for members to link their personal web pages and provide options to post qualifications, continuing education, and resumes if they choose. Rest assured, this will be an optional program our members will have to opt into to ensure we maintain the privacy of our members who prefer anonymity.

AAFS Conference – Several members of the APA Board and I will be attending the American Academy of Forensic Sciences (AAFS) Annual Meeting. The goal of our attendance is to have polygraph included in the conversation as the AAFS considers how to best include science into the legal system. I will report to you in more detail during the next magazine regarding our accomplishments at this event.

Compliance vs. Regulation – The 2016 to 2020 Strategic Plan includes a strategy to elevate APA professionalism by shifting from a regulatory mindset to one that encourages compliance with best practices. The idea behind this strategy is to urge our members to pursue best practices through expert guidance instead of punitive measures. During my four years of chairing the Ethics and Grievance Committee, I encountered several situations where grievances were filed against our members for alleged violations of APA Standards of Practice. In many of these situations, there was a plausible explanation for the non-compliance or the member was unaware of the infraction. The Committee found it very time consuming and stressful on our membership to go through the formal grievance process in these situations. Moreover, the grievances involving non-ethical violations rarely resulted in punitive action.

Part of the APA mission states a goal of promoting ethical and valid polygraph practices. If we can accomplish this mission by encouraging our members to conform to these practices without employing the formal grievance process, it's a win for everyone. The APA wins because the Ethics and Grievance Committee is not bogged down in the many hours of work required to investigate a grievance. It's also a win for the member that does not have to endure the stress of an APA investigation and face possible sanctions. Of course, the Ethics and Grievance Committee will continue to pursue sanctions against members when evidence exists indicating the member violated the APA Code of Ethics. In other words, the member did something immoral, illegal or unethical. The Ethics and Grievance Committee would also pursue sanctions when evidence exists indicating a member had repeated violations of the same Standard of Practice or refused to



comply with APA policy. However, in situations involving first-time infractions of APA Standards of Practice, members would be granted an opportunity to bring an acceptable remedy to the situation without sanction. Accomplishing this strategy requires the development of an Ethics and Grievance Committee Standard Operating Procedure (SOP) to establish a clear and consistent guideline of how to manage these violations. This new SOP is currently in the skilled hands of Director Steve Duncan, Committee Chair Bill Gillespie and a committee of APA veterans. I look forward to publishing this new SOP shortly.

Continuing Education – One of the 2016 to 2020 Strategic Plan's goals is to increase the percentage of members with college degrees as well as increase the volume of continuing education sought by our membership. My goal is to discuss a plan during the APA Winter Board Meeting and bring a motion before you that accomplishes this goal. As you read, the President-Elect and I are working on a strategy that would offer ascending levels of APA certificates. In a nutshell, this solution would provide our members with an opportunity to earn a series of certificates based on achievements such as degrees, continuing education, attending seminars, numbers of polygraph exams, APA committee service, and quality assurance reviews of their work products. I don't know what this will look like right now, but I do know that our members like and deserve to be distinguished for their dedication to improving themselves and the profession. Stay tuned for more!

National Office Staff – It's my pleasure to announce that the APA has hired an Assistant National Office Manager to fill a position that has been vacant for a few months. No one is more excited than National Office Manager Lisa Jacocks, who has been handling both jobs during this time. Ms. Stephanie Praire has accepted an APA offer and she will begin at the National Office in February. Ms. Praire comes to us with education, experience, and a solid work ethic and she will no doubt be an asset to the National Office. Having this additional staffing will allow the National Office an opportunity to focus on improving the efficiency and effectiveness of its business practices. Donnie Dutton, Steve Duncan and others have helped with this process over the past couple years. Now Gary Davis is working on a strategy to convert the National Office to an entirely electronic/paperless process. It's going to take a lot of scanning of old records to make this happen, but there is no question this will allow the office to operate in a much more efficient manner.

Thank you all for your support and your continued efforts to get better. I hope you have a great Spring!



Board of Directors' Reports

Patrick O'Burke **President Elect**

I hope that everyone is enjoying a happy and prosperous year following the holiday season. The various committees of the APA have been working aggressively since our conference in Chicago. President Walt Goodson has tried to coordinate committee work with specific objectives that comprehensively support the long term strategic plan for the Association. I was assigned two committees that are important in working towards this overall strategy. Ben Blalock is assisting me with chairing the Standards of Practice Committee, and Guillermo Witte is assisting with chairing the Post-Conviction Sex Offender Testing (PCSOT) Committee.

I anticipate that the workload for the PCSOT committee will be slightly less than in recent years. Much of the work has been handled with the development and implementation of the APA Model Policy for PCSOT. This Model Policy is important as it has helped to work towards standardization and establishing overall "best practices" not only for PCSOT, but in polygraph in general. Many of the principles in the Model Policy are

equally useful in other similar screening models and in the polygraph field in general. There continue to be a few recent changes in PCSOT. The APA has shifted the concept of "recognition" of course graduates to the School Director that actually teaches the forty (40) hour course. The APA will however continue to store training records of PCSOT completion for APA members.

This does not mean that PCSOT policy development is now complete. The judicial system is continuing to make decisions on PCSOT practices and polygraph that will impact this discipline. There was a recent New Jersey decision that is worthy of reading if you are a PCSOT examiner. The sex offender therapy field also continues to assess how much sexual history examinations contribute to risk identification. Significantly, some therapists report they are willing to treat offenders that are in denial. Clearly, polygraph examiners who do not have a close and collaborative relationship with the therapists and corrections, either probation or parole, need to realize how we function in supporting fellow professionals. Communication and coordination among the team members will continue to be critical in long term success.



The Standards of Practice is a rather large committee that I have tasked with some significant challenges. In 2012, the polygraph profession made some great strides to attempt some minimum level of standardization. Requirements to use research validated formats and scoring methods, and requiring the use of movement or activity sensors was a big step forward. The recent restructuring of the By-Laws and Standards of Practice at the conference in Chicago have furthered that effort. However, I think it is not clear how many examiners in the polygraph profession are in compliance with these recent changes.

It will be important if we are to be embraced by other professions that we have some degree of standardization and compliance with “best practices” that is evidence based in scientific research. Right now, I would bet that every one of us know some examiner who continues to use Relevant/Irrelevant test formats, and globally scans their charts to make their “call”. I bet that some of you even know examiners that continue to avoid the use of activity sensors. I see these things and wonder why. As a school director I have numerous opportunities to review polygraph charts and see some that are simply lacking in data quality and wonder how the opinion was made.

The requirement that examiners would routinely submit to some form of objective quality assurance for compliance with best practices and data evaluation seems simple, and also very appropriate. However, I have talked with numerous examiners who resist this concept. I have heard examiners state that no one else is capable of actually interpreting their charts. It should make you wonder. Agencies with large polygraph programs seem to be able to establish internal quality assurance easier than small agencies and private examiners.

Cost is certainly a factor for small businesses and government agencies in providing quality assurance programs. One possible solution is to require examiners to use the scoring algorithms we have to verify correlation with hand scores of the charts. Some examiners are not familiar with how to use scoring algorithms, or do not trust their use. Training and a Standard of Practice that required the use of a second examiner concurring with the first examiner, or the use of a scoring algorithm could help overcome some of these concerns.

Another idea is for our profession to ask scientists to develop truly “smart” scoring algorithms that can manage anomalies and artifacts, and identify counter-measure attempts. These “smart” algorithms



should be free and open source to instrument manufacturers. These “smart” algorithms should also be peer reviewed by scientists outside of our profession in order to provide credibility. We are probably not there yet, but I bet there is a solution that could be had. We simply need to ask for it.

Clearly, this will be a busy year for my committees as we discuss these ideas. We hope to bring you some new and fresh ideas that support our profession. If you have suggestions, then please take the time and contact us to give us your thoughts. We welcome them. If not, we look forward to seeing you in Baltimore at our next conference.

One more thing. We are now processing several Divisional Affiliates for Membership. This category of Membership was recently established. Please contact myself or the APA National Office for paperwork to start this process. The requirements for Divisional Affiliates are listed on the APA’s website. See you at a training conference soon!

Gary F. Davis
VP Private

During a recent lunch discussion with a group of Private and Law Enforcement Examiners, the topic of Countermeasures

(CM) came up. It was the consensus of those present CM were becoming more common and breathing was the CM of choice. Now, it has always been my opinion everyone taking a polygraph examination would control their breathing. After all that is what is easiest to control and many think slow rhythmic breathing helps them relax.

We all know the body requires a certain amount of oxygen to function. Breathing rate and volume are dependent upon that need. Often slow rhythmic breathing increases heart rate and blood pressure to compensate for reduced oxygen. When we don’t get enough air, the Hering Breuer reflex kicks in causing a deep breath and all is well. For examiners this is a distressing occurrence.

Has the number of “breathing countermeasures” really increased? I am a pack-rat. I have charts going back to early the 1980’s. So, I pulled a number of old examinations (all criminal) from the boxes and looked at the breathing. Surprise, I saw the same things occurring in the 1980’s as we find today. Maybe, what we are seeing are not “Countermeasures” but our imagination. Does the use of controlled breathing really affect the outcome of an examination?

Consistent and systematic evaluation of



charts can greatly reduce the impact of deliberate or systemic manipulation. To increase my accuracy and reduce the risk associated with manipulation, I follow the same process on every examination I conduct.

The use of computers has greatly enhanced our ability to accurately score charts. With computers we can view the entire chart on one screen. We can see anomalies, distortions, and consistent patterns on comparison questions (indicative of manipulation). We have the ability to isolate channels for scoring. My preferred method (using ESS) is to display just the channel being scored and those channels that might distort the tracing (breathing and movement). The Stoelting CPS allows the magnification of the tracings without altering ratios.

During the Global review of each chart, I note any obvious distortion. Using standard chart markings I'll add notations indicating they were added after data collection. I then play the synchronized video and chart listening for any outside noise or stimulus coinciding with any reaction observed on the chart. Over the years I learned when concentrating on the subject during data collection I miss outside noises coinciding with reactions and often those I do note on the chart may or may not coincide with a reaction.

I begin the numerical scoring of the data with the Breathing. I display both the abdominal and thoracic tracings on the screen along with the movement sensor. Using the zoom feature of the computer software I pair the relevant questions with the appropriate comparison question. This enhances the ability to see any differences in RLL and assign the proper numerical value. I then print the chart displaying just this information and store it in my scoring file.

Then it is onto the EDA. Since breathing can impact all the other recorded channels, I leave the most productive channel (either thoracic or abdominal) and the motion sensor on the display and add the EDA. Again, this allows for easy determination of the impact of breathing or movement on the EDA tracing. Computers allow us to drag one tracing over another and see if a deep breath or movement may have influenced an EDA reaction. I can post notes on this part of the chart and when they are printed, anyone can see the reason for any scoring decision I might make.

Moving onto the Cardio, I remove the EDA tracing from the display and scoring notes. It is a simple process to compare any Cardio reaction with the breathing and movement sensor. If no influence is detected, I assign the appropriate numer-



ical value. On the other hand, if movement or breathing impact the tracing, you know scoring that reaction is not appropriate. But I can score a relevant question against an undistorted comparison question. Again, I post notes on the charts to explain my scoring decisions. This chart is then printed and stored on the scoring file.

Since 1989 I have used computer instrumentation that included the Plethysmograph. In early days I used the Cardio Activity Monitor (CAM), a pseudo Plethysmograph. I found the value of the CAM to be very limited and never scored it. Today, the Plethysmograph is a valuable and scoreable source of information. Adding the Plethysmograph to your data collection increases the amount of scoreable data by 25%. The Plethysmograph is somewhat difficult to score by just looking at the tracing. The size of the reaction is determined by the length and reduction in amplitude of the reaction. Most of the time the differences are not easily determined. On other occasions the reactions are so dramatic a “blind man” could see them.

Moving on to the Plethysmograph, I again display the most productive Respiration Channel and the movement sensor, adding Plethysmograph. This allows me the opportunity to monitor any re-

lationship between an observed reaction and movement or breathing. Stoelting CPS depicts the size and duration of the reaction on the chart making scoring comparison questions easier. I again, post notes on the chart detailing any information relevant to the scoring decision. I then print the scoring chart and save it in the scoring file.

I score all my charts using ESS. My primary technique is the Utah Three/Four Question Directed Lie Technique. With three charts, this gives me 36 data points (Three Question Techniques) and 48 data points (Four Question Techniques) to form an opinion. The more information we have the better our decision making. One of the really nice things about the Utah technique is the ability to compare an undistorted relevant question to an undistorted comparison question. Many times those using countermeasures will apply them to one or two comparison questions. Using Utah, I can compare the relevant question to any undistorted comparison question. In addition, if all the comparison questions are all distorted there is an insufficient amount of data to form an opinion. The same thing applies if all the relevant questions are distorted, an insufficient amount of data exists to form an opinion.

Proper numerical scoring using all the



tools available can diminish the impact of perceived or actual manipulation by the subject. As our client base becomes more sophisticated, we must work harder and smarter to provide reliable and accurate results. In reality, our opinion should be based upon the magnitude and distribution of the reactions published research found occurring when individuals were truthful or deceptive when answering the relevant questions.

Just because we see or believe we see manipulation does not mean the subject is lying. He or she may just be afraid and a victim of the hype found on the Internet.

The information contained herein is the opinion of the author and does not necessarily reflect the opinions of the APA.

George H. Baranowski
Director

Hi everyone, and let me take this opportunity to wish you a most happy, healthy and prosperous new year. We can get back to the business of continuing positive progress in our day to day responsibilities. As 2015 came to a close at the 50th Year Anniversary conference in Chicago, it was rewarding to see the accomplishments that had

come about in this past year. It was also remarkable to recognize the positive direction our profession continues to take. Regarding the Board of Directors, we welcome two familiar professionals to the board, Gary Davis and Steve Duncan, and significantly of course are the installations of our new President Walt Goodson and President Elect Patrick O’Burke. Raymond Nelson has moved into the position of Chairman of the Board. In judging from the board meetings I’ve attended thus far, both in person and during Teleconferences, it is obvious that there are a number of constructive ideas that are being explored and will be undertaken in this coming year. Also, I want to note that there have been well deserved compliments to our Editor in Chief, Mark Handler and his staff, for their competence and proficiency to construct the dynamic appearance and content of our *APA Magazine*. I have been re-appointed by President Goodson to serve as General Chair of Membership Services Committee, and in turn, I have asked Ben Blalock to serve as Committee Chairman. Please know that our team will continue to provide the care, concern, proficiency and professionalism that this committee requires.

2015 was seen by some as a year of revisions. For one, I’m sure you have heard by now of the outstanding job Director



Jamie McCloughan and his committee have accomplished by revising the APA School Accreditation Manual. However, you can't fully recognize the dedication Jamie put into this and other such projects unless you see or hear him in action.

In regard to our new President Walt Goodson, I personally look forward to working with him, and to following his guidance. I have had the pleasure of getting to know Walt over the past years and recall that we both came onto board in the same year. I have witnessed his knowledge of our profession, his insight, and good common sense explanations.

In moving to another issue, I'm sure many of the articles written in our magazine have given, or at least should have been giving compliments to the obvious efforts of Seminar Chairman Mike Gougler and our Office Manager Lisa Jacocks, for the way they are able to orchestrate our conferences. The 2015 50th Anniversary Conference held at the Palmer House in Chicago turned out not only exceptional as expected, but it now holds the record for the largest attendance of all APA conferences.

But now, with an eye to our 2016 Conference in Baltimore, Maryland, August 28th, to September 2, 2016. In addition to great speakers and other conference

surprises that we've gotten to expect each year, Baltimore will have its own special attractions. First, the conference is being held at the recently constructed Baltimore Hilton, which is located in Baltimore's Inner Harbor. Restaurants, shopping, museums and entertainment are all around this Inner Harbor setting. Something that I found quite rare and quite fascinating was that the hotel is adjacent to Camden Yards, home of the Baltimore Orioles baseball team. As a matter of fact, when the board met their last year to view the establishment, it was noted that from the room that will most likely be utilized as a social function room, the entire wall of this room has plate glass windows, and this view actually overlooks the Camden Yards ball field. You could actually watch a game in progress, scheduling of course permitting.

Baltimore is located near Washington D.C., and like most major properties in this area experiences high standard room rates and federal lodging per diems. Though much are reduced from standard rates at the Hilton, after considerable discussion and negotiation, the APA was able to secure a guaranteed lodging rate at well below the current federal government per diem for this venue. Along with the other concessions made by the Hilton Hotel, it would be difficult for a member to come close to duplicating the



value that members and their guests will receive at this property while attending the 2016 annual seminar.

In closing I want to thank each of you for your dedication to not only the American Polygraph Association but for your dedication to our profession. Remember to call or email me (email is better) if you need anything.

Steven Duncan
Director

Fellow APA Members, I hope everyone had a great Christmas and New Year's. I made several New Year's Resolutions including more work outs and healthier food. As the end of January approaches, those have fallen by the wayside so on with the year.

Your Ethics and Grievance Committee is busy at work with a couple of Complaints under Investigation and work started on a new Policy for the Committee.

As a Board Member I have been involved in teleconference meetings and evaluating and commenting on some new concepts and ideas presented by others. I have also assisted several Members with concerns and questions.

I want every Member to know, I am avail-

able to assist in any way I can. If you have new ideas, questions or complaints, I will be glad to listen and discuss them with you. As with a recent communication with a Member, I will take your ideas and / or suggestions forward even when I do not particularly agree. I am here to represent you.

If I can assist any Member, feel free to call or email me.

Mike Gougler
Seminar Chair

Fellow APA Members,

The 51st annual APA seminar will be held in Baltimore, Maryland from August 28 through September 2, 2016. The Hilton Baltimore is the host hotel. We are planning an outstanding event that emphasizes a "Fortifying the Examiner" theme. The classroom schedule is on the APA website, along with the registration form. Please make your reservation early for lodging and the APA events, as we expect a large turnout for this seminar.

We will again have several different events planned for after hours. On Monday, August 29th, the Toronto Blue Jays play the Baltimore Orioles at 7:00 pm. The ballfield is next door to the hotel. Tickets are limited and will be sold on a



first-come first-served basis. The Tuesday night event might be the best we have ever scheduled. It is a tour and dinner at the National Aquarium. The event will be from 7:00 pm to 11:00 pm. Hor d'oeuvres will be served during the tour with a buffet dinner concluding the evening. The National Aquarium is an amazing facility. It is located less than one mile from the hotel. Transportation will be on your own so you can set your own schedule. A cash bar will also be available.

Our banquet speaker will be former Baltimore Orioles catcher and current sports personality, Rick Dempsey. Rick is a comedian, singer and all-around great entertainer. We promise that this year will be well worth attending the banquet.

A wide variety of topics will be scheduled during the training sessions. Individuals will be able to complete the required hours for PCSOT and TDLR. Once again, a Spanish interpretation will be provided in classroom A from Monday morning through Friday afternoon.

Do not forget for those arriving early, we will have training sessions beginning on Sunday, August 28th at 1:00 pm.

Please forward nominations to Donnie Dutton for the annual APA awards. We will continue to publish the presentations

and events on the mobile app. The mobile app will have some capabilities that will enhance your seminar experience.

Thanks again to all the vendors for their support of the APA and its membership. I cannot wait to share the 2016 APA experience with you.

Jamie McCloughan
Director

As I indicated in my last report, the major task for the Education Accreditation Committee this year was to research the possibilities of allowing students attending an APA accredited program to attain college credit for their basic polygraph education and training. I will keep my report to you short and try to summarize what my committee and I have found thus far.

There appears to be two accrediting entities that align with our education and training programs missions, the Accrediting Commission of Career Schools and Colleges (ACCSC) and the Council on Occupational Education (COE). The ACCSC appears to offer a broader solution for certificate and degree granting than the COE, as the ACCSC can accredit programs up to a master's degree and the COE terminates at the associate's

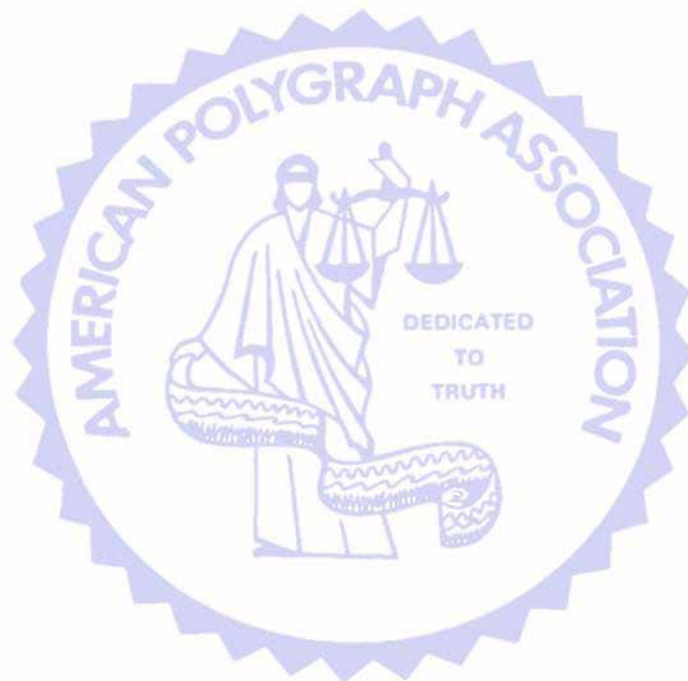


degree. Both are comparable in costs. Fees are associated with many tasks ranging from initial accreditation to annual maintenance dues. It appears that a program would pay somewhere in the ballpark of \$11,000 or more for initial accreditation. After that, they would pay between \$900 and \$9,000 in annual fees. Then there are the reaccreditation fees (which vary), substantive changes fees (when a program changes the accrediting body deems necessary to be reviewed), reprocessing of insufficient paperwork fees (when a program sends an improperly completed form in), etc.... This is just the financial side of the process. There also is the time required to prepare for accreditation, getting inspected, and

maintaining the required standards set forth.

