

APA MAGAZINE

THE MAGAZINE FOR THE POLYGRAPH PROFESSIONAL

JUL • AUG

Vol. 58.4

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TOGETHER



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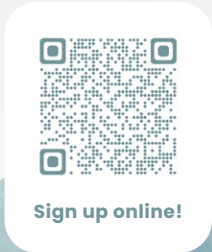
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2025

2026

Basic
400 Hour

January 6 – March 14
May 5 – July 11
September 1 – November 7

January 5 – March 13
May 4 – July 10
September 7 – November 13

Advanced
40 Hour

March 24 – 28
July 21 – 25
December 1 – 5

March 23 – 27
July 20 – 24
December 7 – 11

PCSOT
40 Hour

March 17 – 21
July 14 – 18

March 16 – 20
July 13 – 17

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- PEAK Interviewing: 40 Hour
- PCSOT: Sexual Deviancy: 16 Hour
- Utah COT 3 RQs Course: 8 Hour
- How to Use the Directed Lie Screening Test (DLST): 8 Hour
- How to Use the Acquaintance Test: 8 Hour
- Plethysmograph: How and Why: 8 Hour

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CONTENTS

TRAINING & SEMINARS

- 9 59TH ANNUAL SEMINAR / WORKSHOP
LISA MOONEY
- 15 APA ACCREDITED PROGRAMS
APA

FROM THE BOARD

- 23 PRESIDENT'S MESSAGE
- 25 BOARD OF DIRECTORS' REPORTS

REGULAR FEATURES

- 32 POLYGRAPH PIECES FROM THE PAST
COUNTER NARCOTICS POLYGRAPH V
DONALD J. KRAPOHL AND DONNIE W. DUTTON



SPECIAL FEATURES

53 LESSONS IN ADVOCACY, INTEGRITY, AND POLYGRAPH:
MY FRIENDSHIP WITH F. LEE BAILEY

MARK F. TECENO

56 WAYMO HAS CHANGED MY OUTLOOK ON THE
FUTURE OF THE POLYGRAPH

BENJAMIN K. SWEENEY

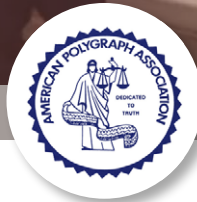
58 CONTINUING CONCERNS ABOUT VARIANCE IN
EXAMINER HAND SCORING

J. PATRICK O'BURKE



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Basic Polygraph Course (10 weeks)

January 6–March 14, 2025 : San Bernardino, CA

PCSOT Course (40 hours)

March 17–21, 2025 : San Bernardino, CA

Basic Polygraph Course (10 weeks)

May 12–July 18, 2025 : San Bernardino, CA

PCSOT Course (40 hours)

July 21–25, 2025 : San Bernardino, CA

Basic Polygraph Course (10 weeks)

October 7–December 13, 2025 : San Bernardino, CA

PCSOT Course (40 hours)

December 16–20, 2025 : San Bernardino, CA

About Marston Polygraph Academy

Our Goal is to provide the legal profession and law enforcement agencies with ethical and skilled practitioners. Our objective is to provide students with the education and training necessary to:

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DEADLINES

DEADLINE FOR SEPTEMBER/OCTOBER
ISSUE: SEPTEMBER 30, 2025

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59TH ANNUAL SEMINAR

San Diego, 2025
Sunday, August 24

CLASSROOM A
(Español)

PRE-SEMINAR WORKSHOP

1:00 - 3:00 PM

**LEGALIZATION OF MARIJUANA AND THE IMPACT ON
PRE-EMPLOYMENT TESTING**

Tracy Hoover

1:00 - 3:00 PM

SCHOOL DIRECTOR'S MEETING

Location:
Indigo 202A

3:00 - 5:00 PM

FINANCIAL CRIMES EXAMINATIONS

David Topolewski
Brian Fearn

59TH
ANNUAL SEMINAR

**APA WELCOME
RECEPTION**

MONDAY
AUGUST 25TH
6:00 - 10:00 PM

INDIGO FOYER
& TERRACE

WIN PRIZES!



59TH ANNUAL SEMINAR

San Diego, 2025
Monday, August 25

CLASSROOM A

(Español)

7:30 - 8:00 AM COFFEE BREAK SPONSORED BY: STOELTING

8:00 - 9:00 AM OPENING CEREMONIES

CALL TO ORDER -	Lisa Mooney, Seminar Program Chair
PRESENTATION OF COLORS -	San Diego Police Department Honor Guard
THE NATIONAL ANTHEM -	Deputy Danielle Parco, San Diego Sheriff's Office
PLEDGE OF ALLEGIANCE -	Chip Morgan, APA President
INVOCATION -	Barry Cushman, EAC Program Manager
IN MEMORIUM -	Barry Cushman, EAC Program Manager
TAPS -	Ray Nelson, APA Director
WELCOME TO SAN DIEGO -	Scott M. Wahl, Chief of Police, San Diego PD
PRESIDENT'S MESSAGE -	Chip Morgan, APA President
SEMINAR PROGRAM CHAIR -	Lisa Mooney, Seminar Program Chair
APA AWARDS FOR 2024 -	Darryl Starks, Awards Sub-Committee Chair

8:45 - 9:00 AM BREAK SPONSORED: LAFAYETTE

9:00 AM - 12:00 NOON

CHARTS, SCORING, AND YOUR QUESTIONS

Kristine Smith

LUNCH ON YOUR OWN - 12:00 NOON - 1:00 PM

1:00 - 3:00 PM

THE TRUE STORY BEHIND "WOMAN OF THE HOUR" & THE DATING GAME KILLER

Matt Murphy

2:45-3:00 PM COFFEE BREAK SPONSORED BY: AXCITON

3:00 - 5:00 PM

HANDLING TRAUMA THAT WE FACE AS EXAMINERS

Susan Lewis Simons
Under the Shield





59TH ANNUAL SEMINAR

San Diego, 2025
Tuesday, August 26

CLASSROOM A (Español)

CLASSROOM B

CLASSROOM C

7:30 - 8:00 AM COFFEE BREAK SPONSORED BY: CONVERUS

8:00 - 10:00 AM

ENHANCING ORGANIZATIONAL DECISIONS WITH STATISTICAL DECISION-MAKING: MITIGATING RISKS AND OPTIMIZING OUTCOMES

Russ Warner

8:00 - 10:00 AM

APPLIED PSYCHOLOGY IN POLYGRAPH & PROBABLE LIE SETTING

Kathryn Manning

8:00 - 10:00 AM

EVIDENCE BASED FEATURE EXTRACTION: PROCEDURE & PARAMETERS

Raymond Nelson

9:45-10:00 AM COFFEE BREAK SPONSORED: STOELTING

10:00 - 12:00 NOON | CLASSROOM A

APA ANNUAL BUSINESS MEETING

LUNCH ON YOUR OWN - 12:00 NOON - 1:00 PM

1:00 - 3:00 PM

APPLYING APA STANDARDS IN THE LATIN AMERICAN CONTEXT: CHALLENGES AND OPPORTUNITIES

Anibal Torreblanca

1:00 - 3:00 PM

APPLIED PSYCHOLOGY IN POLYGRAPH & PROBABLE LIE SETTING

Kathryn Manning

1:00 - 3:00 PM

WHAT NOT TO DO IN A POLYGRAPH

Connie Johnson

2:45-3:00 PM COFFEE BREAK SPONSORED BY

3:00 - 5:00 PM

INTERNATIONAL POLYGRAPH LAW

Gordon Vaughan, Esq.

3:00 - 5:00 PM

RISK BASED SCREENING

Chip Morgan
Mark Handler

3:00 - 5:00 PM

WHAT NOT TO DO IN A POLYGRAPH

Connie Johnson





58TH ANNUAL SEMINAR

San Diego, 2025
Wednesday, August 27

CLASSROOM A (Español)

CLASSROOM B

CLASSROOM C

7:30 - 8:00 AM COFFEE BREAK SPONSORED BY: LAFAYETTE

8:00 - 10:00 AM
**MORGAN INTERVIEW THEMATIC
TECHNIQUE (MITT)**

Nathan Gordon

8:00 - 10:00 AM
**CASE STUDY:
PROJECT 24K**

Michael Walker

8:00 - 10:00 AM
NON-VOLUNTARY TESTING

James Streifel

9:45 - 10:00 AM COFFEE BREAK SPONSORED BY: COMPLETE EQUITY MARKETS

10:00 - 12:00 NOON
**COUNTERING
COUNTERMEASURES**

Kristine Smith

10:00 - 12:00 NOON
**PCSOT BUFFET: LESSONS
FROM 10 YEARS OF NATIONAL
TESTING IN ENGLAND & WALES**

Don Grubin
Dani Purett

10:00 - 12:00 NOON
**PUBLIC PERCEPTION OF THE
POLYGRAPH DUE TO THE MEDIA**

Emily Cauduro

LUNCH ON YOUR OWN - 12:00 NOON - 1:00 PM

1:00 - 3:00 PM
LEGAL UPDATE

Gordon Vaughan, Esq.

1:00 - 3:00 PM
**INTERVIEWING AND
INTERROGATION**

Brad Beeler

1:00 - 3:00 PM
PCSOT ROUNDTABLE

Tom Morgan

2:45 - 3:00 PM COFFEE BREAK SPONSORED BY: MARYLAND POLYGRAPH ASSOCIATION

3:00 - 5:00 PM
**A REVIEW OF SCIENCE-BASED
INTERVIEWING PRINCIPLES
INTEGRATED INTO THE
POLYGRAPH PRETEST INTERVIEW**

Rodolfo Prado-Pelayo

3:00 - 5:00 PM
**INTERNET CRIMES AGAINST
CHILDREN (ICAC)**

Brad Beeler

3:00 - 5:00 PM
CONCEALED INFORMATION TEST

Jamie McCloughan





59TH ANNUAL SEMINAR

San Diego, 2025
Thursday, August 28

CLASSROOM A

(Español)

CLASSROOM B

CLASSROOM C

7:30 - 8:00 AM COFFEE BREAK SPONSORED BY: CAPITAL CENTER FOR CREDIBILITY ASSESSMENT (C3A)

8:00 - 10:00 AM
NUTS & BOLTS

Darryl Starks
Desiree Hurd
Lisa Jacocks

8:00 - 10:00 AM
**CASE STUDY:
TERRORISM, TESTING, AND
TESTIFYING**

Taj Mathews

8:00 - 10:00 AM
**TESTING FOR
IMMIGRATION & ASYLUM**

Lisa Mooney

9:45-10:00 AM COFFEE BREAK SPONSORED BY

10:00 - 11:00 AM
SINGLE ISSUE SCREENING TEST

Pat O'Burke

10:00 - 12:00 NOON
**CASE STUDY:
TERRORISM, TESTING, AND
TESTIFYING**

Taj Mathews

10:00 - 12:00 NOON
**TESTING FOR
IMMIGRATION & ASYLUM**

Lisa Mooney

LUNCH ON YOUR OWN - 12:00 NOON - 1:00 PM

1:00 - 3:00 PM
**PRE-EMPLOYMENT
CONSIDERATIONS**

Sandy Dunn

1:00 - 3:00 PM
COUNTERMEASURES

Nigel Lange

1:00 - 3:00 PM
**INTERVIEWING AND TESTING
JUVENILE SEX OFFENDERS**

Sabino Martinez

2:45-3:00 PM COFFEE BREAK SPONSORED BY: MAINE POLYGRAPH ASSOCIATION & NEW ENGLAND POLYGRAPH & DETECTIVE AGENCY

3:00 - 5:00 PM
**TEST QUESTION
FORMULATION**

Sandy Dunn

3:00 - 5:00 PM
**FROM PUBLIC SECTOR TO
PRIVATE SECTOR**

Aron Thompson

3:00 - 5:00 PM
**ETHICAL QUESTIONING
ON POLYGRAPHS**

Mark Zaid, Esq.

APA ANNUAL BANQUET & AWARDS

6:30 - 7:00 PM COCKTAILS | 7:00 PM DINNER | LOCATION: INDIGO BALLROOM



59TH ANNUAL SEMINAR

San Diego, 2025
Friday, August 29

CLASSROOM A (Español)

7:30 - 8:00 AM COFFEE BREAK SPONSORED BY

**8:00 - 11:00 AM
CASE STUDY: "THE ANTHONYS"**

George Olivo

10:45 - 11:00 AM COFFEE BREAK SPONSORED BY

**11:00 AM - 12:00 NOON
UPDATES TO MODEL POLICIES**

Erika Thiel

LUNCH ON YOUR OWN - 12:00 NOON - 1:00 PM

**1:00 - 2:45 PM
QUESTIONS FOR BEAR**

Bear Bryant

**2:45 - 3:00 PM
CLOSING REMARKS**

**Jamie McCloughan
APA President**



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- 1000 – 1200 **TRAUMA AND DISSOCIATION** – Erika Thiel
- 1300 – 1700 **NEURODIVERGENCY AND POLYGRAPH** – Erika Thiel
- 1800 – 2000 Reception for attendees and guests

Friday – November 21, 2025

- 0800 – 1200 **EVOLUTION OF INTERVIEWING** – Blake McConnell
- 1300 – 1700 **POLYGRAPH IN ADMINISTRATIVE INVESTIGATIONS** – John Sweat
- 1900 – 2030 Cocktails, Comedy & Magic! Featuring Todd Bogue

Saturday – November 22, 2025

- 0800 – 1000 **POLYGRAPH INSTRUMENT PRESENTATIONS**
- 1000 – 1200 **REMEDIAL ACTIONS** – Sandy Dunn
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TOGETHER
we accomplished more

President's Message

Chip Morgan

Greetings One and All,

As we enter the last few days until the 59th Annual Seminar in San Diego, California from August 24-29, 2025, things are predictably getting a little hectic in preparation for the best conference ever!

We have an outstanding line-up of presenters on a very diverse range of topics, literally “something for everyone” at this seminar. I’d like to give a shout-out to the National Office for their great work behind-the-scenes in the seminar preparation, as well as the efforts of seminar chair Lisa Mooney in dealing with the million and one things that need attention prior to the start of the seminar.

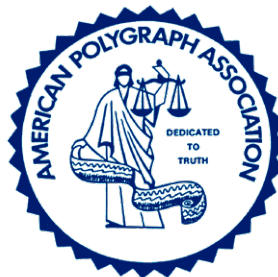
I would be remiss if I didn’t point out that many Board Members also contribute heavily to each seminar, including those on the Board who also teach at the seminars. Thank you, one and all for your efforts.

This is my last Board Report as your APA President, a position I’ve been honored to hold for the last year. I have tried to give you my best efforts, sometimes successful, sometimes not so successful, but always thinking of the best interests of the association.



Thank you for the opportunity to have been your APA President. I look forward to seeing you all in San Diego very soon!

Thanks,
Chip Morgan



Board of Directors' Reports

Jamie McCloughan President Elect

The 2025 American Polygraph Association Seminar is just around the corner, and I can't wait to see old friends and meet new ones. This year's seminar is packed with great training opportunities and great places to visit. A lot of the time, you can find me at the registration table helping with registrations, greeting attendees, and helping with merchandise sales. Please feel free to talk with me whenever you get a chance. If you are attending your first seminar, it's a great time to have fun and meet new fellow professionals you can network with, aside from the training. Some of the best learning happens in conversations with other examiners.

If you have any questions APA or polygraph-related, please do not hesitate to contact me at mcclougj@gmail.com. As always, may those who are fighting for our freedom against threats, both foreign and domestic, be safe and have Godspeed in their return to their friends and loved ones..

Desiree Hurd Director

Greetings to all APA members! The board is working hard to get the seminar ready

for August, and we hope to see many of you there! I look forward to the Welcome Reception and spending some time with you all at this year's conference in San Diego!

Our committee has been working hard on getting data collected and will hopefully have some useful feedback for us when we meet in August. We look forward to meeting with the school directors at this year's conference. As always, we ask for feedback on how we can continue to maintain the guidelines of the APA along with hearing the ins and outs of how the schools are doing. I will be speaking at this year's seminar, presenting the APA Nuts & Bolts. I welcome all to attend who have questions on anything APA-related!

Congratulations to all the winners of the APA Directors in this year's elections.

As always, I am available for any questions or concerns. I look forward to seeing everyone in August for the upcoming Seminar in San Diego.

Tom Morgan Director

Dear APA Members,

I hope this message finds you well. As we move through 2025, I want to take a moment to reflect on the incredible



strides our association has made and to encourage you to join us for a pivotal event in August—the American Polygraph Association’s Annual Conference.

This annual gathering is an unmatched opportunity for professionals in our field to come together, share insights, and reaffirm our collective commitment to the highest standards of polygraph. Whether your goal is to refine your skills, expand your professional network, or stay current on the latest developments, the conference remains a cornerstone of professional growth. This year’s program promises a diverse lineup of sessions and networking opportunities, ensuring attendees gain both valuable knowledge and practical tools to bring back to their work.

I want to update you on developments concerning the PCSOT Model Policy. The PCSOT Committee has been diligently working on revisions to better align the policy with the APA Standards of Practice. These updates are informed by the latest research and best practices in the field, reinforcing the accuracy, consistency, and ethical application of polygraph testing in post-conviction sex offender testing (PCSOT). While the revisions may be modest, they reflect our ongoing commitment to quality and professionalism.

Importantly, we have strengthened our collaboration with the Department of Corrections in several states to enhance the evaluation of PCSOT exams. This partnership is vital in establishing a comprehensive framework that upholds the integrity of our testing protocols across

various jurisdictions. By sharing insights and resources, we aim to ensure that our practices meet the diverse needs of the states we serve, leading to more effective and reliable outcomes in the field.

I would like to extend my deepest gratitude to the Board of Directors, the Standards of Practice Committee, and the PCSOT Committee for their unwavering dedication to reviewing and refining our policies. Their collective expertise has been instrumental in ensuring that our standards remain relevant, forward-thinking, and grounded in the highest levels of integrity. I particularly want to thank the Standards Committee for their invaluable assistance in updating the PCSOT Model Policy, ensuring it complies with APA testing standards.

In March, PCSOT committee members met in person and via telephone with members of the Texas Legislative committee regarding proposed Senate Bill S2180, which sought to license peace officers to conduct pre-employment and PCSOT polygraph exams. The committee decided it was not a priority to include PCSOT testing under the proposed legislation. In May, the bill passed, requiring peace officers in Texas to obtain certification to conduct pre-employment polygraphs.

In April, PCSOT committee members met with examiners who serve as advisors on the Colorado Sex Offender Management Board. These advisors were updated on the status of the PCSOT Model Policy and the planned revisions discussed above.



Additionally, members of the PCSOT Committee and APA President Chip Morgan have been actively engaging with the Oregon Chapter of the Association for the Treatment of Sexual Abuse (OATSA) to coordinate a panel discussion focused on the use of polygraph in testing juveniles involved in sexual offending. I am pleased to report that the recent meeting between PCSOT Committee members and OATSA representatives was highly productive. The discussion was constructive and respectful, with both sides contributing valuable perspectives. There was a strong spirit of collaboration and mutual understanding, laying the groundwork for ongoing dialogue and future cooperation. This exchange is a key step forward in building relationships with allied professionals and ensuring our practices remain informed, transparent, and responsive to the needs of all stakeholders. Our goal is to continue community outreach and collaborate with all disciplines involved.

Thank you for your continued dedication to excellence in our profession. I look forward to seeing many of you in August as we shape the future of polygraph together.

Sincerely,
Tom Morgan

Pam Shaw
Director

Hello fellow members,

I want to take a moment to thank each of you that participated in our recent elections process. I am excited and eager to

serve as your next President-Elect, and I thank you for your support and votes which has granted me this opportunity. I would also like to extend congratulations to all the newly elected Board members, with a special hearty welcome to some new faces, Kristine Smith and Adam Barton.

In my role as a Director over the past year, I was tasked as Chair of the Membership Committee and Chair of the Ad Hoc Historical Preservation Committee. I am happy to report that the established goals and Presidential directives for both committees have been met. On-going efforts will be required for the Ad Hoc Historical Preservation Committee to accomplish a thorough review of the converted videos, but at least the undertaking of preserving these resources in a more readily accessible, digital medium has been achieved. Since my last report, the Membership Committee has not had any necessary applicant reviews or submissions regarding Divisional Affiliate status.

While things may be winding down as far as the above committee activities, right around the corner is our next time to come together as a community and share in a time of training and networking. I hope you have made plans to join us in San Diego for the annual conference. I look forward to seeing each of you there! Until then, safe travels and best blessings to you all.

Gratefully,
Pam Shaw



Darryl Starks Director

Greetings to my fellow APA members, credibility assessment professionals and other readers of the APA Magazine around the world. I pray this correspondence finds you and your loved ones safe during this exceptionally hot summer.

This year's training seminar at the Hilton Bayfront in San Diego, CA, being held August 24th to August 29th, 2025, is just around the corner. The seminar planning committee had done an outstanding job putting together an awesome lineup of speakers to present the most current and relevant information for the polygraph professional. In addition to outstanding training, the San Diego area offers several fun things to do, to include Petco Park, home of the San Diego Padres, The world-famous San Diego Zoo and the never disappointing Gaslamp Quarter. During previous seminars the welcome reception was held on Sunday evenings. This year, the seminar committee has decided to move the reception to Monday evening, to afford all members the opportunity to attend! Contact the APA National Office and follow us on social media, if you have any questions about the seminar.

This year I had the honor of chairing the APA Awards and Dr. Yankee Memorial Scholarship sub-committees. I'm pleased to report that we received several nominations for multiple award categories, to include the Yankee Scholarship. It's difficult to select just one winner for each category when so many worthy nominations are received, however we were able to do just that. The 2025 award winners will be announced during the seminars opening

ceremony session on Monday August 25th and presented at the Thursday evening banquet.

I'm looking forward to see all of you at the seminar in San Diego.

Onward and Upward!

Benjamin K. Sweeney Director

Greetings,

This will be my last board report. It has been a short tenure as a director, as I decided at the very last minute to jump out of the election.

In this past year, we have realized that our capabilities as an association to conduct research have been limited. What we lacked was the proper process to conduct research on human subjects, and we have relied on others. I hope that the future board will set up a committee for APA-approved research. If the board or any member wants to conduct research under the authority of the APA, they can present it to this committee. This committee would also be responsible for the ethics of all studies in that it will set up an IRB (Institutional Review Board). While there is a research committee under a director, this committee is mostly tasked with coming up with ideas. The committee that I propose is more permanent and made up of members who are trained and understand the research process. There are many great minds in this association that can review and conduct research. It is time to start tapping into that. My goal before leaving my director's position is to gauge the feasibility of the APA having



its own IRB and presenting that to the board before the start of the seminar. At the very least, I hope to hand over some valuable information to the next director in charge of research. I believe that if the APA approves and/or endorses research, this will strengthen not only the APA but the profession as a whole.

Also, in the research vein the interschool scoring study is moving along. By the time you read this we will be halfway through collecting the data. Thank you to all the schools participating thus far, and your patience with me as a go between the researchers and school directors.

As far as the professional development/ Continuing Education committee goes, there has been a lot of talk of online learning and to what extent that should be offered. I encourage the membership to let the board of directors know their opinions about this.

Even though I decided to step away from the board of directors I still hope to help in the future. With that in mind you can still reach me at benapa2024@gmail.com.

Erika Thiel
Director

As we approach this year's American Polygraph Association (APA) Annual Conference, there is a renewed sense of excitement and anticipation among our members. The conference is not just a time for professional development and continuing education; it is a moment each year when we reconnect with colleagues, share ideas, and reflect on the progress we have made both individually and as a professional community. There is

something uniquely motivating about being surrounded by others who are equally passionate about the field of polygraphy, and the conference offers a perfect setting for fostering those connections.