Given the aforementioned findings, it will take a significant ongoing commitment from current education and training programs to attain and sustain this type of accreditation in the future. The committee and I will be addressing these issues with program directors to decide what our next step is in this endeavor.

As always, may those who are fighting for our freedom against threats, both foreign and domestic, be safe, and have God-speed in their return to friends and loved ones.



Secretary's Report Of Board Actions

Submitted by Lisa Jacocks

This report covers the time period of December 2015 and January 2016

December 17, 2015 - teleconference

- Approved the accreditation of the Korean Supreme Prosecutor's Office Polygraph Academy retroactive to September 7, 2015
- Approved the accreditation of the Escuela International de Poligrafia Militar retroactive to September 14, 2015
- Approved the continued accreditation of the New England Polygraph Institute retroactive to September 14, 2015
- Approved the continued accreditation of the Tudor Academy retroactive to October 5, 2015
- Approved paying the expenses of up to 4 board members to attend the AAFS seminar February 22-27, 2016

January 14, 2016 - teleconference

- Approved the hiring of an Assistant Office Manager
- Approved increasing the allotted room block in Baltimore by 25%



American Polygraph Association

Strategic Plan 2016-2020

APA Mission

The American Polygraph Association (APA) is a professional organization that exists to provide training, best practices, and professional resources for the continued growth of ethical and evidence-based detection of deception through the use of the polygraph. The APA membership consists of professional polygraph examiners, educators and researchers who share a common commitment to the public interest through the development, communication and promotion of valid and ethical polygraph practices.

Strategic Plan Goals:

The broad goal of the American Polygraph Association (APA) 2016-2020 strategic plan is to further the APA mission through improved customer service, professional influence and raising educational standards.

Customer service will be accomplished through improved and expanded communications between the APA and its membership, enhancing APA web capability and the refinement of APA business practices. The improvement of business practices will include the development of comprehensive policies and standard operating procedures as well as transferring many routine operational duties from the Board of Directors (BOD) to a centralized National Office staff. The measurement of success for this goal is increasing online interaction by the membership and decreasing operational expenses.

Influence will be accomplished through the growth of a professional membership, showcasing the polygraph as a critical public safety tool and strengthening the professional standards of the BOD and the Association. Advancing the standards of the Association will be accomplished through industry partnerships that emphasize voluntary compliance over regulation. The determination of success for this goal is to increase in membership, continuing education, participation in APA committees, along with fewer complaints investigated by the Ethics and Grievance Committee for alleged violations of the APA Standards of Practice and Code of Ethics.

Educational standards improvement will focus on methods to increase continuing education among APA members and increase the percentage of polygraph examiners entering the profession with college degrees. Raising educational standards will be accomplished by offering and incentivizing continuing education opportunities through tiered certifications and continuing to refine school accreditation processes. The determination for success for this goal is to increase in the number of polygraph examiners entering the field of polygraph with college degrees and increases in the number of hours of continuing education obtained by our members each year.



To accomplish these broad objectives, the 2016-2020 BODs must develop a comprehensive understanding of APA functions and use their diverse expertise to incorporate recommendations for improvement. The following strategies will be the primary focus in accomplishing the broad objective:

- A. Increase the strength and influence of the APA through the intelligent growth and retention of APA membership.**
- B. Raise the level of the polygraph profession through formal and continuing education as well as continuing the effectiveness of APA school accreditation.**
- C. Increase the overall efficiency and effectiveness of the Board of Directors and National Office staff through refining business practices and developing comprehensive standard operating procedure manuals.**
- D. Improve the image of the APA and the polygraph profession by promoting polygraph as an essential public safety tool.**
- E. Improve the professionalism of APA membership through a shift from a regulatory mindset to one that recommends and encourages compliance with best practices.**
- F. Ensure international member compliance with APA Standards of Practice and Code of Ethics by empowering the international membership to self-regulate.**

Strategic Plan

A. Increase the strength and influence of the APA through the intelligent growth and retention of APA membership.

1. From 2013 to 2015, the APA suspended 1,917 of its members for failing to renew their membership dues. This indicates an average of 24% of APA members didn't renew their dues for each of these years. Possible reasons for members failing to renew include poor communication between the APA and its membership, a complex renewal process, costs, and lack of necessity. The goal is to reduce these non-renewals by 3% per year for the next five years to drop the non-renewals to 10% per year by 2020.

Strategy

- Ensure the APA has the web capability to push notifications to members when their memberships lapse. (Complete by 2017)
- Ensure the APA online renewal processes are as simple as possible. (Complete by 2017)
 - Require valid email addresses of all members to ensure the APA has a method of contact with each member.
 - Require all members to all sign/certify an annual document indicating:
 - A valid phone, mail and email address
- Determine the feasibility of discounts for multi-year renewals. (Complete by 2017)
- Incentivize current membership by offering web profiles that automatically suspend when membership dues lapse. (Complete by 2017)



- Web profiles must be optional and must default to being a secure profile.
 - For consistency, a policy should be developed that defines the timelines/conditions when profiles are suspended and, if possible, the suspension should be automated by the APA website.
2. The membership committee currently exceeds its capability and/or authority to conduct background investigations on new members.

Strategy

- Develop and implement a process for submitting annual membership dues invoices that require members to report any conviction of a felony crime punishable by one or more years confinement. (Complete by 2018)
 - This reporting must be included in policy as a condition of membership.
3. A substantial percentage of APA members do not renew their membership beyond the first year. It has been alleged that examiners become an APA member and then subsequently display their APA membership certificate for many years after their membership has expired. This practice devalues paying APA members and limits the APA's ability to ensure compliance with professional standards.

Strategy

- Develop and issue APA certificates with expiration dates. (Complete by 2017)
 - Develop or modify the first certificate issued to new APA members as a Provisional certificate that has a one-year expiration date. Issuance of the standard APA membership certificate shall occur after the payment of second-year membership dues. (Complete by 2016)
 - Develop an automated strategy to distribute APA membership certificates efficiently. (Complete by 2018)
4. New polygraph examiners have reported selecting membership with other national and regional polygraph professional organizations over membership with the APA. Reasons for these new examiners not joining the APA include not wanting to enter the association as an associate member and the perception that the APA does not fulfill their needs as a polygraph examiner.

Strategy

- Explore offering incentives to potential new members that are advantageous to both the new member and the association such as discounted first seminars with a free one-year membership in the association. (Complete by 2017)
- Identify and implement active recruiting strategies to encourage new polygraph students to join the APA such as recruiting packages and presenting the benefits of APA membership to primary polygraph schools. (Complete by 2018)



- Identify ways to make the APA Seminar more appealing law enforcement and government polygraph examiners. (Complete by 2018)
 - Consider offering Law Enforcement CE credits at APA Seminars.
 - Consider offering more leadership, communications, fitness/wellness, interview, other LE specific courses.

B. Raise the level of the polygraph profession through formal and continuing education as well as continuing the effectiveness of APA school accreditation.

1. The current APA strategy of having separate categories of Full and Associate Member does not appear to serve its designed purpose of increasing college degrees within the APA or the polygraph profession. This strategy may be having an unintended consequence of discouraging APA membership from the domestic law enforcement (LE) demographic. This loss of LE members may weaken the APA's ability to influence the profession's largest demographic.

Strategy

- Consider eliminating the Associate Member category and reclassify all members based on factors beyond a college degree. (Complete by 2017)
 - Consider eliminating the "Full" from the Full Member title and instead title members as Members and Associates similar to the American Psychological Association membership model. (Complete by 2017)
 - If this model is feasible and the only difference is holding office, consider allowing this restriction to lift after five consecutive years of membership.
 - Find ways to incentivize schools to select students with four-year degrees. (Complete by 2019)
2. Continuing education within the profession has not reached its full potential. The APA must encourage and incentivize continuing education as one of its most important goals. Therefore, the APA must find innovative ways to increase the demand for continuing education and expand advanced training offered by other polygraph associations and APA accredited polygraph schools.

Strategy

- Evaluate ways to incentivize continuing education through providing tiered proficiency certificates similar to law enforcement requirements (basic, intermediate, advanced, master/expert) (Complete by 2017)
 - Consider alternatives to CE hours such as the submission of work products to quality assurance, formal education, and years of experience to achieve these proficiency certificates.
 - Consider requiring CE hours to be APA certified. (Only offered by professional polygraph schools and associations)
 - Consider requiring specific core training courses to maintain membership status.
- Find an improved web-based method or software to track CE hours. (Complete by 2018)



- This tracking mechanism should allow members to self-report and verify their CE hours in a secure and accountable manner.
3. The added burden of continuing education oversight and the increasing demands of school accreditation is too much responsibility for a single member of the BOD; therefore, shifting these duties to full-time staff will be essential to continue maintaining high educational standards.

Strategy

- Evaluate the feasibility of hiring a full-time person or ex-officio member to manage the school accreditation/inspection process as well as manage APA continuing education. (Complete by 2018)

The APA should consider certifying educational competencies.

Strategy

- Form a committee to develop an examination that measures our member's knowledge of validated principles and have this examination certified independently. (Complete by 2019)

C. Increase the overall efficiency and effectiveness of the Board of Directors and National Office staff through refining business practices and developing comprehensive standard operating procedure manuals.

1. Current operations such as paying debts and the collection and accounting of revenue are fragmented causing inefficiency and risk.

Strategy

- Transfer operational, financial duties from the Treasurer to National Office staff. This transfer of responsibilities will change the role of the Treasurer from administrative to a more fiduciary focus. (Complete by 2016)
2. The BOD, membership, and APA staff is not informed on APA policy and procedure due to the lack of detailed policy manuals that establish rules and guidelines for its committees, business, and financial practices. This lack of standard operating procedures creates inefficiency, instability, and potentially increases liability.

Strategy

- Develop a detailed policy manual that includes: (Complete by 2017)
 - A Standard Operating Procedure (SOP) for each standing committee
 - A Code of Ethics
 - Standards of Practice
 - Conflicts Policy
 - Membership Policy



- APA Operations
- School Accreditation
- Anti-Trust
- Information Technology
- Web Privacy Policy

D. Improve the image of the APA and the polygraph profession by promoting polygraph as an essential public safety tool.

1. The APA could enhance its marketing strategies.

Strategy

- Establish ad hoc committees to develop model policies on other forms of post-conviction testing such as in areas of domestic violence and drug abuse. (Complete one model policy in 2016 and one model policy in 2017)
 - Beginning with the 2016 APA seminar, offer training courses on these new model policy that demonstrate compliance with the policies and how to implement effective polygraph testing in these areas.
- Develop and implement strategies to show the APA's dedication to public safety and showcases the polygraph as a valuable law enforcement tool. (Complete by 2018)
- Evaluate and implement Social Media strategies to promote seminars, education and polygraph success stories. (Complete by 2018)

E. Improve the professionalism of APA membership through a shift from a regulatory mindset to one that recommends and encourages compliance with best practices.

1. It has proven difficult to fairly enforce APA Standards of Practice and Code of Ethics for reasons including but not limited to the confidentiality of government and law enforcement operations, communications and language barriers. This difficulty and potential unfairness expose both BOD and the APA to liability.

Strategy

- Develop a clear Ethics and Grievance Standard Operating Procedure (SOP) that outlines how to sanction violations of the Code of Ethics in accordance with the APA Bylaws. (Complete by 2017)
 - Include in the SOP how members who violate APA Standards of Practice can establish compliance with these standards.
 - Consider having members demonstrate in writing they are in current compliance with APA standards when a credible allegation of a member's non-compliance with these standards exists.
 - Failure to demonstrate such compliance would result in the suspension of membership until the member shows compliance.

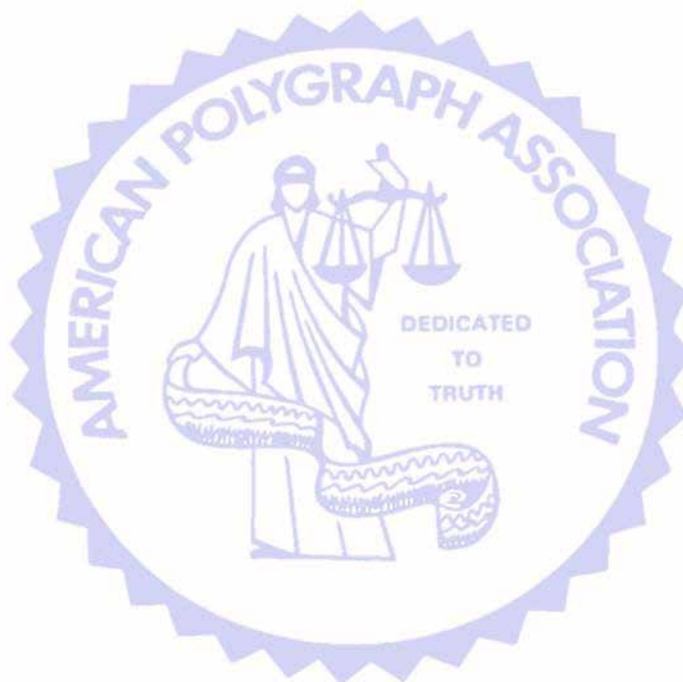


F. Ensure international member compliance with APA Standards of Practice and Code of Ethics by empowering the international membership to self-regulate.

1. It is difficult to monitor and gain international compliance with the APA Standards of Practice and Code of Ethics due to distance and language barriers.

Strategy

- Consider developing an “International Affiliate” membership status for international members who just seek basic membership benefits. Provide an option for international members that wish to take a more active role in the APA an opportunity to become a member and raise the bar on their accountability to the APA. (Complete by 2019)
- Empower international members from individual countries, wishing to benefit from APA membership, to take ownership of policing and compliance with the APA Standards of Practice and Code of Ethics. (Complete by 2019)
 - The APA should have only broad oversight of these processes.
- Encourage and increase the number of international associations that are divisional affiliates of the APA. (Complete by 2020)



American Polygraph Association

Antitrust Compliance Program

Introduction

The American Polygraph Association (APA) is a not for profit membership corporation incorporated under the laws of the District of Columbia. It has approximately 3,000 members. The majority of the members are polygraph examiners, and fall in the categories of full members or associate members. Persons who have demonstrated professional or scientific interest in promotion and advancement of the polygraph profession through polygraph research or instrumentation may join as Science and Technology affiliates. A full member must be a graduate of a polygraph education program that substantially meets APA accreditation standards at the time the member graduates; must have completed at least two hundred polygraph exams using validated polygraph techniques as taught by APA accredited programs; and must have a baccalaureate degree. Associate members must be graduates of a polygraph education program that substantially meets APA accreditation standards at the time that the member graduates. Associate members may upgrade to full membership upon completing certain requirements relating to education and or experience.

All APA full members and associate members must conduct their practices in full conformance with the APA Standards of Practice and Code of Ethics.

APA members include polygraph examiners practicing in the United States and in many foreign countries. APA accredits polygraph education programs both in the United States and in foreign countries.¹ APA has Division affiliates which are organizations that agree to comply with certain APA Standards of Practice and Ethics requirements.

Antitrust Exposure for Associations and Association Members

The basic U.S. antitrust law (the Sherman Antitrust Act) is a conspiracy statute that prohibits two or more entities from engaging in conduct that unreasonably restrains trade.

¹ If APA conducts business in foreign countries, it may be subject to the antitrust laws of each country in which it does business.



In general terms, the Sherman Act prohibits competitors, directly or indirectly, from entering into agreements to fix prices, rig bids, allocate customers or territories or boycotting or refusing to deal with vendors or competitors. These types of violations are what are known as “*per se*” violations. That means that if a group of competitors are found to engage in one or more of these practices, the Court will not consider any excuses.

A “*per se*” violation of the Sherman Act subjects the violators to civil and criminal suits by the Department of Justice, civil and sometimes criminal suits by State Attorney Generals and treble damage suits by private plaintiffs. Individuals convicted of “*per se*” criminal violations of the Sherman Act are guilty of a felony and face mandatory jail sentences of up to 10 years.

All individuals, corporations, or other entities that violate the antitrust laws are also subject to civil penalties and private litigation that may result in treble damage awards.

Trade and professional associations may provide a forum for antitrust violations. At trade and professional association meetings, groups of competitors gather and unless an antitrust compliance program exists, the discussion may involve pricing. Such discussions can lead to direct or indirect agreements on what is a “fair” price or what is a “minimum” price to charge customers. If such an agreement is reached at a trade or professional association meeting, the individuals involved, the companies represented by those individuals, the trade or professional association and the trade or professional association staff attending the meeting could all be found to have committed a “*per se*” violation of the Sherman Act and be subject to the criminal penalties, including jail, provided by the Act.

In addition to “*per se*” type violations, the Sherman Act also prohibits conduct that involves a less serious type of violation that is generally described as an “unreasonable” restraint on trade that does not fall in the “*per se*” category. Cases brought against trade and professional associations under this theory are civil cases which involve monetary damages and possible injunctive relief. These cases involve allegations such as unreasonable membership restrictions



by an association or utilization of an association certification or standards program to “unreasonably restrain trade.”

“*Per se*” and “unreasonable restraint of trade” cases are usually prosecuted by the Antitrust Division of the Department of Justice. The Antitrust Division is the only federal antitrust agency with criminal enforcement authority. However, there is a second federal antitrust agency, the Federal Trade Commission (FTC) that has a broader range of enforcement authority than the Department of Justice.

Section 5 of the FTC Act declares that all unfair methods of competition or unfair or deceptive acts or practices affecting interstate commerce are illegal. However, the statute does not define what is an “unfair method of competition” or an unfair or deceptive act or practice.”

In recent years, the FTC has used Section 5 of the Federal Trade Commission Act as a basis for attacking trade and professional association codes of ethics that restrict the right of members to advertise; trade and professional association codes of ethics that declare it is “unethical” for a member to solicit another member’s customers; and trade and professional association codes of ethics that restricts a member from offering another member’s customer a discount to switch vendor’s.

The FTC has also attacked association minimum fee schedules and actions by associations to induce state legislatures to prohibit second level professionals from performing certain services previously restricted to first level professionals. In most cases, FTC actions result in Cease and Desist Orders against the associations. However, in certain cases, the FTC has the authority to seek civil penalties and disgorgement of illegally obtained profits.

Both the Antitrust Division of the Department of Justice and the Federal Trade Commission have repeatedly emphasized that trade associations, professional associations, and corporations need to establish a culture of antitrust compliance by establishing comprehensive antitrust compliance programs specifically directed at the type of antitrust risks to which the organization has the most exposure.



To establish a culture of antitrust compliance, the association should adopt a custom-designed antitrust compliance program, implement the program in a meaningful manner, communicate the details of the program to officers, directors, members and staff, set up a schedule for re-education updates and establish a “whistle-blower” program to encourage members and staff to report possible antitrust violations without fear of reprisals or loss of employment.

It is with this background, that the American Polygraph Association has established its antitrust compliance program.

How the Antitrust Laws Apply to APA and Its Members

I. Description of APA

APA is a professional association of polygraph examiners and organizations, corporations and persons who have a professional or scientific interest in polygraph research, instrumentation and the profession.

APA establishes standards of practice and ethical standards and accredits polygraph training institutions. APA regularly holds educational meetings for members and supports polygraph research and training activities and publishes a peer reviewed journal. In its “Mission Statement,” APA states that one of its goals is: “Governing the conduct of members of the Association by requiring adherence to a Code of Ethics and a set of Standards and Principles of Practice.”

Some polygraph examiners work for their own companies. Some polygraph examiners work for larger organizations that provide polygraph services to the public, corporations and the government. Some polygraph examiners work for government agencies.

II. Competition

Organizations and individuals providing polygraph services to the public sector and to government agencies are direct competitors. Polygraph examiners who act to “govern the conduct” of other polygraph examiners are engaged in antitrust sensitive conduct in that they collectively may restrict what other competitors can do. There are certain types of conduct by an



association and its members that are so egregious from an antitrust perspective that they are considered to be illegal “*per se*.” This means that if it can be proved that the association and its members engaged in this type of conduct, there are no defenses or excuses. Individuals found guilty of *per se* violations can be found to be subject to criminal penalties, including jail..

There are other types of antitrust conduct that are considered less serious. These types of conduct are covered by the antitrust “rule of reason.” Under the “rule of reason,” a court will find that this type of conduct violates the antitrust laws when it can be shown that the association and its members have the power to affect prices in a given market and where the anti-competitive effects of the conduct in question outweigh the pro-competitive benefits.

The following examines both categories of conduct with specific reference to the conduct of APA and its members.

III. “*Per Se*” Antitrust Violations

A. Price Fixing

An agreement by a group of professionals to fix the price that they charge for their services is a “*per se*” violation of the antitrust laws. In this context any agreement that “affects” prices will be considered the same as an agreement to “fix” prices.