In addition to the schedule of lectures, I want to strongly encourage all attendees to participate in the extracurricular activities planned throughout the week. These events are not just a fun break from formal sessions—they are carefully curated to encourage networking, collaboration, and relationship-building. These informal gatherings offer a valuable chance to meet peers, discuss mutual challenges, share innovations, and build lasting professional relationships that often extend well beyond the conference.

I also want to take this opportunity to share a brief update on the important work being carried out by the Standards of Practice Committee. Under the direction of President Chip Morgan, the committee has continued its focused efforts on adopting and improving upon model policies and operational procedure documents. These documents are essential to ensuring consistency, accountability, and best practices within our profession, and we are proud of the progress we've made thus far.

While there was some effort directed toward revising the existing Standards of Practice, it became clear that the scope of the necessary changes required more time than we realistically had available. The decision was made to prioritize quality and thoroughness over speed. These edits are being deferred so they can receive the careful consideration they deserve in future sessions.



As Committee Chair, I want to personally express how proud I am of the committee members and those who contributed to our mission. The work we've accomplished this year has been significant. We took on a substantial volume of assignments—many of which were detailed and complex—and we approached them with professionalism, diligence, and a shared commitment to improving our field. Our achievements reflect not just the individual efforts of our members, but a collective dedication to excellence that makes me honored to be part of this organization.

In closing, I hope you share in my enthusiasm for the upcoming conference. Let us take full advantage of the opportunity to learn from one another, to celebrate our shared commitment to truth and integrity, and to enjoy the camaraderie that makes the APA community so unique. I look forward to seeing many of you soon, and I strongly encourage everyone to make time for the extracurricular events—they are where some of the most meaningful conversations begin.



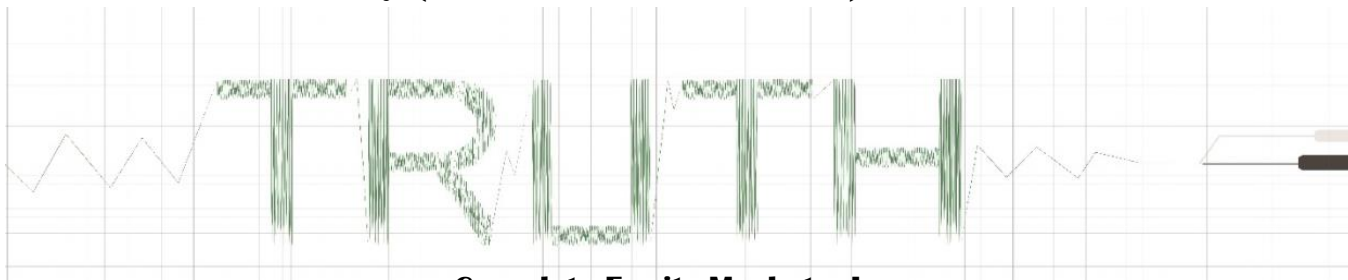
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Polygraph Pieces from the Past Counter Narcotics Polygraph V

Donald J. Krapohl
Donnie W. Dutton

Before there was a Test for Espionage and Sabotage (TES), before the Directed Lie Screening Test (DLST), even before directed lies themselves were known to most examiners, there was a precursor method called the Counter Narcotics Polygraph (CNP) test. The following is the only known research report on the CNP, a polygraph method recognized today by perhaps only a handful of examiners. Readers will note the strong similarities between the CNP and what would become the TES a couple years later. The lead CNP researcher was Dr. Sheila Reed¹, the same scientist who would later go on to conduct the initial TES research.

Those TES research reports can be found in the journal *Polygraph* (Issue 26, No. 2, and Issue 27, No. 1).

For this reprint of the CNP report, we did minimal editing to correct for the occasional punctuation, spelling, grammar, and tabulation errors. We recreated the data tables in Excel. We also added footnotes at times to provide details that help explain the report. Outdated terms and jargon were not changed (e.g., control, stim test, GSR, intest, etc.). Six pages of appendices do not appear here². We hope you enjoy the article.

¹ Note: Coauthors included Mr. Larry Broadwell, Mr. Robert Cole, Mr. Adrian Guerrero, Mr. Scott Manners, and Mr. Jim Swinford. The report was released by Dr. William J. Yankee, then the Director of the U.S. Department of Defense Polygraph Institute (DoDPI).

² Those wishing to obtain a copy of the original report, which includes the appendices, should write to the first author at APAKrapohl@gmail.com.



Counter Narcotics Polygraph V 30 June 1992

Preface

The Joint Task Forces (JTF) are vital to the successful accomplishment of the Department of Defense counter-narcotics mission. It is believed that the use of the psychophysiological detection of deception (PDD) methods would significantly enhance the security of JTF operations.

It has been reported that JTF personnel have been targeted by members of the drug cartels seeking information that could be used to compromise the task force's mission. To be effective in the CNP program, the use of PDD tests as a security screening deterrent would be tailored according to the nature of the threat and the kinds of duties JTF personnel perform.

This study presents the results of analog studies conducted at the Department of Defense Polygraph Institute.

Summary

The DoD Polygraph Institute developed and tested a counter-narcotics polygraph test (CNP). Three exploratory phases of this study led to the CNP test described in this report. The CNP format is unorthodox. It includes two irrelevant questions, a sacrifice relevant, a directed lie control question, and two relevant questions ("Have you jeopardized the task force?"

and "Do you know of anyone who has jeopardized the task force?"). The control and relevant questions are asked a total of three times on the same chart, making the CNP test a one-chart test. The first presentation of the directed lie control was not scored; it served as a "sacrifice control" (SC). The 12-question sequence is IR1, IR2, SR, 1C1 (SC), 1R1, 1R2, 2C1, 2R1, 2R2, 3C1, 3R1, 3R2³.

The accuracy of the CNP test was assessed using 64 basic trainees. The subjects were "assigned" to a drug interdiction task force and briefed on the unit's assignment. Half of the subjects pilfered and destroyed a classified informant file from the unit's office and were thereby guilty of jeopardizing the unit's mission. The other half of the subjects were an innocent control group. All subjects were administered the CNP exam on conventional, non-computerized Lafayette polygraphs. The polygraph charts were numerically scored by hand. Two scoring systems were used, both in the exploratory studies and in the main study. One used all three presentations of the control question; the other ignored the first presentation, which tended to produce large reactions from both innocent and guilty subjects, treating it as a sacrifice control. Although to date neither scoring system is clearly superior, treating the first presentation as a sacrifice control has produced somewhat better results in the main study.

With the sacrifice control, the inconclusive rate was 20 percent (16% with innocent subjects and 25% with guilty). No attempt

³Editors' note: Observant readers will recognize that this question sequence differs very little from that of the TES and DLST.

was made to resolve inconclusive outcomes through questioning or additional testing. Excluding the inconclusive tests, the examiner's decisions were correct 78 percent of the time (82% with innocent subjects and 75% with guilty).

It is difficult to generalize the results of this study to other situations. Using the better of two scoring systems may make the CNP test appear more accurate than it would be on different subjects. Weaknesses in the scenario in this study may have made the CNP test appear less accurate at identifying deceptive people than it normally would be. And it goes without saying that it is always risky to extrapolate results from an analog study to actual field use.

Introduction

The DoD Polygraph Institute was tasked with developing a new polygraph technique to be used with the drug task forces. The purpose of this test would be to deter drug task force members from compromising the task force and to ascertain if any of the task force members had, in fact, compromised the task force. Four previous studies were conducted, each addressing specific issues regarding polygraph examinations, in general (e.g., mode of scenario presentation, type of control question, length and content of the pretest, etc.). Some of the decisions regarding the methodology for this study were influenced by the results of the previous studies. For example, a live rather than a taped scenario was utilized, the

directed-lie control was used rather than the probable lie, and the standard length pretest rather than a shorter pretest was employed.

This study was designed to assess the accuracy of a specific question format (one chart, two relevant, directed lie control question test) using a single-issue mock crime. Since this was an attempt to try something new, many decisions regarding the specific format could not be based on data. The one chart format was suggested, and specific decisions regarding the number of relevant questions, exclusion or inclusion of sacrifice relevants, stim tests, etc., were made by a consensus of the experienced polygraph examiners involved in collecting the data.

At the end of each week, the data were examined and modifications were made either to the technique, the scenario, or the scoring procedure. These separate data collection episodes will be referred to as phases. Due to the random assignment of examinees to the guilty and innocent conditions, the cell sizes in each phase are random.

Methods

Examinees: Examinees in this study were volunteer entry-level troops currently assigned at Fort McClellan. Previous studies (CNP1, CNP2 and CNP3⁴) utilized both entry level troops and advanced military personnel. There were no significant differences in accuracy rates for examinations conducted with entry-level troops

³Editors' note: We were unable to locate any of these previous studies, though there are passing references to them in other reports by Dr. Reed.



as compared to accuracy rates for examinations conducted with advanced military personnel. Therefore, this study utilized only entry-level troops. A total of 131 examinees (77 programmed innocent and 54 programmed guilty) received polygraph examinations during 3 early phases of the study, and 64 examinees (32 innocent and 32 guilty) received polygraph examinations that were utilized for the final analysis. The examinees' average age was 18 years, and all the examinees were male. All of the data collected were identified by examinee number only.

Examiners: The examiners were four DoD polygraph examiners currently assigned as instructors to the DoD Polygraph Institute (DoDPI). One examiner was from the CID, one from MI, one from NSA and one from OSI. All examiners had at least three years of experience and all participated on a volunteer basis. All the examiners were male. Each examiner participated on an availability basis. Some days only one examiner was available and some days all four were available. Each examiner typically conducted three examinations per day. (Due to scheduling conflicts, an examiner might have run only one or two exams on any given day.)

Equipment: Standard Lafayette Factfinder instruments were used to collect the physiological data. Four channels were recorded (two pneumographs, one GSR and one cardiograph) with all electronic components. Examinations were conducted in polygraph examination rooms at the DoDPI. These rooms contain a polygraph desk with the polygraph, a chair for the examiner, a chair for the examinee, a one-way observation mirror and two video cameras. The observation room and

video cameras were NOT used for this study.

Scenario: The Task Force Security Commander (TFSC) distributed the information/consent form (see Appendix A) to the examinees. After they read the form and any questions were answered, those who chose to participate in the study signed the form. Anyone not wishing to participate was returned to their unit. The research assistant escorted the examinees to the main building where one room (Registrar's office) had a sign indicating that it was the TFSC's office. The room next to the TFSC's office was set up to make photo identification badges. The examinees waited in the small classroom while each had their picture taken. The examinee's name was typed on a special task force badge and the picture was affixed above the name. The badge was enclosed in a clear plastic cover that could be attached to the examinee. After the identification badges were issued, the research assistant escorted the examinees back to the research building. The examinees were placed in small rooms (two per room) and were told to wait for their polygraph examinations.

Programmed Innocent: The TFSC entered the room and asked the two individuals to go together to get some task force information from his office in the other building. The location of the office was indicated by reminding the examinees of where they had gone to obtain their badges. The examinees asked the secretary for the paperwork and returned to the research building. Once they gave the paperwork to the TFSC, he thanked them and stated that someone would be coming to take them for their polygraph exam.

Shortly thereafter, the research assistant entered the room and escorted them to their polygraph examinations.

Programmed Guilty: The TFSC informed the guilty examinees that he required their further assistance to test the security of the Task Force. He explained where his office was located and asked the examinees to obtain the same paperwork from the secretary that the programmed innocent examinees obtained. In addition, he asked the examinees to steal a classified informant file from a filing cabinet. The TFSC instructed one examinee to distract the secretary by asking for the distribution paperwork, while the other examinee removed the informant file from the filing cabinet. The filing cabinet drawer was left open so that the examinees could easily see and remove the informant file. The secretary had been instructed to “look the other way” when the examinees were in the office. When the examinees returned with the classified file, the TFSC told them to go out to the trash container and burn the contents of the file. The TFSC supplied the matches. When the examinees returned with the file cover, the TFSC told them that by stealing classified information and destroying it, they had compromised or jeopardized the mission of the Task Force. They were instructed not to tell the polygraph examiner anything about the classified file. Shortly thereafter, they were given their polygraph examinations.

Debriefing: After all the examinations for that day were completed, the examinees were debriefed. They were informed that they were not members of the Drug Task Force and that although this was not an official Drug Task Force, we were, in fact,

testing the accuracy of the polygraph for Drug Task Force use. They were told that they were not allowed to discuss the study with anyone.

Test Format: The pretest lasted approximately 30 minutes and included the standard information presented in most DoD polygraph examinations; signing the medical waiver/consent form (see Appendix B), an explanation of the instrument and the principle of fight/flight, an in-depth review of the relevant questions and setting the directed lie control questions. The stimulation test was not conducted. The eleven-question test included 2 relevant questions, “Have you jeopardized the task force?” (R1) and “Do you know anyone who has jeopardized the task force?” (R2); one directed lie control question (C1) and two irrelevant questions (IR). Appendix C contains lists of acceptable directed lie control questions and acceptable irrelevant questions. Each of the two relevant questions and the control question was asked three times, providing a total of eleven questions. The question sequence was: IR, IR, 1C1, 1R1, 1R2, 2R1, 2C1, 2R2, 3R1, 3R2, 3C1. The inter-question interval was 30 seconds and only one chart was collected.

Scoring: The charts were hand-scored using the standard DoD seven-point scale. The spots were: 1R1 to 1C1; 1R2 to either 1C1 or 2C1; 2R1 to 2C1; 2R2 to 2C1; 3R1 to either 2C1 or 3C1; and 3R2 to 3C1. These spots were chosen in order to avoid having two relevant questions separating a relevant and the control to which it was compared.



Procedures

When the 12 examinees (4 examiners - 3 exams per day) arrived at the Polygraph Institute, they were seated in the large classroom in the research building. They were given general information about the research, informed that they would be taking a polygraph examination, informed that this was a voluntary assignment and informed of the "Privacy Act" (see Appendix D). The number of innocent and guilty examinees for each day was predetermined randomly. The examinees then participated in the scenario as described above. After the scenario was set, the examinees were given their polygraph exams. The assignment of examinees to particular examiners was random. Since each examiner conducted more than one test each day, those examinees who waited for an examiner to be available were given magazines to read. After the polygraph examination, the examinees were debriefed as a group, as described above. They were thanked for their participation and were returned to their units.

Results

Analyses: Fisher's exact test was calculated on the 2 x 2 contingency tables, a χ^2

was calculated on contingency tables that were not 2 x 2 and which had adequate sample sizes and binomial probabilities were calculated for innocent and guilty examinees separately, on contingency tables that were not 2 x 2 and which did not have adequate sample sizes. The binomial probabilities that were calculated on data including inconclusives used .3333 as the probability of a hit and .6667 as the probability of a miss. Without the inconclusives, .5 was used as the probability of a hit and a miss.

Phase 1

Analyses: Ten innocent and 25 guilty examinees were tested over a period of three days. Table 1A depicts the cross-tabulation of the results, including inconclusives. The inconclusive rate was 0% for innocent examinees and 24.0% for guilty examinees (innocent $p(9) < .0003$; guilty $p(8) < .1673$). Table 1B depicts the cross-tabulation excluding inconclusives. Ninety percent of the innocent examinees were correctly identified, but only 42.1% of the guilty examinees were correctly identified (Fisher's Exact test (2-tail) $p < .1071$).

Table 1A: 2 X 3 cross-tabulation for original examiners' decisions on innocent and guilty examinees during the initial phase of Phase 1.

	NDI	INC	DI	Total
Innocent	9 (90.0)	0 (0.0)	1 (10.0)	10
Guilty	11 (44.0)	6 (24.0)	8 (32.0)	25

$$p(9) < .0003$$

$$p(8) < .1673$$



Table 1B: 2 X 2 cross-tabulation for original examiners' decisions on innocent and guilty examinees during the initial phase of Phase 1.

	NDI	DI	Total
Innocent	9 (90.0)	1 (10.0)	10
Guilty	11 (57.9)	8 (42.1)	19

Fisher's Exact Test (2-tail) $p < .1071$

While reviewing the data, it was observed that the asking of the first control question often produced a very large response. The exams were re-scored, omitting the first control question; 1R1, 1R2, and 2R1 were scored against 2C1 and 2R2, 3R1, and 3R2 were scored against 3C1. Tables 2A (with inconclusives - innocent $p(5) <$

.1365; guilty $p(16) < .0012$) and 2B (without inconclusives - Fisher's Exact test (2-tail) $p < .0060$) depict the results of the re-scored exams. The inconclusive rate was 40.0% for the innocent and 24.0% for the guilty. Excluding inconclusives, the accuracy rate was 83.3% for the innocent and 84.2% for the guilty

Table 2A: 2 x 3 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during the initial phase of Phase 1.

	NDI	DI	Total
Innocent	9 (90.0)	1 (10.0)	10
Guilty	11 (57.9)	8 (42.1)	19

$p(5) < .1365$
 $p(16) < .0012$



Table 2B: 2 x 2 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during initial phase of Phase 1.

	NDI	DI	Total
Innocent	5 (83.3)	1 (16.7)	6
Guilty	3 (15.8)	16 (84.2)	19

Fisher's Exact Test (2-tail) $p < .0060$

Additional exams were conducted, providing a total of 39 innocent examinations and 30 guilty examinations. The original examiners scored the exams, omitting the first control. The results are depicted in Tables 3A (with inconclusives - χ^2 (2, $N=69$) = 6.03, $p < .049$) and 3B (without inconclusives - Fisher's Exact test (2-tail) $p < .0213$). The inconclusive rate for the innocent was 28.2% and 26.7% for guilty. Excluding inconclusives, the accuracy for the innocent examinees was 57.1% and

77.3% for the guilty examinees. The original charts also were scored blind using the first control. Tables 4A (with inconclusives - innocent $p(30) < .0000$; guilty $p(8) < .1193$) and 4B (without inconclusives - Fisher's Exact test (2-tail) $p < .0133$) depict the results. The inconclusive rate for innocent was 18.0% and 20.0% for guilty. Without inconclusives, the accuracy for the innocent was 93.8% but only 33.3% for the guilty.

Table 3A: 2 x 3 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees for the entire Phase 1.

	NDI	INC	DI	Total
Innocent	16 (41.0)	11 (28.2)	12 (30.8)	39
Guilty	5 (16.7)	8 (26.7)	17 (56.7)	30

χ^2 (2, $N=69$) = 6.03, $p < .049$

Table 3B: 2 x 2 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees for the entire Phase 1.

	NDI	DI	Total
Innocent	16 (57.1)	12 (42.9)	28
Guilty	5 (22.7)	17 (77.3)	22

Fisher's Exact Test (2-tail) $p < .0213$

Table 4A: 2 x 3 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees for the entire Phase 1.

	NDI	INC	DI	Total
Innocent	30 (76.9)	7 (18.0)	2 (5.1)	39
Guilty	16 (53.3)	6 (20.0)	8 (26.7)	30

$p(30) < .000$

$p(8) < .1193$



Table 4B: 2 x 2 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees for the entire Phase 1.

	NDI	DI	Total
Innocent	30 (93.8)	2 (6.2)	32
Guilty	16 (66.7)	8 (33.3)	24

Fisher's Exact Test (2-tail) $p < .0133$

Phase 2

Scenario: A second individual was added to the scenario. After the two examinees burned the classified file, the TFSC left the file cover in plain sight in the room with the examinees and left the room to tend to business. A short time later, a second individual entered the room looking for the TFSC. Upon noticing the file cover, the individual became quite agitated, asked the examinees where it had come from, stated that it was a legitimate file and mumbled to himself that this time the TFSC had gone too far. Typically, the examinees denied any knowledge of the file. This modification was intended to increase the likelihood that the examinees felt as if they may have done something wrong. Two different individuals were utilized to play the part of the second individual.

Test Format: A stim test was added to the pretest. The polygraph examiners involved

felt that the stim test would increase discrimination between the examinees.

Analyses: Sixteen innocent and 9 guilty examinations were conducted. The original examiners scored the charts using both scoring methods. The results not using the first control are depicted in Tables 5A (with inconclusives - innocent $p(5) < .2078$; guilty $p(8) < .0009$) and 5B (without inconclusives - Fisher's Exact test (2-tail) $p < .1409$). The inconclusive rate for the innocent was 37.5% and 0.0% for the guilty. Excluding inconclusives, the accuracy for the innocent was 50% and 88.9% for the guilty. Tables 6A (with inconclusives - innocent $p(11) < .0032$; guilty $p(3) < .2731$) and 6B (without inconclusives - Fisher's Exact test (2-tail) $p < .2553$) depict the results when the first control was included in the scoring. The inconclusive rate was 25.0% for innocent and 11.1% for guilty. Excluding inconclusives, the accuracy for the innocent examinees was 91.7% and the accuracy for the guilty was 37.6%.

Table 5A: 2 x 3 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during Phase 2.

	NDI	INC	DI	Total
Innocent	5 (31.3)	6 (37.5)	5 (31.3)	16
Guilty	1 (11.1)	0 (0.0)	8 (88.9)	9

$p(5) < .2078$

$p(8) < .0009$

Table 5B: 2 x 2 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during Phase 2.

	NDI	DI	Total
Innocent	5 (50.0)	5 (50.0)	10
Guilty	1 (11.1)	8 (88.9)	9

Fisher's Exact Test (2-tail) $p < .1409$

Table 6A: 2 x 3 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees during Phase 2.

	NDI	INC	DI	Total
Innocent	11 (68.8)	4 (25.0)	1 (6.2)	16
Guilty	5 (55.6)	1 (11.1)	3 (33.3)	9

$p(11) < .0032$
 $p(3) < .2731$

Table 6B: 2 x 2 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees during Phase 2.

	NDI	DI	Total
Innocent	11 (91.7)	1 (8.3)	12
Guilty	5 (62.5)	3 (37.5)	8

Fisher's Exact Test (2-tail) $p < .2553$

Phase 3

Test Format: The scoring without using the first control resulted in 50% of the innocent individuals being classified incorrectly. Therefore, a sacrifice relevant (SR) was added to the test questions. The sacrifice relevant is designed to enable the innocent examinee to respond to the relevant issue without responding to a relevant question. It was placed after the second irrelevant and was phrased “Regarding the questions concerning the Task Force, do you intend to answer truthfully”. In addition, the inter-question interval was changed from a minimum of 30 seconds to 20 seconds. Examiners observed that with the 30-second interval, examinees were falling asleep more often and there was more spontaneous activity which interfered with asking the next question.

Analyses: A total of 37 examinations were conducted (22 innocent and 15 guilty). The original examiners scored the exams using both methods. Tables 7A (with inconclusives - innocent $p(11) < .0460$; guilty $p(10) < .0067$) and 7B (without inconclusives - Fisher’s Exact test (2-tail) $p < .100$) depict the results not using the first control. The inconclusive rate for innocent was 18.2% and 26.6% for guilty. Excluding inconclusives, the accuracy for the innocent was 61.1% and 90.9% for the guilty. Tables 8A (with inconclusives - innocent $p(18) < .0000$; guilty $p(3) < .1299$) and 8B (without inconclusives - Fisher’s Exact test (2-tail) $p < .360$) show the same data scored using the first control. The inconclusive rate for innocent was 9.1% and 13.3% for guilty. Excluding inconclusives, the accuracy for the innocent was 90.0% and 23.1% for the guilty.

Table 7A: 2 x 3 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during Phase 3.

	NDI	INC	DI	Total
Innocent	11 (50.0)	4 (18.2)	7 (31.8)	22
Guilty	1 (6.7)	4 (26.6)	10 (66.7)	15

$p(11) < .0460$
 $p(10) < .0067$



Table 7B: 2 x 2 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during Phase 3.