As competing professionals, polygraph examiners may not agree on:

- 1) amounts to charge for various types of polygraph exams;
- 2) An amount of surcharge to add to the base amount for additional services;
- 3) What services are to be included in a base charge and what services should be subject to an extra charge;
- 4) What is a “fair” minimum charge for a polygraph exam?
- 5) Whether to charge for missed appointments;
- 6) Whether or not to charge interest for late payments or when to start charging interest or the amount of interest to charge;
- 7) Whether to include one certified copy of the final report in the base price or whether to charge for additional copies; and
- 8) Any other matter that affects the price of the services offered.



B. Customer Allocation

It would be illegal and a *per se* anti-trust violation for a group of polygraph examiners to agree to allocate, assign or divide customers. As an example, they could not agree that all requests for service from Customer A will go to Examiner X and all requests for service from Company B will go to Examiner Y. Customer allocation agreements take various forms including:

- 1) Agreements not to solicit certain accounts;
- 2) Agreements to quote “high prices” to non-favored accounts;
- 3) Agreements to provide poor service to accounts coming from a co-conspirator; or
- 4) Agreements to divide an account.

C. Territorial Allocation

Group of competitors cannot agree to limit offering services to specific geographic areas.

1) It would be illegal and a *per-se* anti-trust violation for several polygraph examiners, all of whom are licensed to provide services in a certain state, which has five major cities, each to agree to provide services in one of the five cities and not to provide services in the other four.

Similarly, it would be illegal for two firms of polygraph examiners located in the same city to agree that one firm will provide services only to customers located on the east side of the city and that the other firm will only provide services to customers located on the west side of the city.

D. Bid Rigging

It would be illegal and a *per se* anti-trust violation for two or more polygraph examiners to enter into an agreement to affect or rig a bid for services. This would include:

- 1) Agreeing that if four jobs are up for bid, Examiner A will bid low on Job X and other examiners will bid high;
- 2) Agreeing to alternate bidding high and low to ensure that all get a “fair” market share;
- 3) Refusing to bid on certain jobs to protect the “favored” bidder;



- 4) Agreeing to submit an intentionally high bid to make sure that a bid from a friendly competitor is accepted; or
- 5) Engaging in any other bidding conduct designed to make sure that a favored bidder is successful.

E. Boycotts or Refusals to Deal

It would be illegal and a *per se* anti-trust violation for two or more polygraph examiners to agree to refuse to deal with a competitor or vendor offering a legitimate product or service to the market. As examples:

1) Vendor A and Vendor B make competitive models of polygraph machines. Independent tests show that Vendor A's machines are better than Vendor B's machine. APA could publish the test results but could not recommend that all members buy only brand "A." APA could publish the test results and recommend that members consider the test results when making equipment purchases.

2) Certain states license polygraph examiners. APA may require that regular members operating in states with licensing requirements not only meet state licensing requirements, but also meet additional and more stringent membership requirements. APA could not require that members in a state with licensure requirements limit referrals only to other APA members in that state.

The antitrust statutes are conspiracy statutes prohibiting agreements among competitors to engage in the practices set out above. Acting unilaterally and not pursuant to any agreement, an individual polygraph examiner can set whatever prices, deal or refuse to deal with any customer or bid or not bid on any job, based on his or her own economic objectives.

F. Association *Per Se* Liability

If association members engage in conduct that is "*per se*" illegal while attending an association meeting and the association, directly or indirectly, has knowledge of such illegal activity, the association and the association staff who participate in the illegal conduct, directly or indirectly, may be held to be co-conspirators and equally liable.



As an example, if the members of the association decided to establish minimum fee levels at an association Board meeting and an association staff member sat through the entire meeting, took minutes, including the details of the minimum fee agreement, the association and the staff members could be found guilty of a criminal antitrust violation and the staff member would face criminal penalties including a jail sentence of not less than one year or more than ten years for engaging in a conspiracy to fix prices.

IV. Rule of Reason Antitrust Conspiracies

As a professional association, APA provides benefits for members that enable them to compete more effectively. APA requires that members meet certain standards and comply with Standards of Practice and a Code of Ethics. APA establishes standards that educational institutions with programs in polygraph education must meet to be accredited by APA.

Since not every polygraph examiner, even if licensed in the state in which he or she practices will meet APA membership criteria and since not every school that offers a program in polygraph education will qualify for APA accreditation, potential antitrust issue arises.

If APA's membership criteria do limit the ability of state licensed polygraph examiners who do not meet APA's membership criteria to compete in the marketplace, then there is conduct that, on its face, may be considered a concerted action by a group of competitors that restrains trade.

The conduct in question does not fall in the *per se* category and, as such, will be evaluated under the antitrust "rule of reason." Under the "rule of reason" the question is "Does the association have the power to affect a defined market?" If so, do the anti-competitive effects of the conduct outweigh the pro-competitive benefits? If the anti-competitive benefits do outweigh the pro-competitive benefits we have an unreasonable restraint on trade that arguably violates the antitrust laws.

For purposes of anti-trust consideration, a person claiming an anti-trust violation may argue that APA membership has economic value and that non-members may face impediments to employment in certain markets.² However, as a professional organization APA is entitled to

² Although United States District Court for the District of Arizona, in the case of *Haswood et al. v. American Polygraph Association, et al.* (Civ. 14-00253 PHX-GMS) implied that with regard to accreditation of schools APA does not have market power, it never actually ruled on that issue as it dismissed the case on procedural grounds including lack of standing as to certain plaintiffs and failure to allege antitrust injury as to the remaining plaintiffs.



set reasonable membership criteria. Also, although certain states may require some form of APA membership for licensure, such action is state action, not APA action.

APA's requirements for membership must be established based on specific criteria that the association believes are important to establish a skill level necessary for a highly qualified polygraph examiner.

As a professional organization, APA can adopt membership criteria that require a high level of skill sets rather than a minimum level of skill sets as long as the purpose of the practice is not to restrict access to the profession.

Membership in APA is open at various levels and the requirements for membership are designed to encourage high levels of professional conduct for the benefit of the public. Polygraph examiners who do not meet APA's requirements for membership are free to practice their profession subject to any state licensing requirements and APA does not engage in conduct aimed at denying non-members from access to the market.

APA's membership restrictions have pro-competitive benefits that outweigh the anti-competitive risks and thus strongly argue for meeting the test of the "rule of reason."

Where professional organizations establish education standards for education and training to be used by schools which train polygraph examiners, such standards, in order to meet the "rule of reason" should be reasonably designed to promote a level of educational achievement that will produce graduates who have skill sets necessary to achieve an appropriate level of professional competence. The level of professional competence need not be a minimum level but can be a higher level as long as APA has a rationale and reasonable substantiation for believing that the level of professional competence results in properly qualified graduates. If APA can show that its accreditation standards can be substantiated on a rational and reasonable basis and are not designed to keep qualified educational programs out of the market, APA's conduct should meet the requirements of the rule of reason.

APA's accreditation standards are developed by the School Accreditation Committee and approved by the APA Board of Directors. All the components of the standards are carefully reviewed during the developmental process and the final document reflects the opinion of the Committee and the Board as to what standards are necessary for a school polygraph educational program. The standards are designed to protect the public by accrediting educational programs that will produce highly qualified polygraph examiners. Accreditation by APA is voluntary. A



full or associate member of APA need not have graduated from an APA accredited educational institution but rather one that meets the accreditation requirements at the time of graduation.

APA does not advocate that polygraph examiners who have not graduated from an APA accredited educational program be denied access to the market.

It therefore appears that the APA accreditation practices meet the requirements of the “rule of reason.”

V. Adoption of Antitrust Compliance Program

In order to ensure that APA and its members do not engage in practices that may violate the antitrust laws, APA has, by vote of the Board of Directors, adopted this Antitrust Compliance Program. As part of this program APA will follow the following practices.

(A) *At Association Meetings:*

- (1) *Do not* discuss current or future prices (be very careful of discussions of past prices).
- (2) *Do not* discuss what is a fair profit level.
- (3) *Do not* discuss an increase or decrease in price.
- (4) *Do not* discuss standardizing or stabilizing prices.
- (5) *Do not* discuss pricing procedures.
- (6) *Do not* discuss cash discounts.
- (7) *Do not* discuss credit terms.
- (8) *Do not* discuss surcharges such as additional charts for copies of reports.
- (9) *Do not* discuss controlling sales.
- (10) *Do not* discuss allocating markets.
- (11) *Do not* complain to a competitor that its prices constitute unfair trade practices.
- (12) *Do not* discuss refusing to deal with a competitor because of its pricing or distribution practices.
- (13) *Do not* attend “rump” (informal meeting) sessions in connection with association meetings.



(B) *As to Self-Regulation and Membership Policies:*

- (1) *Avoid* restrictions on dealing with nonmembers.
- (2) *Avoid* unreasonable exclusions from membership, especially if there is a business advantage in being a member.
- (3) *Avoid* limitations on access to association information and publications, unless the limitation is based on protection of trade secrets or failure to provide data to an information exchange program.³

(C) *As to Ethical Codes:*

- (1) *Do not* require other members to refuse to deal with any member violating the association's code of ethics.
- (2) *Do not* arbitrarily enforce the code.
- (3) *Do not* impose unreasonably severe penalties for violations of the code.
- (4) *Do not* promulgate or enforce regulations or policies which have price-fixing implications, such as preventing the advertising of prices.

(D) *Antitrust Compliance Education*

As part of APA's Antitrust Compliance Program:

- (1) APA's Antitrust Compliance documents will be published on the APA website and all members will be encouraged to review the documents.
- (2) APA will have an annual antitrust compliance education session as part of a Board meeting.
- (3) APA will have an annual Antitrust Compliance Education session for APA staff.
- (4) APA will send a copy of its Antitrust Compliance Program to all Divisions and obtain their agreement to comply with the program.
- (5) APA has adopted an Antitrust Whistleblower Policy and will provide all staff members with a copy of the APA Antitrust Whistleblower Policy (attached as Exhibit A).

³ Non-members can be charged a fee that is greater than the fee charged members for purchasing publications or attending educational program. The fee differential must reflect the cost incurred by members in developing and production of the publications or program.



(6) APA will read the Antitrust Compliance Statement (attached as Exhibit B) before all Board meetings and membership meetings.

VI. Antitrust Investigations

A. Allegations Regarding Antitrust Violations

In the event that any allegations of possible antitrust violations are reported to APA's staff or APA's volunteer leadership, legal counsel will be contacted immediately. Legal counsel will make a thorough investigation of the allegations and report the results of the investigation to the APA Board of Directors with a recommendation for appropriate action.

B. Federal Trade Commission (FTC) or Antitrust Division, Department of Justice (DOJ) Investigations

1) Written Inquiry or Subpoena

In the event that the association receives a written inquiry or subpoena from a federal or state antitrust agency, the inquiry or subpoena will be immediately sent to legal counsel for review.

2) Visit by FTC or DOJ Investigator

An APA staff member shall be appointed as the responsible person to meet with any FTC or DOJ investigator who visits the association offices without warning and requests access to books and records of the association or requests to interview employees.

If such a visit occurs, the responsible staff person should obtain the name of the investigator, his or her contact information and ask to look at the person's identification.

The staff person should ask the investigator to explain the purpose of the investigation and then politely state that it is the policy of the association to cooperate with all government investigations but before answering any questions or providing access to any files or documents, the staff person must consult counsel.

The investigator should be asked to wait in the office reception area while staff person calls counsel and receives advice on how to proceed.

In the event that the investigator has a subpoena, the staff person should get a copy of the subpoena and send an electronic copy to counsel immediately. In very rare occasions, the Department of Justice will obtain a court warrant to conduct a raid on the offices of a company



or an association. In such a situation several FBI agents will show up at the associations offices, ask all the employees to go to one location and begin seizing documents, computer files, computers, etc. Employees will not be permitted to call counsel, use the telephone or use cell phones until the raid is completed. It is extremely unlikely that such a raid would occur at APA. The FBI needs a warrant issued by a court to authorize such a raid. A subpoena does not provide authority to obtain immediate access without first giving the association the right to contact counsel and obtain counsel's advice on how to proceed. Staff should be educated as to how to respond to an antitrust investigation.

VII. Minutes and Agendas

A detailed agenda should be prepared prior to all meetings of the association and the association's Board of Directors. Counsel should review the agenda to ensure that there are no antitrust sensitive issues scheduled for discussion. If counsel determines that a scheduled discussion item may be antitrust sensitive, counsel will advise the association of the best way to deal with the issue presented.

Accurate minutes should be kept of all association and association Board of Directors meetings. Minutes should be approved by counsel before adoption.

VIII. Rump Sessions

The APA will not permit rump sessions to be held in connection with association meetings.

Approved by the APA Board of Directors on _____.
(date)



Exhibit A

APA Whistleblower Policy

It is the policy of APA to fully comply with all laws including federal and state antitrust laws. Compliance with the law means not only following the law but also creates an obligation on all APA employees to report to his or her supervisor or to APA Counsel, any activity of the association or association members that the employee has reason to believe may violate any law including the antitrust laws.

It is recognized that all employees are not legal experts. Employees are encouraged to seek guidance from supervisors or legal counsel whenever the employee has a legal compliance question.

In no instance will any employee be sanctioned or adversely affected from bringing any such matter to the attention of his or her supervisor, the association or the association's legal counsel even if it turns out that no violation of law or policies exist.



Exhibit B

APA Antitrust Policy Statement (To Be Read Before All Association Meetings)

It is the policy and intent of the American Polygraph Association (hereinafter APA), its Officers and Members to comply with all federal and state anti-trust laws, regulations and amendments thereof. APA has adopted a comprehensive Antitrust Compliance Program which is available on our website. APA recommends that all of you become familiar with the program.

The APA shall not, nor shall any of its Officers or Members, in any fashion whatsoever attempt to lessen competition or fix prices or to create a combination or monopoly in violation of federal or state laws.

Discussions of price fixing and/or price levels are strictly prohibited. There shall be no discussion as to the allowances for discounts, terms of sale, profit percentages and/or mark ups.

Discussions of a division, separation and/or limitation of territories, customers, and/or service providers and/or limitation of the nature of business carried on or products sold and/or services delivered are not permitted.

Boycotts in any form or nature are strictly prohibited. Discussion or engagement relating to boycotts, blacklisting, unfavorable reports about a particular individual, company or organization, including their financial situation is strictly prohibited.

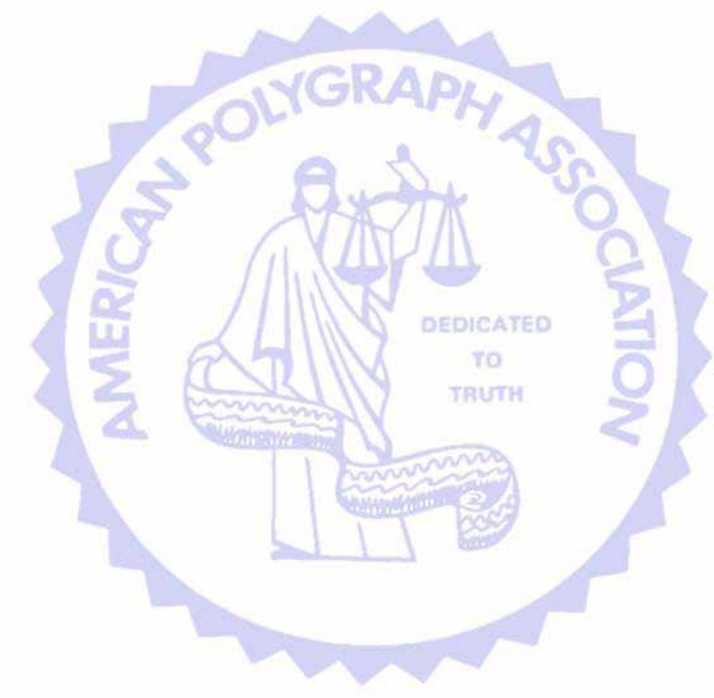
If any discussion or action in violation of anti-trust statutes occurs, you should object, have your objection noted in the minutes of any meeting and, if the discussion or practice continues, leave the room. Further, the prohibitions apply to discussions in an informal or social setting, not just regularly scheduled meetings. If you see any prohibited practices at any APA meeting or social event, it is your duty to raise your concerns to a leader of the APA and/or APA General Counsel.

As part of our Antitrust Compliance Program, we remind members before each meeting that we will not engage in any conduct that could be construed as price fixing, bid rigging,



customer allocations or group boycotts, or in any way might be considered an unreasonable restraint on trade.

If you have any questions regarding our Antitrust Compliance Policy, please contact APA's General Counsel. This is a very serious matter and your cooperation and adherence to these policies are expected.



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APA ELECTION 2016

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2016 APA Election Schedule

APA will hold its annual election for Board offices in July. If you are interested in running for office, please take note of the positions being voted this year:

President Elect (1 year)
Director 2 (2 years)
Director 4 (2 years)
Director 6 (2 years)
Director 7 (1 years)
Director 8 (2 year)

Applicants must specify which of the six offices he or she is a candidate. Candidates may run for only one office per year.

Below are important dates to remember

- **May 1 – May 31:** Period to submit nominations and self-nominations in writing to the National Office. Nominations must include a cover letter specifying for which office the candidate is vying.
- **June 1:** Last day to submit a candidate statement up to 500 words for the APA Magazine and the APA website (editor@polygraph.org)
- **June 1 – 7:** Validation of candidates' eligibility to hold APA office.
- **June 7:** Candidacy letters published on the APA website and in the APA Magazine.
- **July 2:** Email notification of elections (Ensure your email address is current on the APA website; www.polygraph.org)
- **July 3 – 9:** Electronic elections.
- **July 11:** Posting of results on the APA website.
- **July 31 – August 6:** Runoff elections, if necessary.
- **August 8:** Notification to winners. Posting of final election results.
- **September 1:** Officers sworn in at the APA Annual Banquet.

For additional information, contact Mark Handler at editor@polygraph.org or (859) 539-0705.

PERSONALITY BASED INTERVIEWING

A Technique to Increase Examiner Effectiveness

By C. Gerald Carter



INTRODUCTION

The November-December edition of the APA Magazine [2015, 48(6)] includes a message from President Walt Goodson in which he emphasizes his commitment to expanding the diversity of training for polygraph examiners. Specifically, he states: "The intent of this expanded curriculum is to improve our work products by focusing on the one aspect of a polygraph examination we too often forget – the polygraph examiner." He further clarifies that "... we can offer endless lectures regarding how to make the polygraph more scientifically valid; however, none of that matters when we don't feel good, and we make human errors."

As a private examiner with over 30 years of experience working with law enforcement

agencies, prosecutors and defense attorneys, President Goodson's remarks spoke directly to me. A basic understanding of one's self and that of the examinee are critical components in conducting a polygraph examination. We all have our own perceptions based on our experiences that influence our behavior. Understanding our own perceptions does not require us to change our views but does allow us to not be influenced by them. A basic understanding of personality differences reduces examiner stress and will give an examiner the ability to create objectivity and focus on the examinee. This understanding translates into being able to predict behavior of others and myself in a given situation, exercise emotional control in a given situation, better understand my own personality and consciously move my behavioral preferences in a given situation.



Personal stress drains energy and can undermine the quality of work. As examiners we are obligated to protect quality, reduce errors and achieve reliable results. Generalized stress is a distraction. We need to reduce it so we can use the full force of our energy to obtain accurate results. As “Seekers of the Truth,” the subject in our polygraph suite deserves our full and undivided attention!

PERSONALITY BASED INTERVIEWING

What is it, and how do you do it?

Personality/behavior typing is built on the scientific finding that apparently random behavior is not really random at all. It is fairly orderly and consistent if observed over a period of time with the help of an accurate analytical theory or tool.

I began using personality based interviewing during the mid-1990s as a means of establishing rapport with a subject, improving the reliability of exams, and eliminating unnecessary stress. The experiences and practical examples relayed in this article are based on the application of insights derived from the work of Isabel Myers and Katharine Briggs as expressed through the tool they developed, the Myers Briggs Personality Type Indicator¹ (MBTI).

With training and experience in personality based interviewing you can learn to observe

I There are many tools available for analyzing personality. The best grow out of and derive legitimacy from the same original research that informs the MBTI, i.e. that of Carl Jung. Because the concepts providing the building blocks of the MBTI are logical, flexible, easily communicated and understood, this author uses these structures to assess personality rather than a professional instrument. Such a tool would be intimidating; eye contact is compelling.

behavior patterns as you first walk into an initial interview, whether it is in your office or in the field. You can also see patterns emerging that reflects the subject’s preferences for the following:

- Energy Source;
- Acquiring Information;
- Making Decisions; and
- Lifestyle.

As you learn more, you will begin to recognize each of the preferences in four bi-polar scales through both verbal and nonverbal cues:

- ENERGY SOURCE – Extrovert/Introvert;
- ACQUIRING INFORMATION – Sensing/Intuition;
- MAKING DECISIONS – Feeling/Thinking; and
- LIFESTYLE – Judging/Perceiving.