	NDI	DI	Total
Innocent	11 (61.1)	7 (38.9)	18
Guilty	1 (9.1)	10 (90.9)	11

Fisher's Exact Test (2-tail) $p < 1.00$

Table 8B: 2 x 2 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees during Phase 3.

	NDI	INC	DI	Total
Innocent	18 (81.8)	2 (9.1)	2 (9.1)	22
Guilty	10 (66.7)	2 (13.3)	15 (20.0)	15

Fisher's Exact Test (2-tail) $p < .360$

CNP-5 Results

Scenario: The guilty scenario was “beefed up” by having the second individual seem more concerned, upset and angry. The innocent scenario was reinforced by reminding the examinees, prior to their examination, that they had done nothing

wrong and they simply needed to be honest during the polygraph examination. The research assistant did this when taking the innocent examinees to their examinations.

Test Format: The sequence of the test questions was revised: IR, IR, SR, 1C1,



1R1, 1R2, 2C1, 2R1, 2R2, 3C1, 3R1, 3R2. With the new sequence, all relevant were no longer bracketed. However, the new method eliminated having a relevant and a comparison control separated by two other relevant.

Scoring: The original examiners scored the chart using both methods. The spots for the new format, not using the first control, were: 1R1 and 1R2 compared to 2C1, 2R1 and 2R2 compared to 2C1 or 3C1, and 2R1 and 3R2 compared to 3C1. Using the first control, the spots were: 1R1 and 1R2 to either 1C1 or 2C1, 2R1 and 2R2 to either 2C1 or 3C1, and 3R1 and 3R2 to 3C1.

Analyses: Thirty-two examinations were conducted with innocent examinees and 32 examinations were conducted with guilty examinees. Tables 9A (with inconclusives - $\chi^2(2, N=64) = 17.183, p < .0002$) and 9B (without inconclusives - Fisher's Exact test (2-tail) $p < .0001$) depict the

results not using the first control. The inconclusive rate for the innocent was 15.6% and 25.0% for the guilty. Excluding inconclusives, the accuracy for innocent was 81.5% and 75.0% for guilty. Tables 10A (with inconclusives - $\chi^2(2, N=64) = 10.84, p < .0044$) and 10B (without inconclusives - Fisher's Exact test (2-tail) $p < .0066$) depict the results when scored using the first control. The inconclusive rate for the innocent was 9.4% and 25.0% for the guilty. Excluding inconclusives, the accuracy for the innocent was 86.2% and 50.0% for the guilty. The charts also were scored blind, not using the first control, by an examiner not involved in conducting the examinations. Tables 11A (with inconclusives - $\chi^2(2, N=64) = 12.59, p < .0018$) and 11B (without inconclusives - Fisher's Exact test (2-tail) $p < .0009$) depict the results. The inconclusive rate was 15.6% for both innocent and guilty. Excluding inconclusives, the accuracy for innocent was 77.8 and 70.4% for guilty.

Table 9A: 2 x 3 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	INC	DI	Total
Innocent	22 (68.8)	5 (15.6)	5 (15.6)	32
Guilty	6 (18.8)	8 (25.0)	18 (56.3)	32

$\chi^2(2, N=64) = 17.18 \quad p < .0002$



Table 9b: 2 x 2 cross-tabulation for decisions, not scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	DI	Total
Innocent	22 (81.5)	5 (18.5)	27
Guilty	6 (25.0)	18 (75.0)	24

Fisher's Exact Test (2-tail) $p < .0001$

Table 10A: 2 x 3 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	INC	DI	Total
Innocent	25 (78.1)	3 (9.4)	4 (12.5)	32
Guilty	12 (37.5)	8 (25.3)	12 (37.5)	32

$\chi^2 (2, N=64) = 10.84$ $p < .0004$

Table 10b: 2 x 2 cross-tabulation for decisions, scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	DI	Total
Innocent	25 (86.2)	4 (13.8)	29
Guilty	12 (50.0)	12 (50.0)	24

Fisher's Exact Test (2-tail) $p < .0066$

Table 11A: 2 x 3 cross-tabulation for decisions of blind scoring, not scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	INC	DI	Total
Innocent	21 (65.6)	5 (15.6)	6 (18.8)	32
Guilty	8 (25.0)	5 (15.6)	19 (59.4)	32



Table 11B: 2 x 2 cross-tabulation for decisions of blind scoring, not scoring the first control, on innocent and guilty examinees during CNP 5.

	NDI	DI	Total
Innocent	21 (77.8)	6 (22.2)	27
Guilty	8 (29.6)	19 (70.4)	27

Fisher's Exact Test (2-tail) $p < .0009$

Discussion

Although this study intended to establish accuracy rates for the technique as it was originally designed, the necessity for modifications resulted in more of an exploratory study. The results of the first three phases were used to suggest that changes were needed. However, since there were no systematic manipulations nor comparisons, there is no way to know if the changes that were made were responsible for the changes in accuracy. The three phases did, however, allow for the observation of the influence of the first control question.

Both scoring techniques were applied to all sets of data (including the final study) in an exploratory manner in order to determine which provided the best overall results. During the earlier phases, the scoring technique not using the first control provided the best accuracy for guilty examinees, but the scoring technique using the first control provided the best accuracy for innocent examinees, such that

neither technique provided exceptional overall accuracy. In addition, the scoring technique not using the first control consistently resulted in larger percentages of inconclusives than did the initial scoring technique.

The outcomes from the final data set suggest that for this mock crime and specific question sequence, the scoring technique not using the first control provided the best overall accuracy (78.4% without the first control and 69.8% with the first control). Although the accuracy for innocent examinees was slightly greater using the first control (86.2% vs. 81.5%), the differences between the two accuracies were not as great as it had been during previous phases. Consistent with the previous phases, the accuracy for the guilty examinees was significantly greater when the first control was not scored (75.0% vs. 50.0%). The overall inconclusive rate when the first control was not scored was lower than it had been during most of the previous phases (20.3%) and was not very different from the overall

inconclusive rate for the original scoring method (17.2%).

Another factor that must be considered when interpreting these data is inconsistencies which occurred during the setting of the scenarios. Often the examinees did not follow their instructions exactly, and sometimes the second individual assigned to set the scenario was unavailable. The scenario setter occasionally needed to improvise and sometimes improvised based on the responses of the examinees. However, the purpose of the scenario is to create one group of examinees who perform some task and lie about it and another group who do not perform the task and therefore are able to be truthful. As long as the examinee performs (or doesn't perform) the task in question, then modifications to the specific format are not likely to systematically bias the results. If a particular variation in the scenario produced an individual who felt more innocent or more guilty that would be good. Therefore, the variability in the scenario setting is unlikely to result in spuriously high accuracy rates. At most, the variations in the scenarios are likely to decrease sensitivity, which is likely to result in lower accuracy rates.

The influence of the scenario on the examinee might be more likely to happen in a study, such as this one, in which the relevant questions were not directed at the act (stealing and burning) but at an interpretation of what the act meant. The

examinees needed to make the leap from the act of removing a document (which they were instructed to do) and burning it (which they were instructed to do) to the concept of having compromised the task force. Variations in the setting of the scenario may have influenced how well each examinee made that transition. Once again, this was likely to reduce the accuracy since it reduces sensitivity.

It might be advantageous to assess the impact of different scenarios on accuracy. In fact, it might be advisable to construct five or six different scenarios that can be administered consistently and that provide reasonable results. The scenarios should be developed and evaluated using a technique whose accuracy has been previously determined. Once consistent effective scenarios have been developed, future research studies would not need to be concerned with whether or not results were due to the technique under investigation or due to an ineffective scenario.

It is unclear whether or not the question type (specific or general) affects polygraph outcomes. One might argue that the polygraph might be less accurate with a general type of question than with a question that asks about a specific act. The one previous study (A, Honts & Barger, 1989⁵ - experiment 3) which addressed this issue suggested that the question type did not make a difference in accuracy. However, the methodology and analysis of those data were questionable.

⁵ Editors' comment: There was no References section in this report. The Honts & Barger experiment referred to by Dr. Reed and her collaborators may be Barland, G.H., Honts, C.R., and Barger, S.D. (1989, 24 March). Studies of the Accuracy of Security Screening Polygraph Examinations. Research Division, DoD Polygraph Institute. Ft. McClellan, Alabama.



Future CNP studies (if any) should test the validity of this particular testing technique either in a laboratory screening situation or in a field study. The laboratory study would utilize several mock scenarios such that an examinee could be guilty of one or more of several possible crimes. Again, these scenarios should be developed and evaluated prior to the CNP study. The rationale for utilizing more than one scenario is that it would make the situation more realistic to the actual screening environment. It is possible that when the examiners know that there is only one possible crime, they may unconsciously modify what they do during the polygraph test. The results might suggest higher accuracy rates than the

testing technique actually provides. In addition, the laboratory study should use a base rate other than 50%. Although it is impossible to know the base rate of the illegal activity that the polygraph examination is attempting to identify, an educated guess based on other information would be more appropriate since it would be more similar to that which would be found in the field.

If a field study is attempted, it should be designed as much as possible to allow researchers to evaluate the accuracy and utility of the technique. Without controlled evaluation by experienced researchers, the scientific foundation for this technique would be questionable.



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Lessons in Advocacy, Integrity, and Polygraph: My Friendship with F. Lee Bailey

Mark F. Teceno¹

When people hear the name *F. Lee Bailey*, they recall a courtroom legend—defender of Sam Sheppard, the Boston Strangler, Patty Hearst, and, most famously, O.J. Simpson. A man of sharp intellect and sharper cross-examinations, Bailey was also a passionate, if underappreciated, advocate for the polygraph—a belief we came to share and explore over the course of our friendship.

I first met F. Lee Bailey in 2012, under circumstances that were as humbling as they were coincidental. I had been forced to medically retire from law enforcement after a devastating heart attack in 2010. Some twenty-two months later I conducted my first polygraph post-recovery on a Maine State Prison sergeant named Lee Bailey—no relation to F. Lee Bailey. The test revealed no deception, and I reported

my findings to the referring attorney, Billy Childs. Shortly after, I was on a conference call with Billy and none other than the F. Lee Bailey, who congratulated me on a job well done. Billy Childs, I knew to be a political prankster. I was stunned and very skeptical even. I would not have put it past Billy to say that he had President George W. Bush on the line. But as we spoke, F. Lee Bailey convinced me it was really him—and wanted to meet.

That first meeting launched nearly a decade of friendship, mentorship, and shared work. From the outset, Bailey showed a deep respect for the polygraph and its examiners. He once told me, “*I don’t understand why more attorneys don’t use polygraph. It’s the most useful investigative tool I’ve ever had access to.*” He wasn’t just being kind. Bailey made polygraphs a

¹ (Former Portland Maine Police Detective) Maine Licensed Professional Investigator & Polygraph Examiner

central part of many of his defense strategies, particularly when corroborating evidence was lacking. In his view, polygraph wasn't just about detecting deception—it was about eliciting useful information. Lee Bailey could read polygraph charts as good as any trained examiner, mastered question formulation and knew how to employ effective testing strategies.

“Innocent people don't always get to trial unless the government fails to do its job. That failure usually starts with a bad assumption and ends with confirmation bias.”

—F. Lee Bailey, private conversation, 2015.

At a time when many legal professionals view polygraph with suspicion or outright hostility, Bailey went the other way. He saw the science as evolving, and the examiners—when properly trained and objective—as essential allies in uncovering case facts. He viewed polygraph not only as a truth-finding device but also as a tool to reduce wrongful convictions and guide rational plea discussions.