To validate the subject’s personality type and initiate rapport, make statements to the subject about what you have observed followed by questions whereby the subject can validate or contradict those observations. This allows the interviewer to continue observing behavior and to adjust his own assessment. Total accuracy of the typing is not essential to establishing rapport because the exchange of questions and answers are all about the subject and play to his or her own sense of identity and desire to be understood. I call this approach “advance and retreat” as it requires flexibility of both subject and interviewer.

The Advance and Retreat Interviewing Model

The advance and retreat model is a highly



effective way to establish rapport with your subject. Inspiration for developing this technique came through reading about a horse trainer by the name of Monty Roberts¹. Mr. Roberts gained fame by developing a method of communicating with horses using their natural body language and a technique he refers to as join up. Founded on a consistent set of principles, communication, and trust, Monty's methods initiate a relationship; he never resorts to violence. You may be familiar with Monty Roberts name and work as it was the focus in *THE HORSE WHISPERER*, a Robert Redford movie.

I use my own version of an "Advance and Retreat" method in my interviews. When a subject first walks into my interview room, I accommodate his natural desire to withdraw or become defensive, a form of "retreat," from what at the very least is an intimidating experience. After observing his behavior, I make an initial assessment of his preferences on the four scales referenced above: extrovert/introvert; sensing/intuition; thinking/feeling; and perception/judgment. Next I use what I know about these preferences to share predictions with the subject about his own behavior. The process is self-correcting, because the subject will either validate or deny my predictions, allowing me to make modifications until I get a clear fix on the personality of the individual I am dealing with.

The personality profiling process creates a natural curiosity resulting in the desire to know more or "advance" toward the interviewer. People like to talk about themselves when others show interest. At a gut level,

people tend to interpret their personality as their identity, the essence of who they are. The interviewer who can create a connection with the subject based on an understanding of that subject's personality, connects with his sense of self. Subjects recognize the understanding demonstrated by the interview as rapport and becomes more responsive and less defensive. The interviewer learns to interpret the subject's communication more accurately because he is able to move into harmony with what the subject is trying to communicate and not just the words.

Typing based on behavior observation and verbal interaction can be effective without relying on validated paper and pencil or electronic tools. The primary benefit is that this approach, when skillfully implemented, leads to highly accurate assessments and behavioral predictions much of the time. Consider the following polygraph which I conducted for a private attorney in the same area where, at that time, I was conducting polygraph examinations for all of the local law enforcement agencies. The pretest consent form included the statement that I conduct polygraph examinations for the law enforcement agency that is investigating the attorney's client. The client signed the consent form acknowledgment.

During the test, I determined that the subject was using countermeasures. I confronted him and he acknowledged that he was just nervous. Due to the obvious countermeasures, I terminated the test. Later, this client took a polygraph examination with a different examiner and the results were reported as no deception indicated. I received

¹ See Mr. Roberts' web site for more information at www.montyroberts.com



a telephone call from the subject demanding to know who I had talked to in the District Attorney's Office. He stated that the DA was still actively pursuing his case. His reasoning was that I knew so much about him, i.e. his personality, that I could have only learned that by talking with someone in the system who knew him, implying further that I probably talked with that same individual following his test. The fact that none of this happened had no impact on his assumption that I had "talked with someone" as it was for him the only logical explanation.

Rapport

This technique begins with establishing rapport in the pretest phase of administering a polygraph exam. This part of the testing procedure will ultimately set the tone and tenor for the entire process. The literature on pre-polygraph interviews collectively emphasizes the importance of establishing rapport but provides no clear consensus on how to do it. Personality based interviewing allows you, as the interviewer, to establish rapport in the initial five to ten minutes of the interview while at the same time obtaining information helpful throughout the examination process.

People like to talk with others around whom they feel comfortable. This is human nature, and it is the principle upon which the personality-based interviewing technique is based. We tend to identify and feel comfortable with people we perceive as having personalities similar to our own. This is evident when one interviewer is particularly successful in getting confessions from suspects who seem to act a lot alike. In many cases, the interviewer will also exhibit some of those same behavior characteristics. Subject and interviewer may be the same or

similar personality types.

Consider for example the following subject who preferred Feeling^{II} over Thinking^{III} when making decisions. This subject was a suspect in the theft of a deposit bag from a business. During the pretest, the first interviewer typed the suspect as one who makes decisions using the Feeling preference. He accused the suspect of stealing the deposit bag and walked out. He asked a second interviewer who had a similar preference for Feeling to continue the interview. Within five minutes, the suspect confessed to the second interviewer. This is a prime example of matching personality preferences of the subject and interviewer.

Understanding and recognizing the different personality types can help an interviewer establish rapport similar to that which evolves naturally among individuals with similar personalities. This happens because the interviewer can learn to communicate reliably on the subject's level using the "language" of that personality. This decreases a subject's defenses and increases his capacity and motivation to communicate.

Objectivity

An equally valuable benefit of establishing rapport through personality typing is that it helps to counteract preconceptions you may have carried into the interview. Experienced polygraph examiners know the importance of maintaining objectivity. Interested parties, whether colleagues or

II Preference for organizing and structuring information to decide in a personal, value-oriented way.

III Preference for organizing and structuring information to decide in a logical, objective way.



clients, sometimes share expectations and/or disappointment regarding results. This is uncomfortable and when anticipated can threaten your own objectivity. If the interviewer has already established an opinion of the subject prior to the interview, objectivity is difficult.

Prior events obviously carry some credibility, but events change. Consider for example, a case where a female reported that a male employee where she worked had tried to rape her. This particular female had filed an unfounded similar report before this incidence. Upon interviewing the suspect, however, he confessed to the attempted rape. It is important that preconceived ideas not be present in the interview room. It will take away from your ability to uncover the truth.

“Normal” versus “Abnormal” Reaction: A Precautionary Note

Consider the example of a manager who was responsible for a stolen deposit bag. At the start of the interview, the manager began to cry. Is this normal behavior, or is it a sign of guilt? An interviewer who does not understand different personalities could possibly assume that the subject was crying because of guilt. The subject did not cry when reporting the theft. Crying under similar circumstances would be abnormal for the interviewer; therefore, he may assume, it is abnormal for the subject and a sign that he fears being caught. In this case, however, the interviewer needs to consider that crying might be normal and predictable behavior, under the circumstances, for individuals with personality preferences different from his own.

What we perceive as an abnormal reaction for ourselves may be a perfectly normal reaction for another. In this particular case, the subject expressed his identity and role in life through feelings, not logic. It was his personality dictating the response which had absolutely nothing to do with guilt or innocence.

The most effective interviewing is based on the subject’s perspective on where he is and how he views his role in life, not the interviewer’s. The foundation for this kind of interviewing begins when the interviewer establishes mutual respect as an individual with the subject. The extent and manner in which the interviewer can establish this foundation determines the quality of communication that follows. We only get one chance to make a good first impression.

To conduct a quality polygraph exam, the interviewer has to exhibit skills similar to those needed to ride a bicycle. Both wheels must be in balance. The bicycle analogy consists of two parts. The back wheel indicates technical skills. This is knowledge of the case, basic polygraph techniques, and knowledge of the law. The front wheel represents relationship skills, those needed to communicate with people.

THE MYERS BRIGGS TYPE INDICATOR

The concept of using personality typing to interview subjects originated through long term use of the Myers Briggs Type Indicator (MBTI). The MBTI was developed by an American mother and daughter team, Katharine Briggs and Isabel Myers. The work of Myers and Briggs was started in the 1920’s



by Katharine Briggs. She was interested in human behavior and, through her observations and reading of biographies, developed an original way to describe it. Her theory was published in the *New Republic* magazine on December 26, 1926.

Together with her daughter, Isabel Myers, Briggs began to integrate her work with that of Carl Jung. In the 1940's, Myers created a paper-and-pencil inventory based on Jung's theory and her mother's observations. Part of her motivation was to help people discover more about themselves. She was also interested in helping the war effort by assisting managers place people in occupational roles most compatible with their preferences. It took Myers more than 20 years to fully develop the MBTI.

The MBTI provides a useful measure of personality by looking at eight personality preferences as described above, that all people use in different degrees. These eight preferences are organized into four bi-polar scales. When you take the MBTI, the four preferences that you identify as most like you (one from each scale) are combined into what is called a "type."

While the interviewing technique presented here is based on the Myers Briggs Type Indicator, it goes beyond the scope of the instrument by offering a practical approach to using the concepts and theory on which it is based without actually administering it. This approach allows interviewers to understand and effectively deal with human behavior in a variety of situations with predictability.

The concept of using personality typing when conducting interviews is not new to

experienced interviewers. Many interviewers practice elements of the technique instinctively without being aware of the theory that supports it. Personality typing, using the concepts and principles which support the MBTI, goes far beyond this gut instinct or awareness. It allows the interviewer to identify categories or traits and to draw on his knowledge of how these traits interact to produce predictable behavior.

Using this technique will increase an interviewer's ability to obtain the truth. This technique is about communicating with subjects in the language that they understand best. The subject will identify with and feel rapport toward the interviewer. The truth is more likely to come out when the interviewer demonstrates understanding of the subject as an individual through understanding his personality. A case in point involved a polygraph examination that I administered to a suspect in the homicide of a thirteen-year-old juvenile. I informed the subject of his deceptive polygraph results. His reply to me was that he liked me and wanted to explain how he thought the homicide occurred but stated that he did not do it. His explanation was exactly what the crime scene revealed. His testimony was admitted into evidence at his capitol murder trial and he was convicted of the homicide.

UNDERSTANDING THE MBTI PREFERENCE SCALES

Are you energized by being around people or by an inner orientation toward ideas, concepts and abstractions? How do you take in information? Upon what kind of information do you base your decisions? What is



your lifestyle or work orientation? These are preferences that all of us have and demonstrate in normal, everyday behavior. We use these preferences in the same way we use either our left hand or right hand as dominant. It is natural for right-handed people to use their right hand. Although one could learn, out of necessity, to use his opposite hand as dominant, it is easier to use the hand we are most comfortable using. The same is true of personality preferences. If you are quiet by nature, you will tend to limit conversation with people you do not know. Can you change that? Absolutely, if you have the awareness and motivation to do so. Proficient understanding of this technique allows one to intentionally change his behavior as the situation demands. To begin to build that understanding, let's take a closer look at each of the four bi-polar scales identified by the MBTI.

Extraversion (E) and Introversion (I)

The first preference to be reviewed is the extraversion - introversion scale. This scale reflects whether an individual is energized by being around people and things or prefers to focus on concepts and ideas. Generally speaking, an Extravert usually shows some type of nonverbal expression while the opposite is true for an Introvert. In approaching an interview situation, it is best to go into it in an introverted mode which requires a lower tone of voice, short sentences and straight to the point. An interviewer can switch from the introverted mode to an extroverted mode as the situation requires, without turning off a subject. It is the opposite going in as an extrovert and later trying to switch to an introvert. Extraverted behavior can overwhelm or alienate an introvert, who may tend to withdraw and tune the extrovert out. Once the subject has decided

to turn you off, he is unlikely to change his mind and give you a second chance.

Extroverts and introverts have different approaches to the world. Extroverts are very verbal and actually think out loud. They are relaxed and confident with people; they like variety and action and are readily approachable by others. My experience indicates that most con artists are extraverts. In the case of armed robbers, my experience indicates that they are primarily introverts who usually have some type of dependence on alcohol and/or drugs. Drugs allow an introvert to become an extrovert. In an interview situation, extraverts use obvious nonverbal gestures and facial expressions. This preference group has a tendency to interrupt you, and, conversely, can and must be interrupted by the interviewer. If you don't interrupt, the extravert will control the interview through constant verbalizing. This is true in deceptive and non-deceptive subjects.

Subjects who are often trying to "beat the interview" will use the extraverted preference to maintain control in the interview and intimidate the interviewer. The best response here is for the interviewer to go into a modified introverted mode with the subject. This involves a quiet tone of voice, use of short sentences, and constant interruptions. This is a countermeasure to regain control of the interview. It is designed to throw the subject off balance.

Introverts are generally very quiet people. Their answers are usually given in a low tone of voice and short sentences. They engage in conversation when led by questions. The inability to maintain eye contact is typical of



this preference and should not necessarily be viewed as evasive behavior. When being interviewed, an introvert likes to reflect before answering. Periods of silence are common with the introvert, and the interviewer should deliberately incorporate them. A few minutes alone to reflect is an effective technique for obtaining admissions from introverts. This technique has the opposite effect with extraverts. Periods of silence for extraverts allow them to build up resistance and regain composure.

It is important for the interviewer to always touch the subject physically by shaking hands. Tell the subject your name and extend your hand. The introvert's handshake will be with the arm extended below his waist and will quickly release your hand. The extrovert will extend his hand straight out and make contact with your hand until you let it go. An extravert will often use a "very" firm handshake as a control mechanism over you. At some point during the interview, I will always point this out to them.

Introverted subjects must be interviewed with caution. Based on my observations, cases involving employees shooting co-workers were probably committed by introverts. In pre-employment interviews, I can usually associate prior admissions of workplace violence with introverts. In my experience, terminations for insubordination, poor attitudes, fighting and arrests for domestic violence are also associated with introverts. This may be because introverts keep things inside until they explode. The advantage that they have is that they are very difficult to read.

Previously I mentioned a technique I re-

fer to as advance and retreat. Interviewers can type subjects verbally by making statements and asking questions. While research indicates that 50 percent of the population prefer the extraverted mode, my experience indicates that the average subject I interview regarding a criminal matter is generally an introvert. Because introverts are harder to read, officers may refer them disproportionately for polygraph exams. This personality may confuse you especially if a suspect communicates easily. If this is the case, look for this personality type to use the Perceiving¹ preference.

How do you, as the interviewer, determine which are true introverts and which are extraverts?

Initially, you advance by saying something like, "You appear to be a quiet person." If they agree, you know you are dealing with an introvert. If they disagree, you retreat. It does not affect the interview situation if you are wrong initially. The key to this technique is to let the subject know you want to understand how they think and look at things and will not proceed with the interview until you do. Be aware that some subjects will try to fake it but experience with the MBTI limits this countermeasure.

The subject now has two things to deal with, the facts of the case and you. As you type a subject, he begins to realize that you can predict his behavior. When you start pointing out aspects of his nonverbal behavior, you are placing emphasis on this ability. Consider, for example, a subject that I interviewed who was leaning forward in his chair,

¹ Perceiving is defined as a preference for living a spontaneous and flexible life.



obviously trying to intimidate me. When he decided to move back, I made the following statement to him: "I noticed that you moved back in your chair. You seem to be more relaxed now." This demonstrated to that subject that I was alert to and could predict his behavior. From the subject's standpoint, he saw a stranger who seemed to understand him. This started the process of bringing that person into my area of influence. What normally happens at this point is that the subject begins to allow me to take control and direct the interview. Control and direction of the interview is what makes it possible to obtain significant admissions.

Sensing (S) and Intuition (N)

The next preference concerns two opposite ways of understanding one's surroundings: sensing and intuition. It deals with how we choose to obtain information and what kind of information we trust. Approximately 75 percent of the population prefers sensing, and most of the subjects you interview will use the sensing preference. People with a preference for sensing trust information that comes through the five senses: sight, hearing, taste, touch, and smell. Very few intuitives have ever been referred to me as suspects in a criminal investigation. Sensing subjects are very detail oriented, choose not to look down the road, and trust only what they have experienced. They communicate and should be addressed in the present tense. Consider for example a young high school suspect who confessed to being involved in the robbery and murder of a store clerk. After he confessed, his only concern was whether he would get to play college baseball. His present orientation and total lack of awareness of long term consequences was startling.

Intuitive types rely on possibilities, on what can happen and their "gut feeling." Future possibilities are more real to the intuitive than the here and now. One key to recognizing a subject who prefers intuition is his use of the future tense, words ending in "ing", and the presence of the word "possibilities." The interviewer should approach witnesses with caution who prefer intuition over sensing. They are likely to make statements that they believe are true even though the action never really happened. This is part of the big picture that an intuitive sees.

If the subject ever uses the term "possibilities," you are probably dealing with an intuitive. One example of such a case involved a reported jewel theft from a female's apartment. The main suspect was the ex-boyfriend. He admitted the possibility that he could have taken the jewelry but had consumed so much alcohol that night, he wasn't sure. In our experience, an intuitive is unlikely to commit a crime for immediate gratification but rather for some future result or impact. In the case mentioned, the theft was designed to get even with the girlfriend. This subject agreed to replace the cost of the jewelry.

With a 75% probability of the subject using the Sensing preference, I use the following scenario: "I think that you are probably the type of person that remembers every good and bad thing that has ever happened to them. If someone ever lies or cheats you, I know that you are capable of forgiving them but you never forget." This typing scenario works very well. A suspect that commits a crime has a high probability of being an S.

Thinking (T) and Feeling (F)

The next preference deals with how we



make decisions: thinking or feeling. Thinking types value logic and facts and appear detached from feeling issues. Interviewers should always be organized in presenting the factual aspects of the case to a thinker. With consistent logic applied by the interviewer, a thinking subject will usually provide some, maybe small, but significant admissions. A case in point involved a man accused of sexually molesting a young boy. I was administering a polygraph examination to the subject in his attorney's office in an attempt to clear him of the accusations. During the posttest interview, he admitted that he was trying to "beat the test" he was paying for. He was a definite thinker and felt compelled to respond to the consistent facts of the case. This was not a confession, but it was the next best thing!

Subjects who prefer to base decisions on feeling are different from thinkers in that they like harmony, find it difficult to confront and readily show their emotions. It is important that an interviewer does not interpret an obvious show of emotions as a sure sign of deceptive behavior. The feeling subjects are usually very likable and have a general tendency to be passive.

The subject with a preference for feeling is liable to give a false confession when confronted by aggressive interviewers. They usually confess due to the guilt phenomenon present in all feelers. Because the feeling preference has a desire to promote harmony, they have a tendency to fixate blame on themselves as a first option and confess to preserve harmony.

One clear example of this was a suspect who had been indicted for the murder of his girl-

friend's infant son. This suspect had given a quasi-confession to interviewers, stating that he had smothered the baby to stop him from crying. When he was subsequently interviewed in jail by another interviewer, he recanted the confession. Both the prosecution and defense stipulated to polygraph results. When I interviewed the suspect, I profiled him as an introverted feeling type who had a propensity to please those in authority. A later psychological evaluation stated essentially the same thing. This subject was exonerated of all charges by a grand jury that had previously indicated him for capital murder. By the way, the polygraph results were NDI.

Admitting to something that we did not do may sound strange, but depending on the personality type, it is very possible. My experience indicates that those who make significant admissions during a personality based interview will not recant.

Most research indicates that approximately equal percentages of the population prefer thinking or feeling in making decisions. Crimes involving thinkers usually are robberies, burglaries and homicides. For feelers, crimes such as embezzlement and other indirect or non-confrontational offenses are more common. I suspect that false positive polygraph results are often associated with a Feeling subject due to the fact that they have difficulty separating the concept of feeling guilty and actually being guilty of the crime under investigation.

Judgment (J) and Perception (P)

Last is the preference relating to lifestyle and work orientation: judgment and perception. Subjects who have a preference



for judgment tend to be decisive and purposeful. They will feel anxious until a decision has been made and closure obtained. The subject who uses the judging preference wants closure and is motivated to provide the necessary information to the interviewer to complete the task and close the issue. The individual with this preference will plan and calculate moves and the interviewer should remember to keep the interview organized and structured for these individuals. They often appear early for your interview and most always, have some type of time piece close to hand. A good question to determine this preference is to ask the subject what would they do if their time piece was taken away. The J will respond by saying that they would be lost while the P could care less.

Subjects who have a preference for perception are spontaneous and curious. They sometimes feel anxious when they have to make a decision because they don't want to close off their options when something better might turn up! My experience indicates that Perception along with Introversion are the primary preferences for armed robbery suspects. Subjects with a preference for perception are very difficult to interview because they can switch subjects in mid-stream. This is a definite countermeasure to distract the interviewer. Interviewers need to be prepared to spend a lot of time with these kinds of suspects because they will generally give information in bits and pieces. If I find a suspect trying to change subjects, I will verbally instruct him to focus on the issue at hand. This is a direct use of the typing technique.

The following is a good example of the dif-

ferences in how crimes are committed by a Judging versus Perceiving preference. A deposit bag is accidentally left on the unlocked manager's desk. Obviously this a crime of opportunity. By the time a J completes his plan to steal the money, a P would already have taken it. This is a good way to formulate suspects based on a lifestyle analysis of a crime.

Summary

The personality preferences that have been described will be exhibited by subjects you interview at one time or another. By recognizing and focusing on each preference in an individual subject, you can recognize behavior patterns projecting themselves and base your interview on a systematic technique as opposed to a gut feeling. You can navigate by a road map in a consistent manner. Knowing the direction the interview will take is a major stress reducer for an interviewer.

Begin to type the subject as soon as he walks into the interview room, but be aware that his behavior may change as he begins to relax. Even though you typed the subject's behavior initially, be prepared to type him again if necessary. He is more likely to exhibit his true preferences after he adjusts to the interview and becomes more comfortable with you as the interviewer.

After typing the subject, observe him for nonverbal changes in behavior and ask him about them as they occur. This demonstrates your explicit interest in the subject, and it will further build a connection or type of bond of understanding with the subject. Once the subject trusts that bond, quality information is likely to follow.



FINAL THOUGHTS

The systematic personality/behavior typing approach presented in this article provides a technique or template that interviewers can use in interviewing victims, witnesses and suspects. I like the comic's page character Dennis' statement: "I color outside the lines because there's more room." Similarly, using this approach expands insight into the subject and reveals new options available to you as an interviewer.

If you are using an interviewing technique now with which you feel comfortable, stick with it. Personality-based interviewing is not designed to replace your technique but to enhance it. The personality/behavior typing approach to interviewing enhances your traditional routine because it allows you to create a distinct relationship with the subject in the first few minutes of the interview. The stress you reduce on yourself, the interviewer, you increase and target toward the subject.

To use this technique most effectively, take your time. Don't try to interview when you are not in the right frame of mind. You know when you have reached that point. Interviewers who elect to use the personality/behavior typing technique will find that, as they begin to understand different personality types, they will also acquire greater understanding of their own personality preferences. With that understanding comes greater self-control and effectiveness in all contacts, personal and professional. The inherent stresses of interviewing will recede to a more manageable level. Once you learn how to use this technique, your new skills

will allow you to readily adapt to any type of interviewing situation. As you master the technique, you will walk into any interview with increased self-confidence, knowing that you have the ability to understand the subject sitting before you.

That is the complete personality typing technique - a guided approach to interviewing. You will find that your ability to get subjects to reveal things will increase, not because you coerced them but because you influenced them to want to communicate. As a consequence, they will tell you more. That, of course, is always your goal - to secure truthful and relevant information about the case under investigation and obtain accurate polygraph results.

RESOURCES FOR ADDITIONAL READING

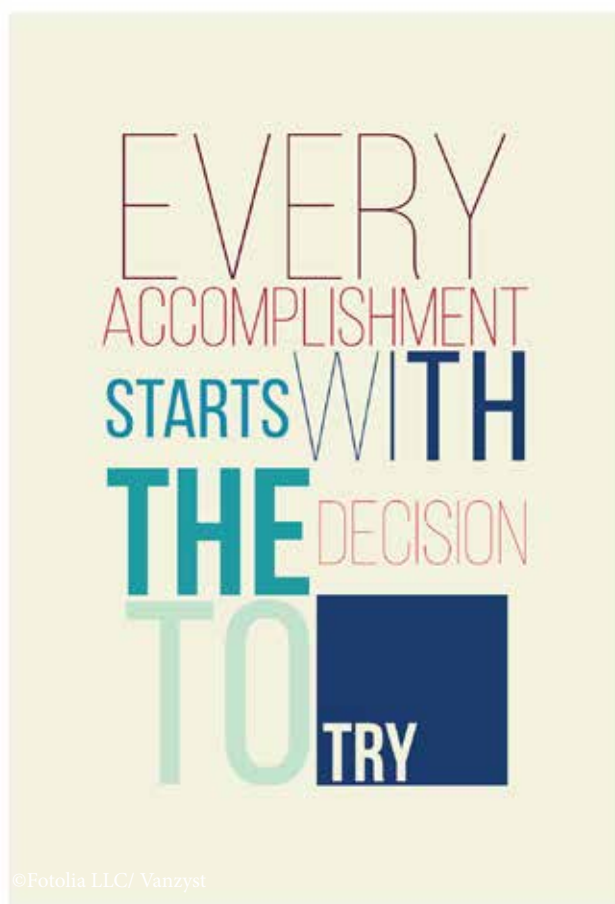
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Advances are made by answering questions
Discoveries are made by questioning answers

The risk of “Self-fulfilling prophecy” in polygraph tests

By Tuvya T. Amsel

Jerry was standing in front of Helen’s grave, surrounded by her family and their senior high school classmates, struck with sorrow and remorse. Sorrow, because Helen was the only person in their class who treated him nicely and friendly. Remorse, because he was the last person to see her at their small town mall before she was raped, beaten and strangled and the thought that he might have saved her filled his eyes with tears. His weeping caught the attention of the county’s police department investigators who were screening the crowd for suspects. A quick background check on Jerry increased the suspicious that he might be the alleged perpetrator: a lone individual who had no friends, who used to be mocked by his classmate and except for Helen who was

always nice and friendly with him he was a total outsider. To the investigators, in light of the new background information, Jerry’s sobbing resembled more of a crocodile – tears style cry than a genuine friendly cry. Jerry’s arrest came in no time. Jerry’s prolonged four-hour interrogation produced no confession or any evidence-connecting information. Jerry systematically denied any involvement in Helen’s rape or death and bluntly rejected the detective scenario that her refusal to have sex with him while he was intoxicated led to the tragically events. Eventually after the prolonged interrogation he was directly submitted to a polygraph test, **which he failed in spite of his innocence.** The examiner immediately engaged in a prolonged post-test in-

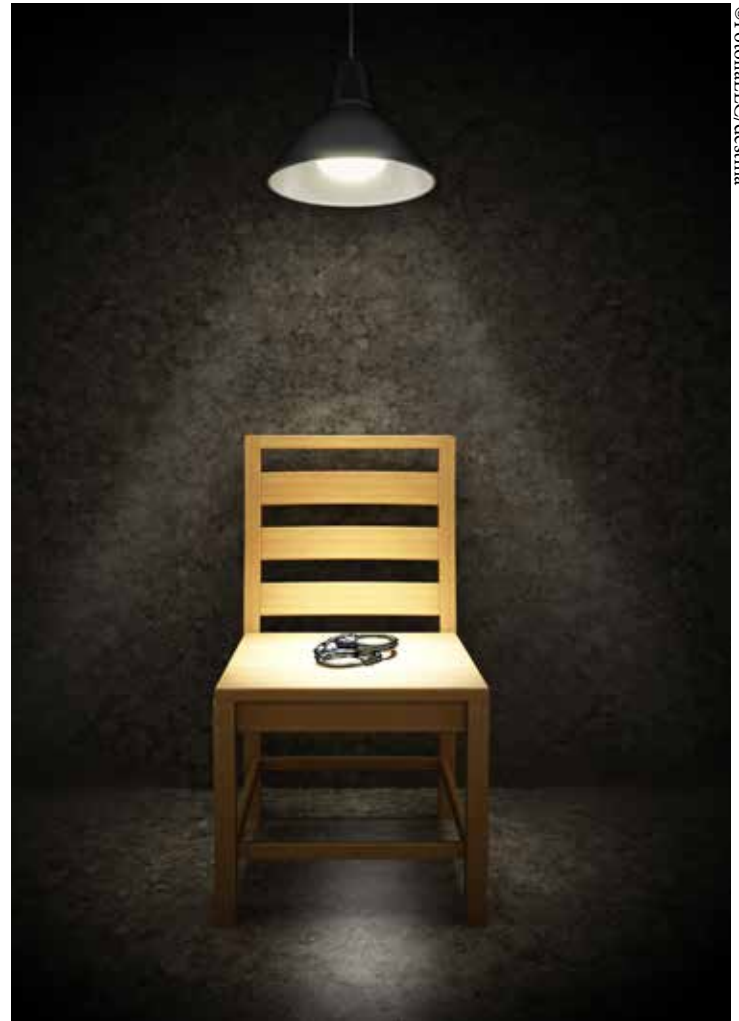
The author is a private examiner in Israel, and a regular contributor to the publications of the American Polygraph Association. The views expressed in this column are solely those of the author, and do not necessarily represent those of the American Polygraph Association. Publishable comments and replies regarding this column can be sent to editor@polygraph.org.



terrogation which concluded with Jerry's full confession that was later followed by a life imprisonment sentence. A decade later based on DNA evidence, Jerry was released from his imprisonment and the real perpetrator who was identified based on DNA confessed¹.

Why did Jerry fail?

Presuming that the polygraph test was performed appropriately a plausible explanation might be that: after spending 4 hours in an interrogation room in a non-friendly, unfamiliar, and alienated environment, in solitude, being subject to physical discomfort and being accused of a crime he have not committed, (a typical brainwashing condition that might eventually lead as far as a false confession), Jerry started to develop a self-growing doubt and self-suspicious of "maybe I was intoxicated and maybe I did it?". Once the nagging thought crossed his mind the "**Thomas Theorem**" commenced. The theorem which was published in 1928 by the American sociologists William Thomas and Dorothy Thomas stating that: "If men define situations as real, they are real in their consequences."² i.e. the way people perceive a situation, regardless of its accuracy, will determine their behavior which in return will result in related consequences. When Jerry was offered to undergo a polygraph test, along with welcoming the idea as a solution to prove his innocence, the self-doubt raised the fear of failing the test because of the "**Schema Theory**". The theory was introduced by the Swiss psychologist Piaget also in 1928. According to this theory when facing a problem-solving situation, due to the vast amount of information and stimulations humans are exposed



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to, our cognition takes a short cut by categorizing the information based on past experience and knowledge rather than based on the actual current situation. An instant method of concluding based on past rather than present³. In a way it's an intuitive problem solving method adopting "Occam's razor" ("Among competing hypotheses, the one with the fewest assumptions should be selected"). So in Jerry's mind the self-doubt along with the fear of failing the test became reality, a situation which created in Jerry a type of "**Mental Contamination**", which is defined as:

"... the process whereby a person has an unwanted response because of mental processing that is uncon-



scious or uncontrollable. This type of bias is distinguishable from the failure to know or apply normative rules of inference and can be further divided into the unwanted consequences of automatic processing and source confusion, which is the confusion of 2 or more causes of response. Mental contamination is difficult to avoid because it results from both fundamental properties of human cognition (e.g., a lack of awareness of mental processes) and faulty lay beliefs about the mind (e.g., incorrect theories about mental biases). People's lay beliefs determine the steps they take (or fail to take) to correct their judgment and thus are an important but neglected source of biases responses⁴.

By taking the test immediately following his interrogation, without having a necessary and essential **"Incubation Period"** (will be broadly discussed later), and with a growing fear of failure and mental contamination a **"Self-fulfillment prophecy"** was initiated and completed with his confession.

The **"Self-fulfilling Prophecy"** phenomenon

The self-fulfilling prophecy is a well-known phenomenon since ancient times and can be found in various fairy tales and stories from around the world. Just to mention a few are: The Greek legend of Oedipus, The Roman story of Romulus and Remus, the ancient medieval Arab story "One Thousand and One Nights", in some of the Indian Sanskrit stories as well as in old Russian and European tales including Shakespeare's Mac-

beth. A more recent and modern example would be the life of Anakin Skywalker, the fictional Jedi-turned-Sith Lord in George Lucas' Star Wars saga⁵. Subsequently after centuries of tales and fiction the American sociologist Robert Merton of Columbia University published in 1948 the first scientific article discussing the phenomenon in where he wrote.

The self-fulfilling prophecy is, in the beginning, a *false* definition of the situation evoking a new behavior which makes the original false conception come *true*. This specious validity of the self-fulfilling prophecy perpetuates a reign of error. For the prophet will cite the actual course of events as proof that he was right from the very beginning⁶

In other words, a strongly held belief (regardless if it is positive or negative) declared as **truth when it is actually false** may influence people so that their conscious or unconscious behavior and reactions will ultimately fulfill the false prophecy.

The phenomenon is divided into the **"Pygmalion Effect"** (a.k.a **"Rosenthal effect"**), in where higher expectations lead to an increase in performance, a type of a positive effect while its' opposite effect is the **"Golem effect"** "in where lower expectations placed upon individuals either by supervisors or the individual themselves lead to poorer performance by the individual⁷

Incubation Period

The immediate connotation of incubation is to sit upon eggs for the purpose of hatching



them or at a hospital in where a favorable temperature as well as other conditions is maintained in order to promote the development of a prematurely born infant. In psychology the term refers to the “process of unconscious recombination of thought elements that were stimulated through conscious work at one point in time, resulting in novel ideas at some later point in time”⁸ Smith and Blankenship describe the incubation effect:

After an initial period of unsuccessful work at solving a problem, a subject might either continue to work uninterruptedly or put the problem temporarily aside, returning to it later. The elusive laboratory phenomenon called “incubation” refers to superior performance for those subjects who return to the problem after a delay rather than working continuously on the problem. The *forgetting-fixation* hypothesis states that correct solutions are made inaccessible during initial problem solving when incorrect solutions are mistakenly retrieved. Forgetting (or decreased accessibility) of fixated material should make correct solutions relatively more accessible, thus leading to incubation. Four experiments in the present study found incubation effects using a set of picture-word problems called rebuses. Misleading clues were initially presented with some of the problems, to induce fixation artificially. Greater forgetting occurred at retest for groups showing the greatest incubation effects, consistent with the forgetting-fixation hypothesis⁹

Sio & Ormerod (2009) found in their meta-analytic review of empirical studies that have investigated the incubation effects on problem solving that:

“... Identified a positive incubation effect, with divergent thinking tasks benefiting more than linguistic and visual insight tasks from incubation. Longer preparation periods gave a greater incubation effect, whereas filling an incubation period with high cognitive demand tasks gave a smaller incubation effect”¹⁰

Implementation

A very partial support of the above mentioned theory occurred in the late eighties when the Israeli National Police Polygraph Laboratory led a real life study in where innocent policemen, who were trained as CSI technicians, were accused harshly of cheating in a test. They were interrogated and immediately upon have been submitted to polygraph test. Due to the fact that the study had to be terminated a midst, because of participants’ objections that created a commotion, only about ten policemen were tested. Most of the examinees responses in the charts were inconclusive, some failed the test and in general the responses were erratic and nervous and the inconclusive results and false positive results were abnormal and disproportional in the charts¹¹.

In spite of no supporting research and following the footsteps of the Israeli National Police Polygraph Laboratory, the Israeli Polygraph Examiners Association (IPEA) adopted in its year 2000 “Standard of Practice” “Polygraph Tests - Pre requisite” section the following practice which require examiners to



avoid testing if:

- The examinee was intensively investigated (interrogated) on the day of the test¹²
- If the examinee was not notified of the test and its scope at least 12 hours prior to the test and it is recommended to notify the examinee at least overnight prior to the test.¹³

It is assumed that the 7-8 hours buffer zone between the interrogation and the polygraph test serves as an incubation period to the examinees that enable them to relax and meditate and have enough time to think over and digest the recent events. Enough time for the innocent to reassure themselves of their innocence thus removing any doubt from their mind contrary to the guilty examinees in where incubation period increases their raising concern over exposure and detection.

Pretest – Special attention considerations

A few steps that should be taken in order to ease the interrogation effect: If the examinee spent the incubation period in incarceration, the examiner should act as a host by offering coffee/tea and alike as well as asking if s/he wants to refresh in the bathroom. The suggestions serve as a type of a “peace pipe” and create a separation between the interrogator and examiner. Regardless of incarceration the examiner should discuss the interrogation with the examinee and ask how s/he felt and does s/he feel about it now. The mere discussion serves as a ventilation opportunity to the examinee and in return both steps may help to create a rapport between the two.

Conclusion

Regardless if the examinee was interrogated adjacent to the test or was just called in unexpectedly to take the test, the lack of incubation period might lead to false positive results. The reality of polygraph tests is where examinees, which had no incubation period, responded deceptively but later after having an appropriate incubation period, were retested and responded truthfully is well known. Therefore in spite of having no research to support the negative influence of lacking incubation period on polygraph tests, the combination of the described reality and scientific findings that clearly find that incubation period is necessary to improve performance, should make us cautious enough to mandate an incubation period on our polygraph practice.

Endnotes

- 1 The above described events are based on genuine known cases. For more information look at www.innocenceproject.org/ and www.centurionministries.org
- 2 W.I. Thomas W.I., & Thomas, D.S., (1928), “The child in America: Behavior problems and programs”, New York: Knopf, 572
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6 Merton, R.K., (1948), "The Self Fulfilling Prophecy", *Antioch Review* **8** (2 (Summer)): 195.

7 "Golem Effect", https://en.wikipedia.org/wiki/Golem_effect

8 Seabrook, R., & Dienes, Z., (2003), "Incubation in Problem Solving as a Context Effect", in *Proceedings of the 25th Annual Cognitive Science Society: Part 2 and 2*, Boston. 1065

9 Smith, S.M., & Blankenship, S.E., (1989), Incubation effects, *Bulletin*

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10 Sio, N.U., & Ormerod, T.C., (2009), Does Incubation Enhance Problem Solving? A Meta-Analytic Review, *Psychological Bulletin*, 135(1), 94-120.

11 Ginton, A., (ginton@zahav.net.il). (1-1-2016). "Incubation", e-mail to Tuvya Amsel (ta@amsel.co.il)

12 IPEA Standard of Practice Section B.a, article 5, 2000 edition.

13 IPEA Standard of Practice Section B.a, articles 8 & 9, 2000 edition.



One alternative design of lie detector focused on galvanic skin resistance, which is generally a proxy for sweatiness. Simple versions of such devices can be made at little expense, as suggested by this *Popular Science Monthly* article of April 1940. In fact, most polygraphers found this measure to be too volatile for good results, though Keeler added it to his polygraph in 1939 when he switched his manufacturer to Associated Research of Chicago.

Poly Toy - NOTE: All images on this site are believed to be subject to fair use or are used by permission of copyright holder. If you believe this to be in error, please contact the website: <http://www.kenalder.com/>

Remembering the Pioneers



August Vollmer (1876-1955), chief of the Berkeley Police Department from 1906 to 1932, was the celebrated father of American professional policing. Vollmer saw in Larson and Keeler's lie detector a means to replace brutal "third degree" interrogations with more scientific and lawful techniques.

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In 1921, **Larson** rigged a device to continuously record the blood pressure and breathing depth of subjects while they answered "yes" or "no" to alternating relevant and irrelevant questions. And he soon found the ideal experimental set-up to prove his technique: a theft in a college sorority. The first of these, the College Hall case, showed how the lie detector might be used to extract a confession. Here, Larson (left) and Vollmer test a Berkeley undergraduate on his first machine, currently held by the Smithsonian Institution.

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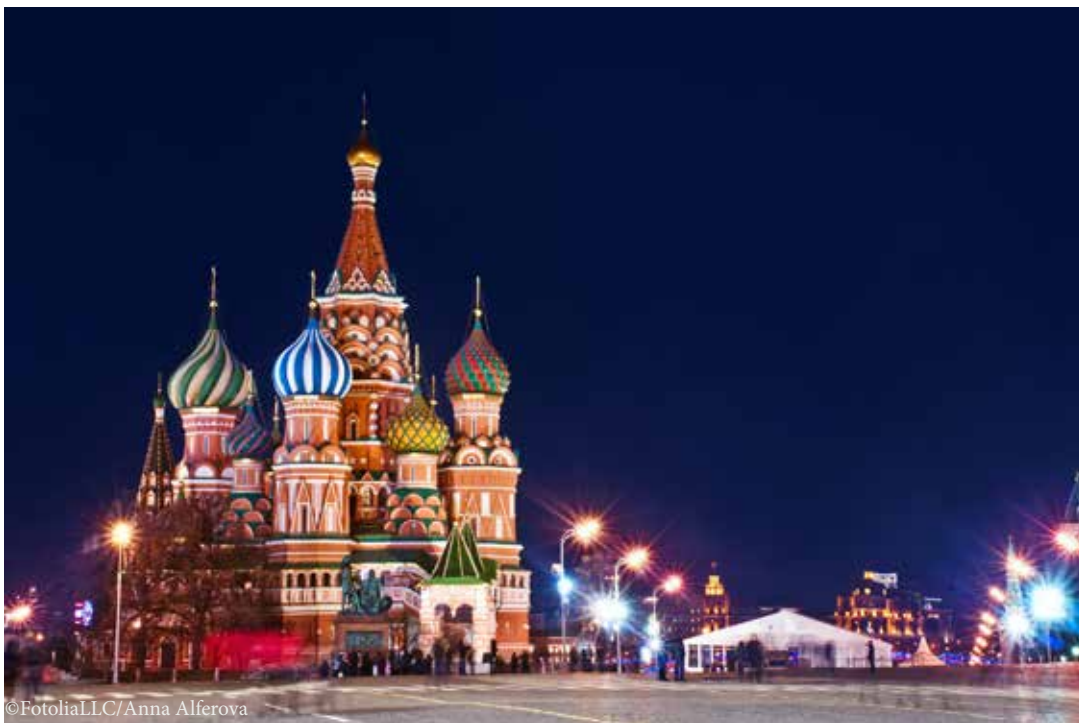
By Yaroslava Komissarova and Said R. Khamzin

Polygraph use for state security problem solutions began in Russia in 1975. Formal use of the polygraph instrument in criminal investigations and examiner training for the government agencies started in the 1990s^I.

I For further information, see: *Komissarova Y.V. Lie detector: Theory and Practice in the fight against crime. Saarbrücken, (Germany): Palmarium Academic Publishing, 2012.*

However, the first universal standards of polygraph examiner training in Russia appeared only at the beginning of the new Millennium^{II}.

II Russia's Ministry of Education approved State educational standards (requirements) in continuing education programs for a «Specialist for Conducting of Instrumental Psychophysiological Interview» and «Forensic Examiner for Conducting a Psychophysiological Polygraph Examination» were approved in 2001 and 2004.



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In 2006 in the Kutafin Moscow State Law University (MSAL) 14 examiners (including those who started working with the polygraph at the KGB of the USSR) were the first in country to receive certificates officially recognizing their right to practice a new kind of professional activity – conducting psychophysiological polygraph examinations (further – PPE).