I remember his humor and candor vividly. Once, after polygraphing several unrelated defendants, within a matter of a few days, all accused horrific crimes, and all I rendered deceptive findings, I asked how he coped with defending people who were likely guilty of heinous crimes. Sensing my emotional strain, he said, with perfect comedic timing: *“I advise these clients that my opening remarks to the jury will be spectacular. My cross examination- withering. My closing argument worthy of award, but I always told these clients—if you've got an escape plan, don't scrap it.”*

In 2014, he assisted me and another attorney in a motion in limine to admit polygraph results in a retrial of a child rape case. The defendant had spent more than three years in prison before the conviction was overturned. My polygraph scored minimally truthful; a second examiner, Barry Cushman found the came to the same truthful result with even stronger scores. When I told Lee two attorneys had confronted me in the courtroom, angrily asking why I was “trying to put them out of work but getting polygraph admitted.” He famously remarked:

“While I have sometimes been let down by clients, witnesses, lawyers, judges, and others, I **was never let down by the polygraph.**”

That was classic Bailey—mistrust tradition when it impedes truth, and trust tools that help navigate uncertainty. He believed polygraph, properly administered, *helped illuminate the landscape of reasonable doubt.*

F. Lee Bailey was known for his candid frustration with the legal community's reluctance to embrace polygraph evidence. To F. Lee Bailey, the polygraph was fallible, but it was indispensable. He believed its exclusion from most courtrooms was more a failure of imagination and legal courage than of science.

“The polygraph won't put lawyers out of work. But ignoring it might keep innocent people in prison.” —F. Lee Bailey, 2016

He agreed with me, “That's there was an irrational fear of polygraph reducing work for attorneys and judges—same fear they had



when the old breathalyzer was upgraded to an intoxilyzer. Turns out, it created more billable hours, not less."

At professional conferences, Bailey didn't just show up—he advocated. At one county commissioners' event, he introduced me as "the most competent polygraph examiner in Maine," urging officials to use polygraph to reduce jail populations and improve bail and probation outcomes. A few drinks in, he then told a famously raunchy joke, reminding everyone that while he was brilliant, he was never boring.

Bailey's legal mind was precise, methodical. He told me, "Don't treat a guilty man like he's innocent—or vice versa. Just gather facts, early and often." For him, polygraph was not just about test results, but process: the pretest interview, the psychological context, and the unique power of the moment to reveal concealed truths.

Our debates were lively. We often sparred over the O.J. Simpson case and even disagreed once on a polygraph conducted by Jack Consigli—a giant in the field. Bailey asked me to review Jack's chart. I joked afterward, "Well, it's not as bad as O.J.'s—this guy only scored -23." Bailey laughed, but I could tell it wasn't the answer he hoped for.

He died without ever seeing polygraph gain the courtroom standing he believed it deserved. But those of us who knew him—and those of us who continue to work toward ethical truth-finding—carry

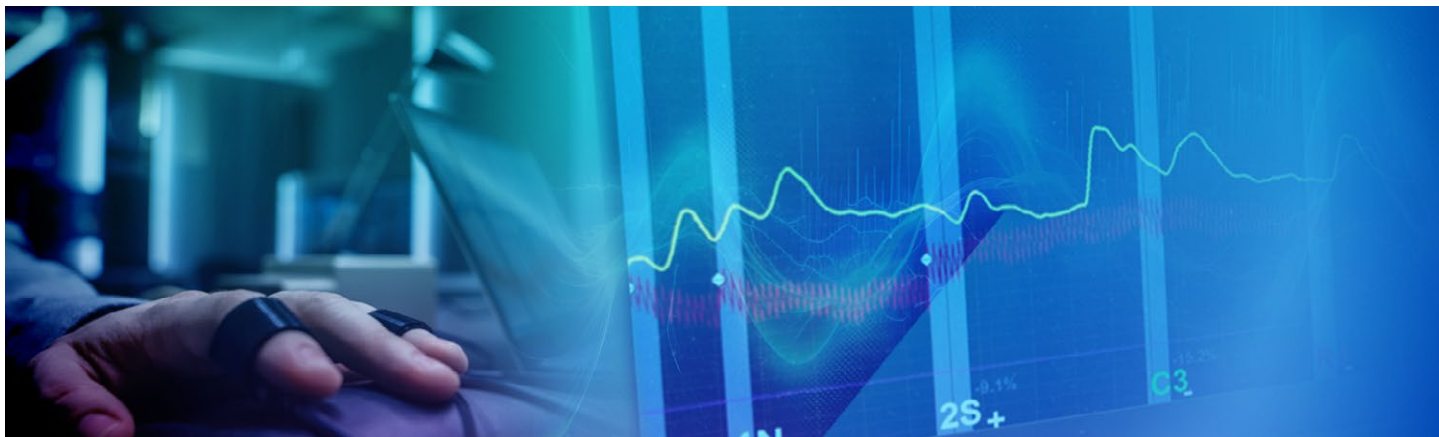
that torch. He was a champion for truth, even when the system didn't want to hear it.

About F. Lee Bailey:

Francis Lee Bailey Jr. (1933–2021), a U.S. Marine and one of the most formidable criminal defense attorneys in American history, built his legacy representing clients in landmark cases such as the Sam Sheppard retrial, the Boston Strangler investigation, and the O.J. Simpson trial. He was also a decorated Marine pilot, best-selling author, and legal commentator. Though controversially disbarred in 2001 over client fund disputes, Bailey spent most of his final years in Maine, consulting on legal strategy and lecturing on law. According to court testimony by respected Maine attorney Steve Schwartz, in the history of American jurisprudence, four names stand apart: *John Adams, Daniel Webster, Clarence Darrow, and F. Lee Bailey*. Prominent Maine Attorney Peter DeTroy represented Bailey during his hearing before the Maine Law Court, he argued passionately that Bailey's disbarment was unjust, and likened it to a "life sentence" undeserved. Despite controversy, Bailey's legacy endures as that of a brilliant legal tactician, fierce advocate for truth, and unmatched courtroom presence.

I am grateful for all that he taught me. I miss my friend.





Waymo has changed my outlook on the future of the polygraph

Benjamin K. Sweeney

Who would have known that a business trip to San Francisco would change my entire outlook on the future of the polygraph?

I took a trip to San Francisco this late spring and was only there for a day. Travel in one day, meeting in the morning, then travel out the day after. Given that the meeting was only a little longer than an hour, my boss and I found that, we had an entire afternoon to explore. Both of us had been to San Francisco before, but it had been years. One thing my boss recommended is that we try one of the self-driving cars we see meandering through the city. Being who I am, I was reluctant to put my trust in someone else's programming. I have about as much trust in Alexa, AI, and self-driving cars as John Connor has in Skynet. I did not like the idea of a machine making life and death decisions (which driving in California most certainly is) for me.

So obviously I agreed, as he is the boss. So, as he ordered up the "Waymo," I watched a few more pass by and picked up a dropped-off passenger just as any Uber would. As our Waymo approached, I found myself in a state of wonder at the whole concept of it, and at this point was just curious more than worried. We got into the car and pressed the "Start ride" button. This vehicle took us through many turns, stops, traffic lights, heavily congested areas of vehicles and people. Otherwise known as a very unpredictable environment. You could see on the screen everything that was going on around us. It had other vehicle movements, people on sidewalks and crosswalks, and depicted them accurately, right down to a person walking their dog. The vehicle handled left-hand turns with ease, even when navigating oncoming traffic. By the end of the ride, I had made the decision that I would trust this automobile to get me to my destination safely more than any other driver or even myself (Admit it, we all think

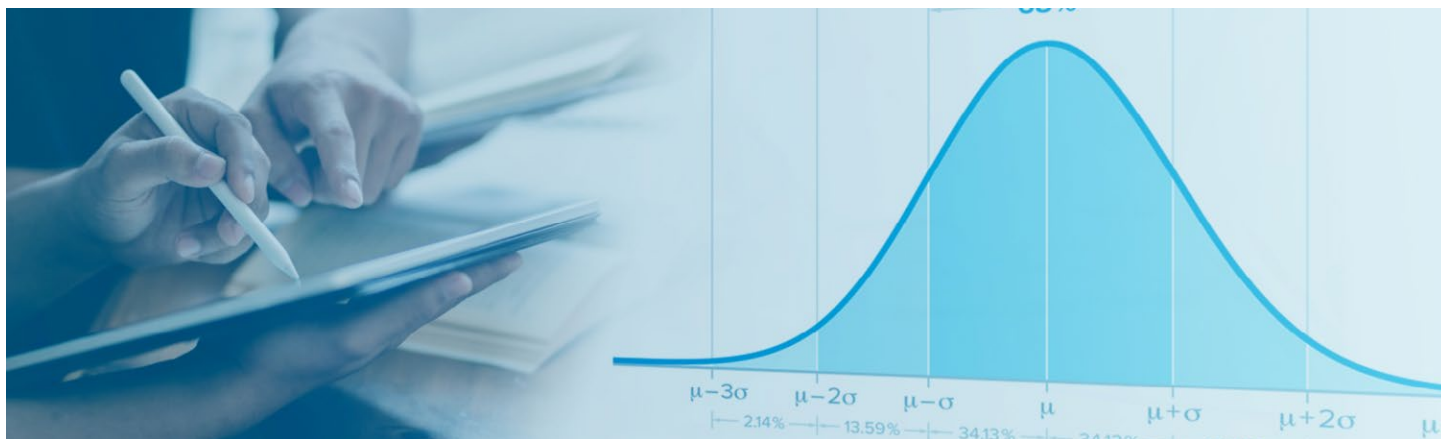


we are great drivers, and I am pretty sure my Uber driver earlier that day was under the influence of something). The fact of the matter is that humans get distracted and make mistakes. I am not saying that crashes will not happen with Waymo, but I argue that when they do, most of them will be caused by a human in another vehicle. We were so impressed that we took another Waymo to get back to the pier for dinner. The vehicle had to navigate a construction zone to accomplish this. It had every cone mapped out and even broke suddenly when things got narrow unexpectedly. On another note, it was making a left-hand turn, and a person was crossing the crosswalk. It stopped and waited appropriately.

This whole experience has me thinking of why we polygraph examiners are so afraid of advancements in the field. Whether it be a new component or an algorithm. We are most certainly a profession that can be classified as stubborn on a good day.

We experienced this when we went from analog to computers. To a lesser extent, when we added the PPG. The end of our profession did not come to an end when we switched to computers or added another component, and it will not come to an end now if we embrace advancements in technology. Our accuracy rates have improved with advancements since the days of analog, so why stop now? These advancements do not eliminate humans. Our President, Chip Morgan, alluded to in his March/April 2025 message that these technologies will only enhance our abilities and accuracy. The pre-test still needs to be done, and with more confidence in our results, it makes the post-test more piercing. I think that if we examine Raymond Nelson's 2024 article about Wonder Woman, a rhododendron, and an algorithm, we can see some truth that allows us to embrace the future with hope, rather than fear.





Continuing Concerns About Variance in Examiner Hand Scoring*

J. Patrick O'Burke

The American Polygraph Association Meta-Analytic survey (meta-analysis) is perhaps the first and most important research paper that a new polygraph examiner is exposed to¹. While the meta-analysis specifically states it is not a list of approved formats and scoring methods, for many examiners that is exactly what this document represents. As such, examiners often debate which test format or scoring method is better than another. Unfortunately, the meta-analysis was structured to use named testing techniques as a method for communicating validated testing principles to examiners that fuel this debate. It takes a very deep dive into the research to grasp the

underlying testing principles, which examiners rarely do.

While the meta-analysis is important, the information contained in the 2015 paper by Nelson and Handler on polygraph test score distributions is far more important in guiding an examiner in selecting test formats and scoring methods. This paper referenced the mean scores and standard deviations for test techniques that were included in the meta-analysis. As an example, a two-question event-specific exam using ESS scoring provided a mean grand total score of +6 for NDI and -6 for DI, with a standard deviation of six points for each. For a three-question

*Notice: This paper is a review of, and continuation of a research study presented in 2021 at the American Association of Forensic Science conference in Houston, Texas. The authors have no conflicts of interest in the material published herein and the opinions expressed in this article are those of the author. Address questions about this article to jpoburke@thepolygraphinstitute.com.