Over these years' departmental rules and regulations regarding the use of polygraph by public and administrative authorities has been formed. An idea for a Polygraph Act (Law) was discussed and rejected by The State Duma of the Federal Assembly of the Russian Federation (Russian parliament).

However, there is an ongoing dispute on the polygraph in Russia. For decades

both supporters and opponents have held diametrically opposed positions. Some advocate for polygraph to be used everywhere in court procedure and staff management, while others want to limit the use of the polygraph instrument and leave it only as part of operational-investigative activities.

Attorneys of suspects and accused persons (and even crime victims), while arguing their positions, often insist on taking a polygraph examination. Investigators and judges appoint a forensic psychophysiological polygraph examination in criminal cases (hereinafter – FPPE).

Forensic psychophysiological polygraph examinations were established in 1996 when Research Institute No 2 of the



Bureau for Scientific-Technical Support of Russia's Federal Security Service (hereinafter FSS), now Forensic Institute of FSS Special Equipment Center (hereinafter Forensic Institute), had organized a training of polygraph examiners¹. In 2000 – 2001 Forensic Institute officers participated in comprehensive psycho-physiological-psychiatric and psychological expert examinations. Starting from 2002 they conduct FPPEs as an independent expert examination¹¹.

In 2004 Russia's the Expert Center of the Ministry of Defense (now 111th Main State Center for Medical Forensic and Criminalistics Examinations) began conducting FPPE's.

In January of 2005 the first polygraph examiner became a staff member of Criminal Expertise Center of Main Department of

Internal Affairs of the city of Moscow (Moscow City Police). Information letter "On conduct of psychophysiological examinations" issued by Moscow City Prosecutor's Office on November 16th 2005, initiated the conduction of a new type of expert examination in private expert institutions.

In March of 2006 Ministry of Interior in the Republic of Tatarstan (region of Russian Federation) by agreement with Criminal Expertise Center of the Russian Ministry of Interior initiated an experimental practice on comprehensive psychological-psychophysiological expertise done by Criminal Expertise Center of Ministry of Interior in the Republic of Tatarstan. This experiment was successful and polygraph examinations are conducted by Criminal Expertise Center of Ministry of Interior in the Republic of Tatarstan up to now.

Regional offices of forensic subdivision of the Investigative Committee of the Russian Federation began conducting PPI and FPPI in 2009. Between 2009 and 2010 they conducted more than 2500 examinations and expert examinations. In 2012 polygraph examiners of the Investigative Committee made more than 4500 examiner reports and 1100 expert reports on criminal cases and in 2014 more than 7500 specialist reports and 1900 expert reports.

I For further information, see: *Kholodny Yu.I.* Application of Polygraph for Prevention, Detection and Investigation of Crimes (genesis and legal aspects): monograph. M, 2000

II The word "expert" has several meanings in the Russian language. During the examination on the criminal case the investigator or the court may invite any expert. In this case the expert acquires a procedural status of an expert on a particular case. Law enforcement bodies in Russia have their own expert divisions. The specialists who work there, are *ex officio* experts. They are certified to be eligible for independent performance of a certain of expertise. Each agency has its own policy. Unified certification does not exist. But for each case this "*ex officio* expert" should be individually recognized by the investigator or the court as "an expert on the case".



In 2010 expert subdivisions of the Federal Drug Control Service of the Russian Federation or FSKN began conducting FPPEs.

Under the Part 6 of the Article 11 of the Federal Law "On the State Forensic Expert Activities in the Russian Federation" of May 31st 2001 No. 73-FL (hereinafter Federal Law on SFEA), state forensic expert institutions must conduct their activities on the basis of scientific-methodological approach in their expert practice, in professional training and in the area of practice of the experts. If such approach is not established, performance of corresponding expert evaluation by state forensic institutions is impossible. Provisions of the Article 11 of the Federal Law on SFEA do not prohibit development and approval, by a procedure established by a law, of departmental techniques on performance of certain types of expertise.

As it is well known, while forming a new kind (type) of expert examination, scientists and practitioners meet the need to use not only techniques and methodologies borrowed from its mother science, but they also need to develop specific methodologies which are needed only in forensic expert practice^{III}. According to the listed above while conducting FPPE it should be

III Theory of forensic examination: textbook. / E.R. Rossinskaya, E.I. Galyashina, A.M. Zinin; under the editorship of E.R. Rossinskaya. M., 2009. P. 131.

differentiated:

1. Polygraph testing techniques – operating procedures by the bearer of special knowledge during the examination. The world's best practices of methods of this type are well known as well as tested in Russia. They are used during the examination, regardless of the ordering party of the examination. A person studies these techniques during polygraph examiner training.
2. Expert methodology for conducting FPPE as a set of rules (strict or optional), regulating the selection process and usage procedure in certain sequence, in certain (existing or created) conditions of ways and means used by polygraph examiner for a task solution.

In Russia the difficulties always emerge when developing techniques of the second type. In 2005 a team of country's well-known polygraph examiners have developed a Technique for the examination using the polygraph (hereinafter – Specific Expert Technique). In November of 2005 it was recommended for practical use by one of the non-government expert institutions of Moscow. In 2006-2009 these techniques have been tested by Criminal Expertise Center of Ministry of Interior in the Republic of Tatarstan.



In 2008 on request by Bureau of Special Technical Activities of the Ministry of Internal Affairs, officers of The Academy of Management of the Ministry of Internal Affairs along with a number of law enforcement ministries and agencies prepared standard requirements to the procedure of conducting procedures of the psychophysiological polygraph examinations (hereinafter – Standard requirements).

At the present time Specific Expert Technique and Standard Requirements are successfully used for conducting psychophysiological polygraph examinations and expert polygraph examinations by the Investigative Committee, the Expert Center of the Ministry of Defense and by other state and private expert institutions.

In 2009 Criminology Institute introduced a Technique of forensic psychophysiological polygraph examinations. Due to a specific nature of this institution, the contents are unknown to the polygraph examiner community and its documents are not available to the legal community.

In 2014 Criminal Expertise Center of the Federal Drug Control Service of the Russian Federation prepared departmental Methodological guidelines on a procedure of commissioning and conducting polygraph examinations in its departments. Description of the General conditions and

procedure of conducting FPPE set forth in Methodological guidelines, is consistent with the provisions of Specific Expert Technique and Standard Requirements.

Thereby we can acknowledge the fact that a specific system of methodological support for conduction of polygraph examinations and expert polygraph examinations had developed in Russia, which reflects the existence of psychophysiological problem and limitations of use of a polygraph as evidence in criminal cases.

Today FPPE's are conducted not only by state but also by private expert institutions as well as by private polygraph examiners¹.

This creates a number of problems: first, the low level of professional skills of some examiners. Second, lack of knowledge in the field of law, theory and practice of forensic examinations among examiners and, as a result, misconception of place and role of a polygraph examiner in legal (court) proceedings. Third, uncritical attitude towards differences in scientific approach of techniques validation in conducting of examination. Factors, mentioned above, altogether

¹ The number of examinations and expert examinations conducted by private examiners is unknown. The Supreme Court of the Russian Federation did not conduct any studies of court practice on the use of PPE results as evidence in criminal cases.



er result in increasing number of mistakes when conducting FPPE^{II}.

In practice, mistakes happen on all types of expert examinations without exception. At the stage of formation of a new kind of expert examination an exaggerated value is often attached to it, sometimes the very possibility of the existence of this or that type of expert examination is questioned.

There are three groups of typical expert errors: errors of a procedural nature, knowledge and activity (operational) errors.

The first group include: when the experts go beyond their competence; the expression of extra-legal expert initiative; receipt of materials and objects of expert research from improper sources or with infringement of the established order; forming conclusions based on the materials of the case, not on the results of the findings; failure to comply with requirements for preparing of an expert report; and some others.

Knowledge errors can be actual (subject) and logical (for example, when the dividing and defining concepts, when formulating the conclusion according to the rules of induction or deduction

II *Komissarova Y.V. Errors in forensic psychophysiological examination using a polygraph // Forensic examination: common mistakes / under the editorship of E.R. Rossinskaya. M., 2012. P. 226-241.*

Activity errors are associated with the current expert activities and operations and may be in violation with the sequence of research order of the methodology, using inapplicable technical means, to obtain sub-standard comparative material, etc.

Thus, during the FPPE examination commissioned by the major case investigator of Egorievsk city Prosecutor's office, polygraph examiner (Institute of criminology employee) took on its resolution following questions: "was G. in the apartment of E. on the address ... at the time of wounding and E. And Z.?" and "had G. inflicted stab wounds to E. and Z. on the night of 29 to 30 August 2005?"

According to the results of the examination, the examiner came to "the following firm conclusions: G. was not in the apartment of E. at ... during wounding of E. and Z; G. did not inflict stab wounds to E. And Z. on the night from 29 to 30 August 2005; G. is not aware of the details of committing arson of the apartment of E.; G. has no knowledge known of any person, who caused stab wounds to Z. and E. ".

In the FPPE examination by the order of the investigator of the military Prosecutor's Office of the Caspian fleet examiner (employee of the Ministry of Internal Affairs of the Astrakhan region) took into the resolution the question: "what actions did Ch.



perform on the night of August 14 to 15, 2006". The expert conclusion: "Citizen. Ch. performed the actions corresponding to the process of stealing money".

In 2010, polygraph examiner (a former employee of the Interior Ministry), appointed by Military Investigative Office of the Investigative Committee of the Vladimir garrison, took on its resolution the following question: "did M take the missing AK-74 out of the Armory of a military base... outside the box?" The expert concluded that "in memory of M. clearly presents the information that he took out the missing AK-74 M from the Armory of a military base... outside of the box".

In 2013, during FPEE examination by investigative warrant of the senior investigator-criminalist of the Military Investigative Office of the Investigative Committee of Russia of Naro-Fominsk garrison of Moscow Military Investigative Office, polygraph examiner (employee of a private expert organization), among others, gave an affirmative answer to the following question: "Does the memory of R. show evidence that he was acquainted with Sh?"

Resolution of the issues mentioned above is not within the competence of the expert for two reasons. First, because it involves identifying the circumstances, according to article 73 of the Russian Federa-

tion Code of Criminal Procedure, subject to be proven in the proceedings on a criminal case. According to the article 74 of the Code of Criminal Procedure, the expert opinion is a source of information on the basis of which the presence or absence of circumstances which are the subject to proof, as well as other circumstances of importance for criminal proceedings, sets the court, Prosecutor, investigator, interrogating officer. Second, due to the fact that the modern level of science does not allow to specify the information a person possess by registration and analysis of psychophysiological reactions in response to stimuli presented.

Updating the images stored in the memory of the examinee (including selected and systematized by means of stimulus, presented in a certain order), the polygraph examiner studies the severity, stability, the ratio of reactions on test questions. Using different systems of evaluation of recorded data, he or she will single out the set of stimuli that are significant. Depending on a type (sort) of stimulus and what methodology was used during testing on a polygraph, the polygraph examiner may in the affirmative or negative way answer to the question: during the examinations were the reactions detected that indicate that the person has any information about any event (or its details).

Thus, based on the analysis of the



identified reactions, the polygraph examiner formulates their (expert) version regarding the knowledge of the examinee about the incident. Being the bearer of special knowledge, he or she is also entitled to express the opinion on the possible circumstances of how the examinee obtained an information about the event (the probability of obtaining an information at the time of the event). However, based on the results of the polygraph examination it is impossible to determine exactly what information is contained in the memory of an individual. The mechanisms of memory are not yet completely studied!

In each of the cases mentioned above, being guided by articles 16 and 41 of the Federal law «On State Forensic Activities in the Russian Federation», the experts were required to make a written motivation statement on impossibility to give an opinion and to forward it to the person who commissioned a forensic expert examination.

At the stage of formation of FPPE similar definitions of the expert conclusions which show an uncritical attitude to the experience of other countries, was used by

I For further information see: Baddley A., Eysenck M., Anderson M. *Memory* / translated from English; edited by T.N. Reznikova. – SPb., 2011; Pelenutsyn A.B., Soshnikov A.P., Zhibankova O.V. So what is it that determines the polygraph? // *Journal of criminology*. Vol. 2 (38). M., 2011. P. 7-18.

many polygraph practitioners. But even today such opinions are not uncommon. However, the price of failure has increased significantly.

In 2011 the Main Department of Criminology of the Investigative Committee had examined the practice of appointing and conducting FPPE's. The finding resulted in the Review of practice of psychophysiological polygraph examinations in the detection and investigation of crimes (on the results of first half of 2011), forwarded to regional departments signed by the Deputy Chairman of the Investigative Committee of the Russian Federation.

In the Review, in particular, it was stated: "it seems an unreasonable practice of appointing paid services of PPE's to private specialists or non-state expert institutions, which generally aim to satisfy their financial interests, and also, because of their incompetence, can give false and not based on conventional techniques results of the examination. An example of such incompetence is the conducting of polygraph studies and examinations by private polygraph examiner N. Information that negatively characterizes his professional career, was repeatedly provided by staff members of the regional Criminal Investigation Departments and other state bodies".

A year later, polygraph examiner, an



employee of Investigatory Committee of Russia made the same mistake – went beyond the limits of her competence when she answered a legal question. Followed by a backlash of the Supreme Court.

Paragraph 5.2.1. of the Review of cassation practice of Judicial Board on criminal cases of the Supreme Court of the Russian Federation for the second half of 2012, approved on 3 April 2013, states that the reports of the results of psychophysiological examinations does not meet the requirements for expert reports of the criminal procedure law; psychophysiological studies cannot be referred to as the evidence under article 74 of the Russian Federation Code of Criminal Procedure^I. It is not explained why in the decision for a particular criminal case, this refers to all psychophysiological studies and examinations (without specifying of their use during conducting of polygraph examinations).

Such Reviews of the practice are not regulatory legal acts. However, in the first half of 2013 reports of Investigative Committee's staff polygraph examiners were used by Russian courts as evidence when bringing in more than 150 guilty verdicts and 6 acquittals in criminal cases, in the first half of 2014 it was 91 and 2, and in the first

half of 2015 – 83 and 1, verdicts respectively.

Most often, cases of an expert going beyond its competence while conducting FPPE, is a result of knowledge nature of errors, which is quite difficult to avoid even for the experienced polygraph examiner^{II}.

For decades of conducting polygraph examinations in many countries a significant amount of empirical data evidencing the effectiveness of its use was accumulated. However, psychophysiological regularities in their nature are fundamentally different from the exact laws applicable, for example, in the field of physics. The relationship between psychological and physiological phenomena is obvious. But in contrast to developments in the exact sciences, it is not deterministic, but probabilistic. Therefore, there are many theories which attempt to describe the nature of psycho-physiological reactions detected during a polygraph examination.

As it is known, in the beginning of XXI century on the request of the U.S. Department of Energy under the patronage of the National Academy of Sciences by the assignment of the US Government was formed a Committee on studies of the scientific validity of the polygraph. During 19 months of work, the experts conducted a fundamental

I URL: <http://ппвс.пф/2013/obzorsudebnoy-praktiki-vs-rf/2013.04.03-kassatsyia.html>

II For further information see: *Komissarova Y.V., Myagkih N.I., Pelenytsin A.B.* Polygraph in Russia and in the USA: problems of use. M., 2012.



analysis of almost all aspects of psychophysiological examinations and concluded that the various theories justify their existence in different situations^{III}.

The use of empirically based techniques in the conduction of examination necessitates strict adherence to tried and tested in practice expert techniques. This helps to avoid logical errors.

Often because of a lack of stable psychophysiological reactions on relevant questions related to the event which lead to the appointment of FPPA, polygraph examiners come to the conclusion about the absence of images connected to the event which formed in the memory of the examinee. If during the polygraph examination there were no significant persistent psychophysiological reactions, which could indicate that a person has any information about the details of the incident, polygraph examiner cannot judge about the knowledge of the examinee regarding the circumstances of obtaining information which is interesting to the investigator. In the expert's report we should point out the impossibility of formulating conclusions on questions raised by investigation.

The availability of methodological material does not guarantee its proper use

III URL: <http://www.nap.edu/read/10420/chapter/1#v>

– polygraph examiners, who conduct FPPEs are not always aware of procedural importance of compliance with existing Russian standards. In this regard, the video recording (not specified by current Russian legislation in conducting forensic examinations) during conduction of FPPE examination is extremely important. Only if there is a video recording, the parties involved have a real opportunity to evaluate the validity (adequacy) of specific actions of a polygraph examiner to common scientific and methodical approach of expert practice in the field of polygraph and requirements of ethics.

If a video recording was not conducted during the examination, it will be impossible to understand from the report of an examiner whether a pretest interview was conducted, was an examinee introduced with the procedure and rules of conducting the examination, particular, whether or not was the event which gave rise to the appointment of FPPE discussed. Contents of the written report does not give an opportunity to assess the validity of the procedure of a polygraph testing.

The presence of someone else except examiner and the examinee during the examination, (if it is necessary) can help to resolve the question of whether any acts that infringed the rights, degrading the honor and dignity of a person (as of the examinee and the polygraph examiner) were commit-



ted. However, the presence of third parties without video recording makes it impossible to resolve the question of whether actions of an examiner were or were not in the compliance with all the methodological requirements.

The authors were participants of the 50th seminar of the American Polygraph Association, held in Chicago (Illinois, USA) in 2015. In his speech on the legal aspects of the use of psychophysiological examination results in court, Gordon L. Vaughn referred to court decisions that took into account the opinion of the polygraph examiners only with the video recordings. This indicates the similarity of positions of American and Russian professionals. The cornerstone of polygraph use in the investigation and prevention of crimes must be the inadmissibility of the infringement of personal rights and freedoms. Only on condition of compliance with scientifically-based and approved practical standards of polygraph use, the polygraph examiner's expert report may be considered admissible evidence in a criminal case.

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The background of the top half of the page is a dense, overlapping pattern of numbers in various colors including blue, purple, magenta, and red. The numbers are of different sizes and orientations, creating a complex, abstract visual field.

The Myth of Numerical Scoring

By Robert Peters

The National Academy of Sciences' (NAS) assessment of polygraph validity (The Polygraph and Lie Detection, 2003) contained the observation that the numerical evaluation "cut scores" used by the polygraph programs of federal government as the thresholds for judgements of truth or deception are more management decisions than they are scientific data points. While those cut scores serve useful administrative and management purposes, the NAS commented on the role of cut scores because it concluded that

many in the polygraph community perceive cut scores as more scientifically meaningful. That perception is a reflection of the mythological status some attribute to numerical scoring. The analysis of polygraph data entails correctly identifying critical features of physiological data and classifying the consistency and intensity of those data within a series of exam recordings. The plus/minus method of numerically evaluating (scoring) polygraph data is a very significant advancement in the history of poly-



graph. Plus/minus numerical scoring has proven to be an especially effective method of quantifying and presenting the visual assessments of the analyst. Various methods of the plus/minus scoring technique are widely used by polygraph examiners around the world. Some of the designated scoring systems are the Federal Numerical Scoring method, the Utah Scoring method, the Backster Scoring method, and the Empirical Scoring System. Scoring provides a consistent basis for comparing the test data analysis of different examiners. When examiners differ in their assessment of polygraph exam data, numerical evaluation provides a means to immediately identify the specific points of data on which their assessments diverge. Numerical analysis provides an effective method for quality control officers to appraise the performance of field examiners. Most important, there is evidence that examiners are more likely to make correct judgments of truth or deception when utilizing plus/minus numerical analysis compared to some other methods of test data analysis.

Cleve Backster, a notable figure in the development of polygraph testing, is widely credited with initiating and promoting use of the plus/minus numerical scoring method. In a personal conversation, Backster told me that he began the use of the numerical scor-

ing as an instructional aid for students in basic polygraph training. Backster observed that assigning numerical values cultivated discipline and focus in students. Backster concluded that requiring students to assign numerical values for each data channel on every relevant question improved deliberation and reduced distraction. Attentiveness fostered better identification of physiological elements and assessment of the magnitude of those features by the students. Backster concluded that it would likely do the same for field examiners. His observation proved correct.

From that modest beginning, “numerical scoring” achieved significant prominence in almost all sectors of the polygraph community. That prominence developed into a mythical status in certain segments of the polygraph community. As with most mythical characters, at times its status exceeds reality. All the comparison question testing systems in the American Polygraph Association list of validated techniques utilize numerical scoring in some capacity. It appears that the use of numerical scoring is an unstated requirement for inclusion in the validated technique list. For example, the MSU MGQT Technique is included on the list of validated techniques. There never was a defined MSU MGQT Technique until it was so designated by the



APA and placed in the list of validated techniques. The MSU MGQT is very similar to the Reid Technique, which is not included in the list of validated techniques. It appears the numerical analysis was the critical factor for the inclusion of the MSU MGQT in the list of validated techniques. The MSU MGQT studies utilize a scoring method similar to that employed by Barland and Raskin in prior studies. What similar to a technique used in prior studies means remains indeterminate. Although the APA never provided a specific explanation, it appears the inclusion of the MSU MGQT in the list of validated techniques can be attributed to numerical scoring's mythical significance.