¹American Polygraph Association (2011). Meta-analytic survey of criterion accuracy of validated polygraph techniques. [Electronic version] Retrieved 1/25/2024, from <http://www.polygraph.org>.

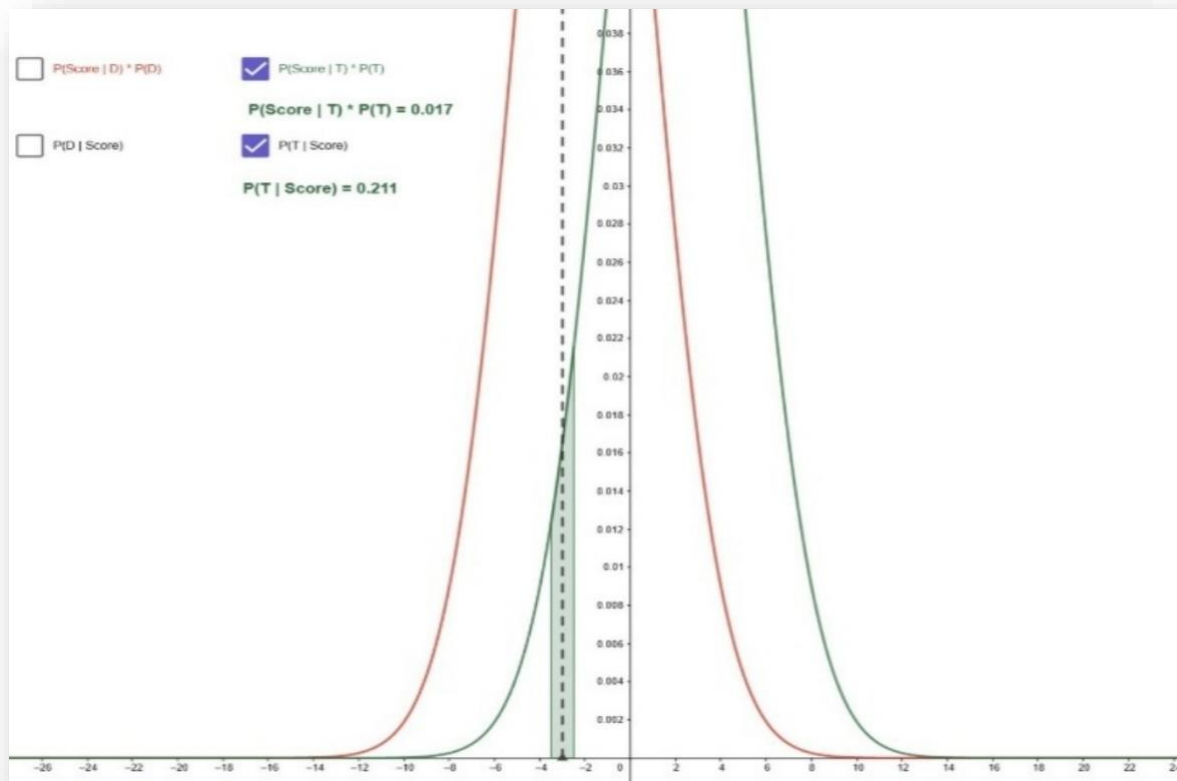
event-specific exam using ESS, the mean grand total score was -9 for DI, with a standard deviation of eight points, and +8 for NDI with a standard deviation of seven points. It is apparent that three presentations of the relevant issue produce more diagnostic value than two presentations. Far more concerning is the multiple-issue test which relies on three presentations and uses only a Spot Score Total. A multiple-issue test produced a mean spot total of -2 for DI, with a standard deviation of three, and +2 for NDI, with a standard deviation of three².

Some examiners may not recognize the importance of standard deviation as a measure of variance in scoring tests. To visualize the concerns about standard deviation, it is important to understand a normal distribution of data. Sometimes people call a normal distribution of data a “bell curve,” which may not be accurate but is a reference. With a normal distribution of data, if you have the mean score for your data, then 34% of the data would normally be lower than the mean, and

34% of the data would normally be higher than the mean. This gives a tendency for 68% of the data to be centered around the mean. Using the two-question You Phase example above, the range for one standard deviation for deceptive scores will range from zero to -12. This should get your attention.

Far more concerning is the trend for lower diagnostic scores such as multiple-issue exams that use mean spot total scores only for decision-making. This can be observed in the drawing provided below. In this example, scores range from -1 to +5 for the NDI subject. This can be confusing, as truth and deception may be mixed, which complicates decision-making. This is at least one reason why multiple-issue screening formats should require the use of successive hurdles for testing. Drawing #1 illustrates how much of the truthful population represented by the green curve can be found on the deceptive side of the graph. This is also with an optimal base rate of 50% and will appear much worse with lower base rates.

² Nelson, R., & Handler M. (2015). Statistical Reference Distributions for Comparison Question Polygraphs. *Polygraph*, 44(1), 91-114. Tagged XML BibTex Google Scholar Download: 44(1)-statistical reference distributions.pdf (233.96 KB)



In polygraph, there may be several variables that contribute to scoring variance, including the significance of the response, test data quality, error rate, and simply how reliably examiners apply various test data scoring rules. While hand scoring was supposed to have eliminated subjectivity, this is certainly questionable. The National Research Council (2003) report offers a discouraging perspective on the use of polygraph for multiple issue screening tests³. The NAS report did not support polygraph use for screening tests and notes the inclusion of multiple issues along with the use of

more ambiguous relevant questions as problematic. However, the author was concerned about identifying differences in human scoring as being problematic, in particular with screening tests, as an issue that negatively affected polygraph.

STUDY DESIGN

In 2021, the author conducted a research project that was presented at the American Academy of Forensic Sciences in Houston regarding variance in examiner scoring. This article discusses some of the findings presented for further

³ National Research Council. 2003. *The Polygraph and Lie Detection*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10420>.



consideration. For this study, the author selected three You Phase exams with confirmed solutions with the intent of having several hundred examiners score each of the three exams. This is different from the meta-analysis process where approximately 4,000 exams were repeatedly scored by a few hundred examiners. While the meta-analysis serves to illustrate how polygraph tests scores differ between truthful and deceptive, it has limitations in showing how examiners may differ in applying test scoring rules.

One exam for the 2021 study was chosen as a confirmed deceptive test from a shooting where the weapon was recovered with the suspect. Following a polygraph test, the suspect confessed and was also found guilty at trial. A second exam was chosen as a truthful case where a suspect was thought to have been involved with a spouse in child pornography. The case went to court with the suspect cleared and the children returned. Fifteen years later, no evidence has surfaced that the test subject was not truthful. A third exam was selected where the data was determined to be inconclusive from a sexual assault case, although the suspect was later found deceptive following additional polygraph testing. All three exams had been numerically scored hundreds of times in training presentations with consistent results for each. All three exams had also been scored with the OSS-3 scoring algorithm, which also agreed with examiner hand scores.

For the study, the author printed each of the three charts from the three exams in PDF format. A dropdown box was provided for scoring each component at each of the two relevant questions on each chart.

The scores in each dropdown were consistent with ESS scoring, a plus score, a minus score, or a zero, with the EDA score doubled. The three tests were distributed through several large polygraph associations to study participants. All responses were returned by email and the study participants were made confidential with their data collated in Excel. The participating examiners came from multiple countries, who had been trained at multiple basic examiner schools, and with examiner experience ranging from zero to thirty-five years.

The author also evaluated each decision point, one pneumo, the EDA, and a cardio, for each of the three tests in the study. This resulted in fifty-four component decision points in the study. Since there are no guidelines for evaluating data quality, the author created a coefficient score for data quality at each of the fifty-four decisions. The author used four characteristics: 1) tracing stability, 2) discernible, a percentage of difference, 3) timeliness, and 4) potential artifact presence. This coefficient score produced a score of zero to nine points for each component decision point. There is an addendum in this article which contains a complete definition for how each coefficient data score was assessed as High (7-9 points), Moderate (5-6 points), or Low (0-4 points).

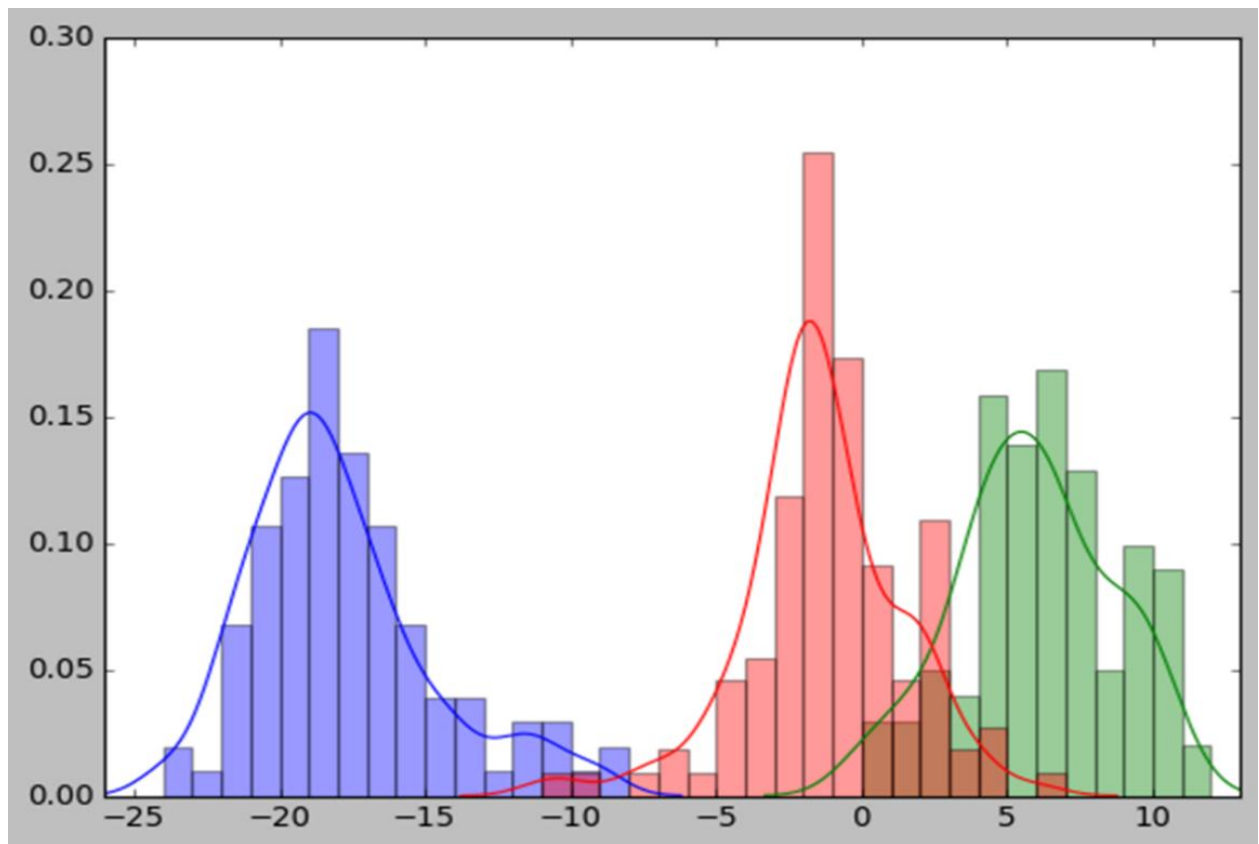
Finally, the author received 103 participant returns for the study. The author chose 90% as *Concurrence* for each decision point. Less than 90% would mean a lack of concurrence for the study.

ANALYSIS RESULTS

For both the DI and NDI exams, the participants were 100% unanimous on arriving at correct test opinions based on the grand total scores each provided. For the DI exam, the mean score from participants was -18, with the median score being -19. The mean score from participants for the NDI exam was +6 with the median score also +6. The results appear

to show slightly skewed data curves for both exams.