In many sectors of human activity, numerical scores reflect precise tangible facts. Bowling "a 300 game" equates to perfection. A single digit handicap identifies a very proficient recreational golfer who regularly achieves scores in a specific range. A baseball player with a .300+ batting average is among the best hitters in the major leagues. His average is an exact measurement of the number of hits he got in a given number of attempts. Cholesterol numbers (scores) identify a precise number of a particular molecule in an individual's blood. An interest rate combined with the loan amount and a defined period determines the precise

monthly payment will be. Some members of the polygraph community appear to believe that polygraph numerical evaluation scores represent equally precise and meaningful facts. Some examiners provide their numerical analysis score along with their conclusion of truth or deception when reporting examination results. There is nothing inappropriate about providing numerical scores when reporting test results. However, at times the implication of reporting scores seems to be that a plus or minus 20 indicates a more credible truth teller or a bigger liar than if the numerical score had been a plus or minus nine. For example, there was an examiner who conducted two exams of the same individual on the exact same issue. The examiner then combined the scores of each exam session in the written report along with the conclusion that the examinee was truthful. Combining the scores of two exams made it possible to report that numerical scoring of the test data generated a double digit score of the +13 versus a single digit score of +6 or +7. Both the examiner and the consumer of the polygraph service seemed to believe a positive double digit provided more persuasive assurance of truthfulness than a single digit score.

Some appear to assert that the magnitude of a numerical score is indicative of accuracy or certitude of the test re-



sults. In a well publicized bombing murder case, the examiner and a colleague presented their double digit positive scores to the media in a manner that indicated their high numerical scores provided assurance that their truthful conclusion was compellingly accurate and that the chance of a false-negative was minimal. However, independent blind evaluations by three experienced examiners, all with different training backgrounds, reached a different conclusion from that of the examiner and his colleague. Those three examiners independently provided commentary to their analysis that significant indicators of purposeful distortions (countermeasures) were present in the test data. Those observations raised the issue of whether numerical analysis should even be applied to test data contaminated with deliberate distortions. One thing is clear, numerical scoring definitely should not have been applied in the manner utilized by the examiner and his colleague. The truthful conclusion, despite the high positive scores of the examiner and a colleague, turned out to be a well-publicized false negative. Once the perpetrator's deception was established, he publicly bragged that he found it easy to defeat the polygraph with self-taught countermeasures. The most validated numerical scoring technique is futile absent the ability to correctly identify the signifi-

cant physiological features in the test data. The claim that lofty the numerical scores of the examiner were indicative of accuracy was false, as well as the assertion that it is not possible to identify countermeasures through analysis of test data.

For years, examiners in the U.S. Federal government referred to the Army MGQT as a "DI Test". That description conveyed the common observation that it was difficult for a truthful subject to generate a numerical score supportive of a truthful conclusion. It has been my impression and that of others that the Army MGQT is not a "DI Test". Rather the issue was that Federal government examiners have been required to evaluate the Army MGQT test data using a numerical evaluation method designed for a different test technique. The "cut scores" the examiners were required to use simply did not match their MGQT test method. The Army MGQT question format is similar to that of the Reid Technique. A number of studies found Reid Technique to provide significant accuracy, despite the fact that it did not utilize numerical analysis of cut scores in the conventional manner. John Reid recognized the positive aspects of Backster's numerical scoring system. However, Reid was never satisfied that numerical scoring advanced by Backster fully captured the significant



physiological features he observed. Reid's data analysis methodology utilized symbols that generated a display similar to a bar graph. That graph distinguished the variance between relevant and comparison questions. John Reid would no doubt find it interesting that several of the present day computer algorithms for analysis of polygraph data provide the option of displaying the analysis in bar graphs.

More than thirty years ago in a "Polygraph" article, Richard Weaver described the differences between the Backster, U.S. Army, and University of Utah scoring methods. Weaver's review indicated there were a number of variances between those three methods, both in the physiological features evaluated and the assignment of scores. Weaver did not attempt to assess the qualities of those scoring methods only to identify the differences. Despite the variances in the scoring methods there is little evidence that those different techniques actually generate significantly different decisions of truth or deception. Each technique was widely used in the polygraph community by respected individuals and organizations. Since Weaver's review, additional numerical scoring systems have been developed. The Empirical Scoring System (ESS) has gained a number of adherents. The U.S. Army method has been

replaced with the National Academy for Credibility Assessment's method. In addition some advocate horizontal scoring as opposed to or in addition to vertical scoring. Avital Ginton, a respected polygraph expert, presented an alternative scoring method several years ago at an APA seminar and in *Polygraph*. Ginton's method is designed to afford the consistency of physiological features greater emphasis in the final score. The method is based on the reasonable observation that an atypically intense physiological response(s) might cause inappropriate distortion of the final score at expense of data consistency. Ginton's data appears persuasive. But the Ginton method does not appear to have achieved wide acceptance in the United States. It became just another method in the list of scoring techniques. It has not been definitively established that any one of the various scoring methods is superior in all circumstances to the others. If that were the case it seems reasonable that the APA would have placed that method on the list of required procedures. The tinkering, modifications, and development of additional scoring techniques are attempts to account for the variety of inconsistencies that occur in polygraph test data. In visits to various training programs it is not unusual to hear instructors advise students to, "find the extra point." In other words find some justification to add an addi-



tional point to the initial score in order to achieve the nearest “cut score.” If extra maneuvering is utilized to achieve a specific cut score, it would seem to follow that the cut score is not a critical or perfect measurement as many seem to believe. The NAS made a similar observation and expressed the opinion that examiners may regularly take actions to influence the data in a manner that enables achievement of the established cut score.

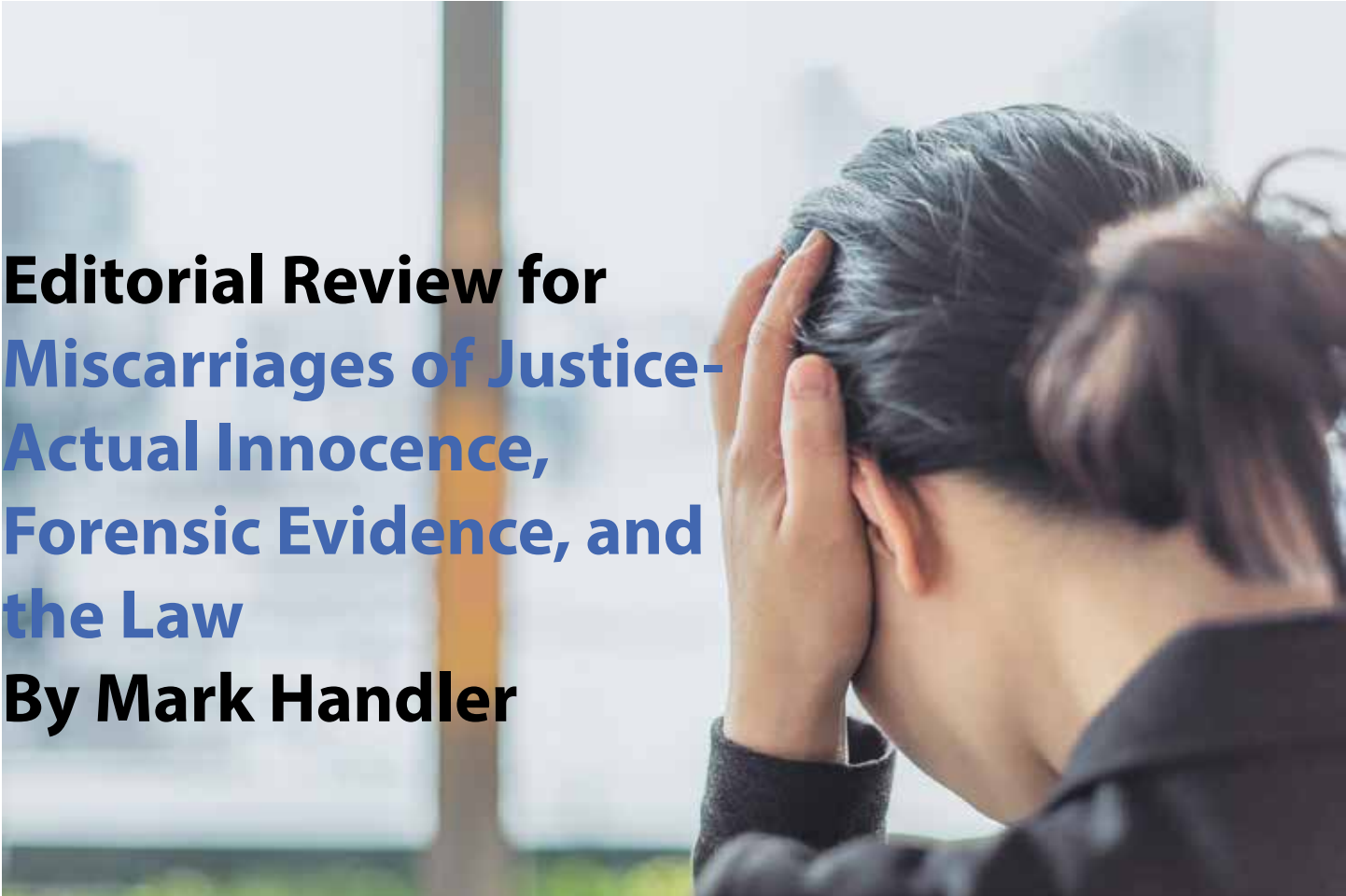
Although one can always hope, the development of the perfect scoring method is seems improbable. A judgment of truth or deception based on a polygraph examination is a diagnostic decision. It should be an evidence based decision that considers all available facts in a manner that gives appropriate weight to the various items of evidence. As Krapohl, Stern, and Bronkema stated so well in their article “Numerical Evaluation and Wise Decisions”; “Polygraph judgments are important diagnostic decisions based on complex data that is not always completely consistent.”

Numerical scoring is fundamentally a method of tabulating the evaluator’s analytic assessment of the test data. Judgements of truth or deception resulting from polygraph testing are diagnostic decisions. Making such diagnostic evaluations absent a thoughtful

assessment of all evidence is not prudent. Nor is it likely to be a successful diagnostic method. Medical diagnosis is usually the result of considering all patient conditions, not the result of a single numerical score such as a hemoglobin numeral. Numerical evaluation is a valuable analytic procedure. But making a predetermine cut score the singular determinant in diagnostic decisions of truth or deception is not analytically sound. Doing so gives numerical evaluation a mythic prominence it does not deserve. It also tends to convey the impression that polygraphs examiners are merely operators of a lie detector machine.

Robert Peters has been a member of the APA for 43 years. He is a former APA Vice-President for Government. All statements of fact, opinion, or analysis expressed are those of the author and do not reflect the official positions or views of the U.S. Government. Nothing in the contents should be construed as asserting or implying U.S. Government authentication of information or endorsement of the author’s views.





Editorial Review for
Miscarriages of Justice-
Actual Innocence,
Forensic Evidence, and
the Law
By Mark Handler

Authors: Brent E. Turvey and Craig M. Cooley with contributions from C. Michael Bowers, Stan Crowder, Michael McGrath and Ronald Miller.

Publisher: Academic Press an Imprint of Elsevier (2014)
ISBN: 978-0-12-411558-3

The great warrior Sun Tzu, wrote in *The Art of War* "If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle." Knowing our own limitations and weaknesses can open our minds. Learning vicariously through others' mistakes is a hallmark of the wise.

I reviewed an electronic copy of this text,

courtesy of Elsevier. The contents of this book are important and germane to all polygraph examiners, whether working in the government, private and law enforcement sectors. This book is an excellent primer for those who may not read much on the subjects covered. While the writing is at times zealous, it is important to remember the authors are deeply involved with wrongful convictions. They have personally seen the ramifications of the miscarriages discussed. The book shows how a minority of others went wrong, and offers lessons-learned so that



the members of our community can avoid the same pitfalls. The authors describe how these miscarriages affected the lives of the wrongly convicted, the true crime victims, the police, the prosecutors, the defense attorneys, the forensic scientists, the reputations of the agencies and of the criminal justice system as a whole. Though it may be more comfortable to allow our own personal dissonance to cause us to ignore these errors, it is not the “right thing to do”. Braving through these blunders with an open mind can help make you (and those with whom you interact) better professionals.

What I found interesting in the book is the post-mortem considerations of how these errors manifested. I also appreciated the well-researched descriptions of examples of the errors and how it made me reflect introspectively on human nature. While it is easy to sit back and cast blame and aspersion after reading the examples, having worked in law enforcement I can see how these things came to be. Law enforcement and the polygraph professionals tend to share a strong desire to help society by protecting the innocent. Based on the examples of errors described in this book, these desires (sprinkled with a little ego-involvement) led some misguided people to develop biases and bad habits that had tragic results. So with that context allow me to describe the chapters and content. Again, I remind you these errors were committed by a minority. We know the majority of the profession goes to work each day with good intentions and does not engage in these type of activities.

Section 1 contains two chapters that focus on the nature and frequency of miscarriages

of justice. It sets some basic ground rules in terms of operational definitions. It then discusses some research on the wrongful convictions including historical and current studies. Among wrongful conviction experts it is an acknowledged that we will never know exactly how many innocent people are jailed. But that is no reason to not try to put thoughtful consideration into estimates. The United States Bureau of Justice (2005) estimated between 90-95% of all state and federal criminal cases are resolved through plea bargains. There is no paucity of cases where innocent suspects pleaded guilty to avoid potentially harsher sentences, including the death penalty. While many of the Innocence Project cases were resolved because of DNA, it would be tantamount to burying one’s head in the sand to think that cases without DNA available are any less susceptible to the errors we read about in this book.

Section two is a four-chapter collection that focuses on investigative errors. Chapter 3 deals with police corruption, and while not pleasant to think about, does exist. The police corruption chapter tries to focus on understanding the underlying causes for police corruption and makes suggestions for trying to improve conditions to reduce the causes. Chapter 4 is an excellent consolidation on the problems with eye-witness testimony, one of the known leading causes of wrongful convictions. Chapter 5 is a short primer on false confessions resulting from poor police interrogation strategies. The scientific literature is clear that much of the interrogation training material promulgated today in the United States is confession-focused and presents a high risk for causing false admissions. False admissions



become false confessions that are presented at trial and result in wrongful convictions. More courts are recognizing these false confession generating strategies, thanks to the false confession experts who have been educating those in the legal system. Many confessions are being suppressed because of the well-known psychological coercion caused by confession-focused tactics that continue to be taught today. It is important to remember that if an actually guilty subject's confession is found to be coerced, it is still in peril of being suppressed - as well it should be. Our constitution and laws require statements against self-interest to be knowingly, intelligently, and voluntarily given. Fortunately, there are less risky ways to interview criminal suspects and those interested should research the concept of "investigative interviewing". Chapter 6 discusses problems related to criminal informants, another known leading cause of false convictions. The authors recognize the importance of informants to successful policing but provided examples of how damaging their involvement can become. They provide some excellent examples of how and why informant-police interactions went wrong. Any police officer could benefit from considering these mistakes and incorporating them into their practice habits. Police supervisors could also benefit from learning how others misused their informant relationship and the resulting problems.

Section 3 discusses issues and problems found in the forensic sciences. The three chapters in this section underscore how blind trust in forensic scientists, technicians and their reports resulted in wrongful convictions and even death penalties. I learned

a great deal about the paucity of scientific support for many of the CSI-touted scientific tools.

Section 4 has two chapters that discuss some putative legal causes to miscarriages of justice. Chapter 10 provides some outright scary examples of ineffective defense counseling. Some of the examples boggle the reader's mind, in that how could a legal system like ours allow it to happen? Further reading provided some causes for these errors, much of which revolved around the financial wherewithal of the defendant. Indigent defendants are at a severe disadvantage in criminal proceedings. They can't afford the investigative resources that may be needed to help exculpate themselves. They are often assigned a defense attorney who is making very little money representing them. These attorneys have to take on high volumes of clients with small profit. The result can be an over-worked, under-attentive defense attorney who recommends plea bargaining.

Chapter 11 describes some of the most egregious behavior in the entire book - prosecutorial misconduct. Prosecutors are arguably the most powerful and most important players in the United States legal system. They decide who to charge, when to charge, what to charge, what evidence to disclose, when to disclose the evidence, who testifies, what plea bargains to offer, and much more. With great power comes great responsibility - normally. But since prosecutors are immune from penalties for initiating and charging the state's case, they may not give their actions sufficient risk-benefit analysis. Prosecutors are generally shielded from any civil liability for bad behavior, even

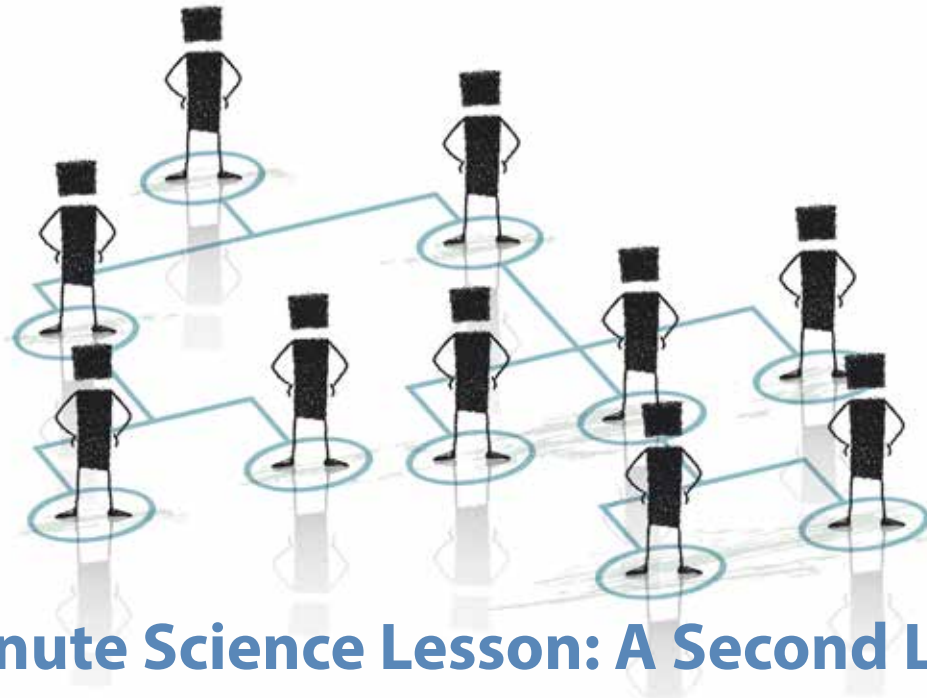


when said behavior results in wrongful convictions. Not being held accountable can (and has) resulted in some of them throwing caution to the wind in order to secure convictions. Fortunately, there have been a few cases where these bad actors' actions were so egregious (and patently obvious) that they were caught and disbarred. For those police officers who strategize with prosecutors about upcoming trials, some of these examples may tug at your conscience.

Section 5 provides two chapters on remedies and reforms. Chapter 12 offers thoughtful suggestions on forensic reforms and safeguards. It reiterates the problems with blind reliance on expert testimony, without fact-checking. It highlights the importance of separating the role of forensic expert from that of the police or prosecutor. Scientific evidence should be devoid of emotion and human bias. Finally, chapter 13 discusses prevention and management of miscarriages of justice. What steps can be taken to try to prevent them? What steps can be taken to identify when they happen? Once a potential error has been identified, what changes are needed in the legal system to right the wrong? A number of agencies, municipalities and states have created their programs to tackle these concerns. The Innocence Project is a wonderful resource for those seeking more information on reforms. There are probably numerous examples in history where people felt it is morally correct to err on the side of caution. As far back as the 15th century BC, in the book of Genesis (18:32), God said he would spare Sodom if Abraham could find as few as ten righteous people in the city. The maxim 'Better that ten guilty persons escape than that one innocent suffer' is attributed to William

Blackstone, Commentaries on the Laws of England in the 1760's. In 1895 in the case of Coffin vs. US, Justice White wrote that "it was better to let the crime of a guilty person go unpunished than to condemn the innocent." These are just a few of the examples I found on this point. Ultimately, this book tends to force a reader to introspectively evaluate whether they feel similarly. If you are not interested in, or bothered, by miscarriages of justice skip this one. If you don't feel you can learn by other's mistakes, you should probably not bother buying and reading this book. On the other hand, if as you read stories about how and why things went wrong, they move you to anger and motivate you to make sure it does not happen on your watch - then this book is for you.





5 Minute Science Lesson: A Second Look at Successive Hurdles Screening (Tourists and Troublemakers or the Medical Model)

By Raymond Nelson

A thought experiment: imagine a group of tourists at an airport. Before the tourists can board their airplanes and travel to their final destinations they are required to undergo a security screening procedure – a test – intended to reduce the potential threat of harmful objects or hazardous materials. Then imagine that some of our tourists are actually troublemakers who want to carry their water-bottles through the security screening process and onto the airplanes. (Never-mind the fact that non-dangerous water-bottles may be purchased in most airport terminals; this is simply a contextual example.) In this example, all persons will be classified as either tourist or potential troublemaker by the screening process.

Next imagine that the proportion of troublemakers is 25%, meaning that for each 1000 travelers there are some ordinary tourists and some troublemakers who desire to carry their water-bottles through the security screening process. In practice we never actually know the exact proportion of troublemakers or tourists, but we often have some knowledge from either prior experience or previous studies. This prior knowledge is referred to as the base rate, or incidence rate, and also the prevalence rate, but is more formally referred to as a prior probability. Prior probability refers to our knowledge of the class probability prior to completing the testing process. Remember that a prior probability is a probability, meaning that we do not know the exact proportion of troublemakers and simply use the best evidence-based estimate using the best information, knowledge and experience that is available prior to testing. Our present task is to use the screening test to determine (i.e., predict or classify) the state of each traveler at a rate that is better than that which could be achieved by random guessing or by guessing the class with the largest prior probability (sometime referred to as guessing the base rate).

In practice, we do not know the exact proportions of troublemakers and tourists traveler



screening tests involve subjects for whom we do not know the exact criterion state or class of each person, and so we often consider a range or distribution of several possible prior probabilities. We also do not know the exact criterion state or class of each participant in the screening process. If we knew this, we would not need a screening test. Instead, Bayesian statistical procedures have been developed to help us to refine or improve both our imperfect or uncertain knowledge about the prior probability distributions for each criterion class. Bayesian methods can also be used to combine our prior knowledge with the data or evidence from a test or experiment and improve the proportion of correct decisions/prediction/classification compared to what we could achieve by chance alone or by simply guessing the prior probability (i.e., classify all persons in largest criterion category. In this example 75% of the travelers are tourists and so simply guessing “tourist” for each person would result in greater classification accuracy than random guessing).

Finally, let's imagine that the airport security screening test – primarily a visual analysis task that requires a human observer using imaging technology – may have an error rate that can vary with target prevalence, and is also subject to phenomena involving human attention and cognition, but may converge to something roughly near 15% (Biggs, Adamo, Dowd & Mitroff, 2015; Biggs, Cain, Clark, Darling, & Mitroff, 2013; Biggs & Mitroff, 2013; Biggs & Mitroff, 2014; Wolfe, Brunelli, Rubinstein & Horowitz, 2013; Wolfe, Horowitz & Kenner, 2005; Wolfe, et al., 2007). For the purpose of this example we will make an additional convenience assumption that both test sensitivity and test specificity are 85% and that the false-positive and false-negative rates are both 15%.

Initial screening test

Total time for each person in the screening process can take several minutes, but the screening task itself takes an average of 20 to 30 seconds at most. This means that 2 or more persons can be screened per minute, and 2 persons per minute * 60 minutes * 8 hours = 960 persons can be screened during an eight-hour work shift. For convenience, can round this number upwards to 1000 screenings per day per screening station. With three screening stations it is not difficult to imagine screening 3000 persons per day or over 1,000,000 persons annually. Table 1 shows a 2x2 table of frequencies and conditional probabilities that can be expected to result from the initial screening process with 1000 travelers for which there are 750 ordinary tourists (75%) and 250 troublemakers (25%).

Table 1. Table summary of posterior probabilities for initial screening results, assuming screening accuracy of 85% with a prior probability of 25% for a sample of N=1000.					
	Troublemakers	Non-troublemakers	Totals	Correct classifications	Posterior Probabilities
Positive	250*.85=212 (TP)	750*.15=113 (FP)	325	212	.652 PPV
Negative	250*.15=38 (FN)	750*.85=637 (TN)	675	637	.944 NPV
-			1000	849	.849

Among the group of 250 troublemakers, 212 have been correctly identified (true positive or TP), though 38 have been incorrectly classified as ordinary tourists (false negative or FN) and may proceed through security and onto the aircraft unless there is another layer of security that can identify or deter them. Of the 750 tourists 637 have been correctly identified (true negative or TN). However, 113 tourists have been misclassified as possible troublemakers (false positive or FP), and may not be permitted to proceed to their final destination



unless there is some way of reducing the potential for FP error.

We can calculate the ratio of TP screening results to all positive results (TP + FP) in this manner: $TP / (TP + FP) = 212 / (212 + 113) = 212 / 325 = .652$, meaning that 65.2% of positive results are correct, referred to as the positive predictive value (PPV) after the first screening procedure. Complimentary to the PPV is the false positive index (FPI) which is calculated as the ratio FP results to all positive result in this manner: $FP / (FP + TP) = 113 / (113 + 212) = 113 / 325 = .348$, meaning that 34.8% of all positive results are incorrect after the initial screening test. We can also calculate the ratio of TN screening results to all negative results (TN + FN) in the same manner: $TN / (TN + FN) = 637 / (637 + 38) = 637 / 675 = .944$, meaning that 94.4% of the negative results are correct. This is referred to as the negative predictive value (NPV). Complimentary to the NPV is the false negative index (FNI) which can be calculated in this way: $FN / (FN + TN) = 38 / (38 + 637) = 38 / 675 = .056$, meaning that 5.6% of negative results are incorrect after the initial screening test. Overall classification accuracy is effectively 85%, as expected.

Immediately we can observe that very desirable objective is achieved in the reduction of troublemakers from the initial 250 (25% of the total population of travelers) to 38 (3.8%). However, we can also observe a well-known phenomenon in that whenever the prior probability is low the FPI will be higher. Table 2 shows the 2x2 frequencies and proportions when the prior probability is 50%.

Table 2. Table summary of posterior probabilities for initial screening results, assuming screening accuracy of 85% with a prior probability of 50% for a sample of N=1000.					
	Troublemakers	Non-troublemakers	Totals	Correct classifications	Posterior Probabilities
Positive	$500 \cdot .85 = 425$ (TP)	$500 \cdot .15 = 75$ (FP)	500	425	.85 PPV
Negative	$500 \cdot .15 = 75$ (FN)	$500 \cdot .85 = 425$ (TN)	500	425	.85 NPV
-	-	-	1000	850	.85

When the prior information suggests that the proportion of troublemakers is 50%, we can expect that among the 1000 travelers that are screened daily at each station in this imaginary example there are 500 troublemakers. When prior information is not available, or when prior information is of such low quality that it is uninformative, it is common to simply assume that the prior probability is 50%.

In Bayesian terms this is sometimes referred to as an uninformative prior or weak prior because prior information is uninformative and provides only weak information about how best to guess whether any particular traveler is a tourist or troublemaker. In contrast, when there is strong information to suggests that one class probability substantially exceeds the other – when the prior probability is either high or low – in which case it also indicates how best to guess the class probability of any individual with the greatest likelihood of success, it is referred to as a strong prior.

Among the expected 500 troublemakers under the uninformative prior probability, 425 TP results will be occur, along with 75 FNs, sometimes referred to as false-misses. Among the 500 ordinary tourists we expect 425 TNs along with 75 FPs, sometimes referred to as false-hits. We can calculate the PPV in the same way as before: $PPV = TP / (TP + FP) = 425 / (425 + 75) = 425 / 500 = .85$ or 85%. Similarly, $FPI = FP / (FP + TP) = 75 / (75 + 425) = 75 / 500 = .15$ or 15%. The NPV is also calculated as before: $NPV = TN / (TN + FN) = 425 / (425 + 75) = 425 / 500 = .85$ or 85%. Finally, the FNI = $TN / (TN + FN) = 75 / (75 + 425) = 75 / 500 = .15$ or 15%.



In simple numerical terms, a 15% false negative errors among 1000 travelers will mean that 75 water-bottle carrying troublemakers may succeed at passing through the initial screening process and onto the aircraft unless there are additional layers of security to identify or deter them. Although imperfect, the reduction to 75 (7.5%) from the initial 500 (50%) troublemakers is substantial and important.

A concern to many will be the false positive error rate and the potential that an imperfect screening procedure may interfere with the goals and plans of some individuals. These concern may result in some persons actually questioning the value of a screening process. Although it would be very reckless and potentially dangerous to abandon the screening process altogether, it is sometimes worth considering some form of additional screening for those persons that do not initially pass the screening process.

Subsequent testing

For the purpose of this teaching example, we will consider the use of an addition testing process to further investigate the state of persons who do not pass an initial screening test. At the second round only 500 of the initial group of 1000 travelers will be tested, including 425 TP results and 75 FP results. We can now use our knowledge of the posterior probabilities from the first screening as a basis of information to estimate the prior probability that a person subject to additional screening is actually a troublemaker. Although we have no knowledge of exactly which cases are TP or FP, we now have a strong prior information to suggest that the majority of these persons are troublemakers not tourists. When evaluating any particular individual without any additional information we are forced to recognize that the most likely possibility is that an individual is a troublemaker. In Bayesian terms, the purpose of a test is to develop additional information so that we can update the prior probability into a more precise posterior probability. Table 3 shows the expected posterior results from an additional screening test.

Table 3. Table summary of posterior probabilities for initial screening results, assuming screening accuracy of 85% using the initial screening results as the prior probability estimate.					
	Troublemakers	Non-troublemakers	Totals	Correct classifications	Posterior Probabilities
Positive	425*.85=361 (TP)	75*.15=12 (FP)	373	361	.968 PPV
Negative	425*.15=64 (FN)	75*.85=63 (TN)	127	63	.496 NPV
-	-	-	500	424	.848

For the 425 troublemakers we can expect to observe 361 TP results and 64 FN errors. Among the 75 ordinary tourists who are subject to additional testing, we can expect 63 TN results along with 12 FP errors. Additional calculations show that: $PPV = TP / (TP + FP) = 361 / (63+12) = 361 / 373 = .968$, meaning that 96.8% of positive results are correct when the initial and subsequent test results concur. Similarly, $FPI = FP / (FP + TP) = 12 / (12+361) = 12 / 373 = .032$, meaning that 3.2% of positive result are incorrect when the two test results are concordant. The NPV is also calculated as before: $NPV = TN / (TN + FN) = 63 / (63+64) = 63 / 127 = .496$, meaning that only 49.6% of negative test results are expected to be correct following an initial positive test result. In a similar way: $FNI = TN / (TN + FN) = 64 / (64+63) = 64 / 127 = .504$ or 50.4% of negative test results are incorrect if the negative results are following an initial positive test result (assuming that the second test is completely independent and in no way influenced by the results of the first test). The overall precision of the test has remained at or near the expected 85% level.

Herein exists an important practical aspect of successive hurdles testing. Very high accuracy can be inferred for positive test results when two test results are concordant (again, assuming that the tests are conducted



independently so that the results of the first test do not in any way influence the results of the second test). However, when the results of two examinations do not concur, such as when negative results follow an initial positive result, acceptance of the negative test result can result in an undesirable increase in the rate of FN errors. In this example the FN rate following the first screening test was 75 (7.5%). Following the second test the FN rate was increased by 64 cases to 139 (13.9%). This is a substantial increase in FN errors if negative test results are accepted following an initial positive test result. This same phenomenon can also be observed under other prior probabilities. Table 4 shows the posterior results using a prior probability distribution that was based on the posterior information from Table 1, which began with a prior probability 25%.

Table 4. Table summary of posterior probabilities for initial screening results, assuming screening accuracy of 85% using the initial screening results as the prior probability estimate.					
	Troublemakers	Non-troublemakers	Totals	C o r r e c t classifications	Posterior Probabilities
Positive	212*.85=180 (TP)	113*.15=17 (FP)	197	180	.914 PPV
Negative	212*.15=32 (FN)	113*.85=96 (TN)	128	96	.75 NPV
-	-	-	325	276	.85

In Table 4, 96 of the 113 tourists who were subject to additional testing are shown as correctly classified as tourists. However, 32 troublemakers are also classified as ordinary tourists (in addition to the 38 FN cases from the first test). Of the 212 troublemakers subject to additional testing, 180 are correctly identified. Additionally, the FP rate has been reduced to 17 or 2.3% of the 750 tourists who were present for screening at the first exam. The PPV shown in Table 4 is 91.4%, with a corresponding FPI of 8.6%. NPV shown in Table 4 is 75% with a corresponding FNI of 25%. Overall with all cases remains at the expected 85% level.

When the prior incidence rate is high (e.g., above 50%) then simply guessing that every case is positive will result in correctly classifying more than 50% of the cases. When the incidence rate is low we could still effectively identify every positive case by simply classifying every case as positive, but the cost for this approach will be a high rate of false-positive errors. If we wish to correctly identify positive cases and also discriminate them from negative cases, then we will need a testing procedure with test sensitivity and test specificity that both exceed what can be achieved by either random chance or by simply classifying all cases in the single category with the greatest incidence rate.

Discussion

This example serves to illustrate that screening accuracy of 85%, though well below perfection, is substantial and useful enough to contribute in strategic and practical ways to a meaningful decrease in the probability that a troublemaker will succeed at getting through the security screening process. When used strategically this level of precision is also sufficient to ensure that ordinary tourists can proceed to their destination with increased safety with a very small probability that they will be incorrectly regarded as troublemakers. However, a single screening procedure with precision as demonstrated in this example may not be sufficient as a basis of information to cancel or delay the travel plans of an individual. Instead, it will be important to engage in additional activity to increase the level of confidence in our knowledge and decisions. One method of increasing the quality and confidence of our knowledge and decisions will be to use a screening process with multiple stages.

The practice of requiring multiple screening test results, sometimes referred to as successive hurdles or multiple hurdles in the polygraph profession, can result in a reduction of FP errors when the results of the



two independent tests concur. It is important to point out that conducting multiple examinations may not increase decision accuracy when the results of one examination are permitted to influence the conduct or subjective interpretation of the results a subsequent examination; when this occurs the second examination results are merely based, in whole or part, on the data and results from first exam. Bayesian methods are a structured analytic process for combining knowledge from one examination with data from another exam. Another interesting aspect of multiple hurdles screening practices is that classification errors can increase when two test results do not concur.

In other contexts, the term successive hurdles model has been used to describe employee selection process in which multiple favorable outcomes are required before proceeding with a decision to select an employee. This would be analogous to completing additional screening tests only on persons whose initial test results are negative (i.e., passing), and, at each testing stage, retaining only those persons who continue to produce favorable results. The result of this strategy will be to reduce FN errors, with a corresponding increase in the rejection of persons who may appear to be suitable employment candidates based sources of information other than the test results.

To be useful a test must provide with adequate specificity – the ability to rule out a specific problem – in addition to adequate sensitivity to the issue of concern. A test with inadequate sensitivity and/or specificity will perform no better, and possibly worse, than simply guessing the base rate.

Perhaps the most obvious way to increase the level of confidence in our knowledge and decisions about the tourist or troublemaker state of a traveler will be to physically inspect the baggage, property and person before classifying a person as tourist or troublemaker. Doing so will provide a deterministic (i.e., effectively perfect, and immune to random error or human behavior) confirmation of the presence or absence of a water-bottle in the possession of each traveler. Each traveler either does or does not possess a water-bottle. A deterministic observation of physical and factual information is always desirable and should be used whenever it is practicable. However, there are times when deterministic inspection on every person is either impossible or impracticable.

Physical inspection and deterministic investigation of each traveler will necessarily increase the time, expense, level of intrusiveness for each person, and may also have an effect on travel delays. It is reasonable to use the results of an initial screening test to reduce the number of travelers that must be subject to physical or deterministic inspection, though it can be expected that physical investigation will confirm both TP and FP results from the screening test. Use of multiple testing phases can be used to optimize the ratio or proportion of TP and FP confirmations that can be expected from deterministic inspections that are often more expensive in terms of time, travel delays, individualized professional attention and other economic factors. It is also possible to proceed directly to deterministic investigation activities following a single screening test.

Differences between medical screening and security screening

The medical model of screening is one in which members of a population group are subject to a screening test with the goal of identifying positive cases that may otherwise remain unnoticed for a longer period of time. A related goal of medical screening is to optimize the use of resources and minimize the impact on individuals by not imposing medical treatment on persons who do not need it. Multiple hurdles testing strategies can be very useful towards reducing false positive errors, incorrect diagnoses, and unnecessary medical treatment. In other words, multiple hurdles screening in the medical model is intended to reduce the risks associated with FP errors.



Herein exists an important difference between the medical and security risk-management screening contexts. Security screening is sometimes primarily concerned with reducing risks associated with FN errors. (This is in contrast to the medical diagnostic situation, with a symptomatic patient, in which FN errors may present greater risks than FP errors.) Although classification errors and associated risks can be reduced when classifications are based on concordant results from multiple properly conducted tests, problem may arise when the results of successive screening tests do not concur. This is because there may be an increased risk for FN error if negative results are accepted as a basis to proceed following a previously positive test result. A similar risk for increased classification error would exist if negative results were subject to additional testing. We can expect a reduction of FN errors when the two results concur, along with a greater risk for FP error when the second result differs from the first. Of course, this phenomenon will have no practical effect when negative screening results are of no interest – such as in the medical context.

The difference between security or risk-management screening and medical screening is that negative results in the medical screening context require no action and are regarded as not indicative of any increased risk level, whereas negative results in the security screening and risk management context are a basis on which to proceed with a course of action for which there is inherent risk. As shown in Tables 3 and 4, a subsequent screening test following an initial positive result can result in a reduction of screening sensitivity from .85 to .72 under both the uninformative prior and strong prior conditions. In more practical terms this can be thought of as giving the group of troublemakers, who did not pass a screening test, another chance to benefit from a potential testing error.

Take home points and recommendations

- Screening tests conducted when the prior probability of guilt is low can result in a higher proportion of FP errors. Similarly, testing when the prior probability of guilt is high can result in a higher proportion of FN errors. This is as compared to when the base rates are more even.
- Using Bayesian methods, initial test results can be used as a basis of prior information and prior probabilities when analyzing and interpreting the results of a subsequent examination, though it is important that subsequent examinations are conducted in an unbiased manner according to standardized procedures, so that the influence of the first test result on the second test result is non-subjective and limited to Bayesian analysis.
- Probability estimates for testing error is reduced for both FP and FN errors when two test results concur.
- Both medical and security screening activities are intended to identify possible positive cases that can be investigated further before reaching a conclusion. However, screening strategies in the medical context is intended to reduce costs and impacts associated with false positive errors that would result in un-needed medical intervention whereas security and risk-management screening are often primarily concerned with the costs and impacts associated with false negative errors.
- When two results do not concur, a negative classification based on the second test result are associated with decreased FP rate and increased FN rates. Similarly, positive classifications using the second test result when two test results do not concur are associated with a decreased FN rate and increased FP rate.
- Successive hurdles screening strategies may or may not be an ideal solution for all circumstances.



There may be situations in which a single screening test is adequate or desirable. It depends on the end-user's testing desires.

- Probabilistic test results (which is all test results) may or may not be a satisfactory basis of information for all types of decisions. There may be some decisions for which the basis of information should include all available sources including test results, historical, collateral, and physical information. Probabilistic test results may be best used as a basis of information for decisions about where and when to proceed with the investigation and development of more precise physical or deterministic evidence.

Finally, it is important to remind that this example is metaphorical and mathematical, and does not include other human factors that can affect test decision and performance outcomes. The importance of other complex human variables cannot be ignored. Human analysis and human interpretation can introduce vulnerability to a variety of known phenomena including sensitization, habituation, and the tendency to make subjective heuristic adjustments to minimize the kinds of errors are perceived as costliest. Differences can result when the kinds of errors that an individual professional wishes to avoid – are different from the kinds of errors that an agency or community wishes to avoid. While there is no such thing as a perfect test that can provide deterministic perfection with no potential for error, testing error should ideally not be highly vulnerable to subjective decision making processes that may affect how an examination is conducted or interpreted. The importance of structured, and automated whenever possible, testing administration and test data analysis procedures cannot be understated. Similarly, the importance of conscientious human deliberation should never be overlooked when making decisions that can affect the future of other persons.

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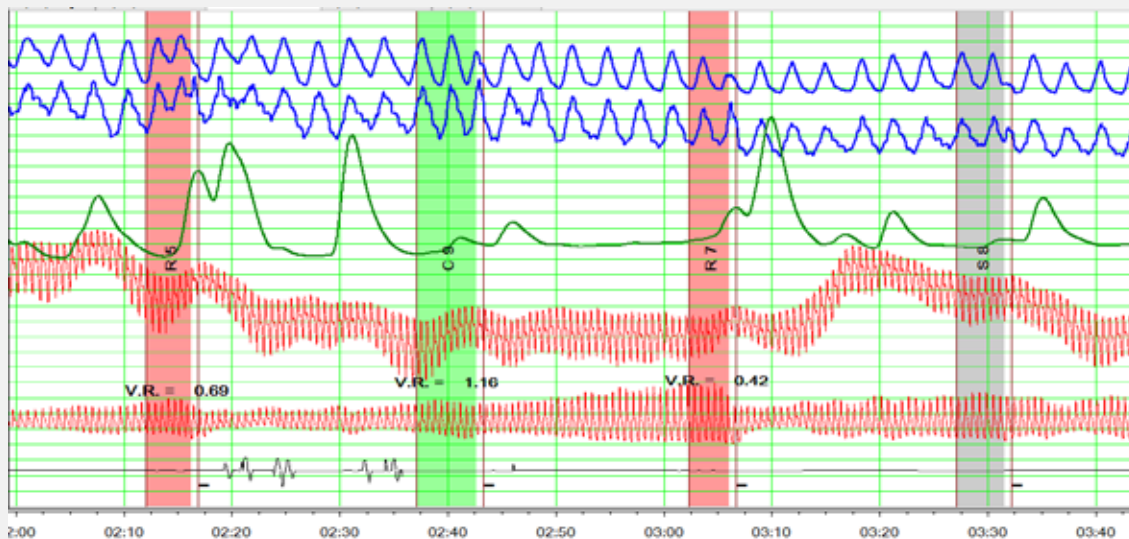


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