For the Inconclusive exam, eighty percent of the participants gave scores that would provide an inconclusive grand total. However, 10% of the participants scores made a determination of deception, and 10% made a determination of truthfulness. The score distributions can be seen in the picture below.



For the author, the stunning observation from this study was that only twenty of the fifty-four decision points attained a 90% consensus agreement among the large group of examiners. While the

examiners agreed on the overall DI and NDI decisions, they lacked reliability in how they got there. Not surprisingly, twelve of the eighteen consensus decision points were for the EDA component.



Seven of the eighteen pneumo consensus decision scores were for zero, while three of the pneumo decision scores did have a majority assigning a plus or minus score. The confounding part for the pneumo component decisions is that ten of the eighteen pneumo decision points had an RLL difference of at least 10 percent between comparison and relevant question data. The author has considered that too many examiners have been taught to either ignore the pneumo or to zero out respiration when in doubt. Vexingly, the cardio component had only one decision point with a 90% concurrence indicating examiners are willing to attempt scoring the cardio component when lower data quality suggested examiners were unsure or should be more cautious.

The author observed that a 90% consensus only occurred where the highest data coefficient score had been identified prior to the study. Anything less than the highest data coefficient scores was predictive there would be a lack of agreement. The author's opinion in assessing causation is where the response was questionable as to timeliness, or homeostasis was unclear, or how to treat data that possibly was an artifact.

Lastly, the mean standard deviation for the three exams in participant scoring was 2.82. This suggests that roughly half of standard deviation in variance may be attributed to how examiners apply scoring rules. It is important to replicate this study to determine if variance in test data scores is attributed to how humans apply test data scoring rules.

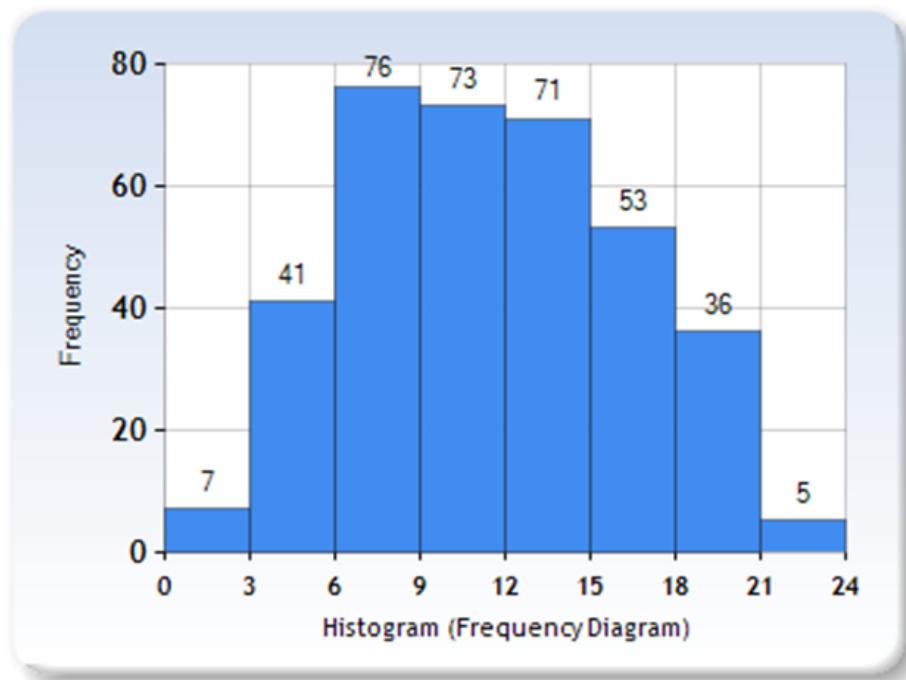
FOLLOWING THE 2021 STUDY

The author was sufficiently surprised at what was observed during this study to consider changes in how polygraph tests should be conducted. Concerns about data quality and solutions to current practices that do not move diagnostic scores far enough from zero have to be addressed. Increasing diagnostic scores increases decision confidence and can be achieved without a lot of fuss. However, using computer tools to make test decisions is not a complete answer. Research does not support the idea that diagnostic value is present in low quality data. It may be, but we do not know. So, we must ponder how to increase diagnostic value using feature identification that research does support as diagnostic to achieve increased confidence.

Increasing diagnostic value may include increasing the number of presentations for each test issue. Evidence supports the single-issue test where truth and deception cannot be mixed as the most accurate polygraph test. If you consider that a You Phase format with R33 and R35 presents a single test issue six times, then using R37 will increase the number of presentations to nine for more diagnostic value. This potential is supported in the meta-analysis where three question formats have similar accuracy as two questions but have fewer inconclusive results. Fewer inconclusive results come from identifying more diagnostic value. Backster probably had it wrong when he suggested avoiding the use of R37 in the You Phase. Also, if you believe three charts are a best practice, then why not consider what the fourth chart will do.

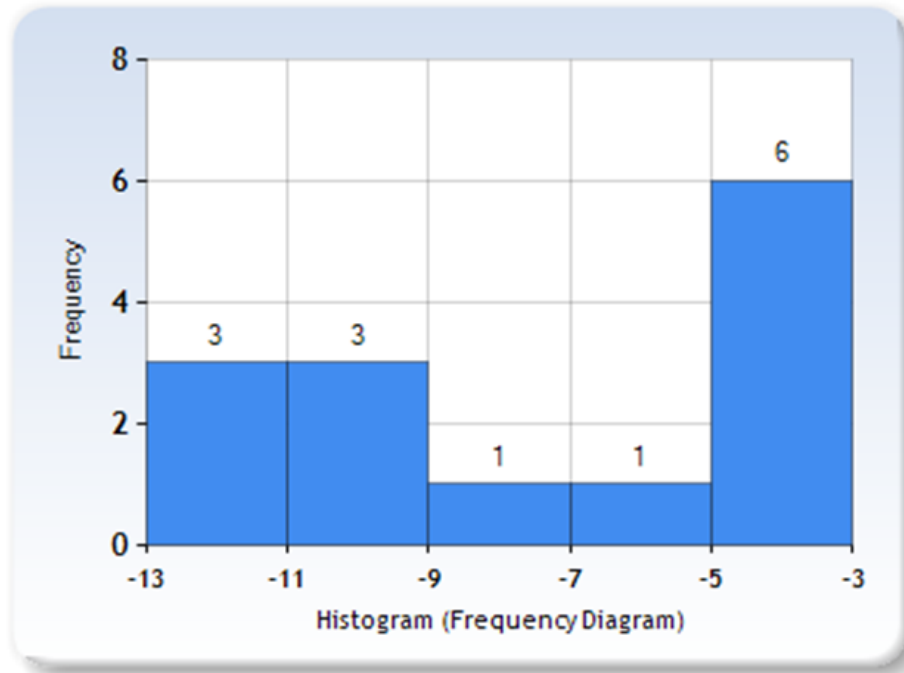
Increasing diagnostic scores can come from optimizing evaluation of test data already collected using computer scoring tools and algorithms. The author suggests that respiration below twelve cycles per minute is best avoided by visual hand scoring. The author opines that a diagnostic feature should be identified in the pneumo, and computer measurement tools used to identify at least a 10% difference before applying a diagnostic score or disregarding the tracing. Also, the author has been using silent answer responses with a slight head nod for the last two years to attempt to determine if better quality data can be obtained that is not harmed by answer distortions. As well, examiners should be making mandatory the use of Text-to-Speech for the presentation of each question to ensure correct marking of the test question stimulus.

If you are conducting a multiple-issue screening test and have anything less than all positive scores, then you should consider it mandatory to conduct successive hurdles using single-issue testing for all the test issues. I also consider it a best practice to conduct single-issue screening tests. The author chooses a *hierarchical* approach as a best practice that assesses the best issue first. The author also uses a *gatekeeper* approach as a best practice that stops testing from continuing on additional issues until the deceptive issue is resolved. One large state police agency that has requested confidentiality has established this process. This agency provided the author with the results from 108 applicants on pre-employment screening. There were 363 tests with a single-issue DLST style format using ESS hand scores that achieved a truthful classification. The mean score for the NDI tests was +10.9, with a standard deviation of 4.8.



There were fourteen tests with ESS hand scores that achieved a deceptive classification. The mean score was -7.7 with a

standard deviation of 3.4. The results appear to support the use of hierarchy and gatekeeper testing as a best practice.



There is one additional lesson to be learned from variance and multiple issue testing. This concerns the mixing of differing base rates for deception within a multiple issue test. This problem is very clearly discussed in the most recent APA magazine by Chip Morgan ⁴. Morgan described that when testing four relevant issues with at least one having a low base rate, the likelihood that a false positive will occur is increased. In fact, Morgan reported that for such a circumstance the Positive Predictive Value (PPV) was

24.42%. Morgan stated, *“this means only about 1 in 4 people who fail the test are actually guilty of one of the issues.”*

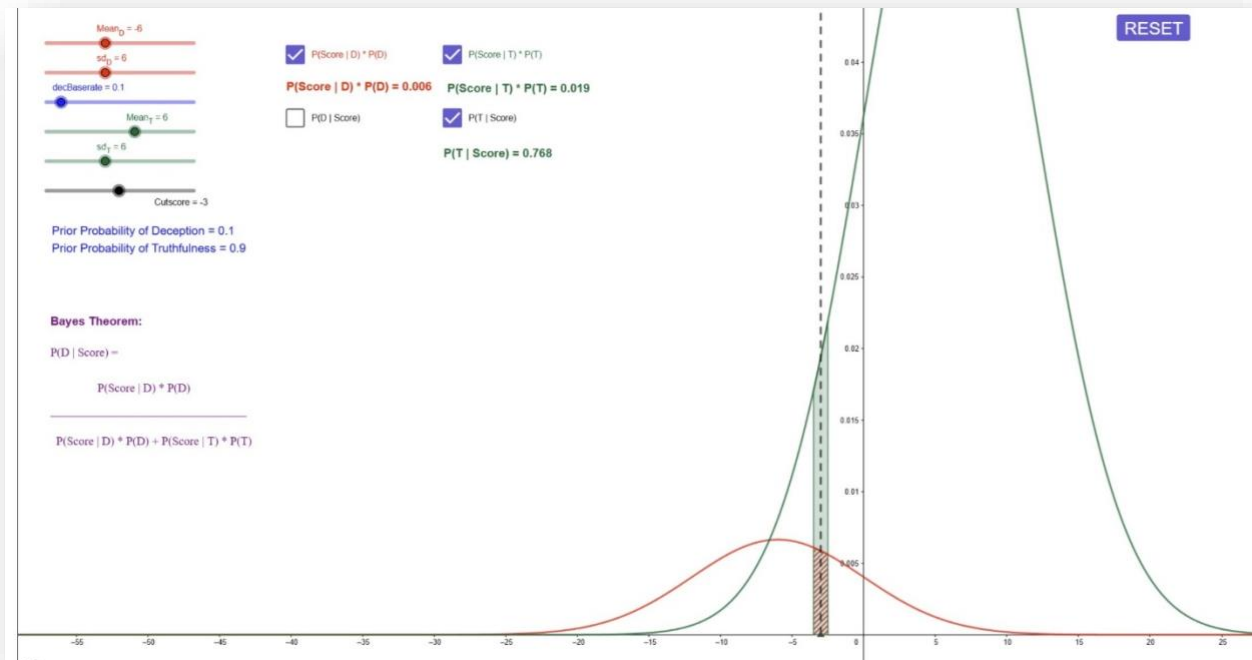
For those not familiar with base rate, think of red marbles in a bag of green marbles. For a low base rate, consider that there are only ten red marbles in a bag of ninety green marbles. Look at the attached diagram below, and you will see that the 90% green marbles depicted in the green curve have a much larger density curve than the red density curve with 10% red

⁴Morgan, Chip, 2025. Improving Outcome Confidence in Polygraph Screening: The Case for Single-Issue Testing *APA Magazine*, (58) 3, pp 93 – 99. Retrieved electronically 7/30/2025 www.polygraph.org/docs/Magazine_583_final.pdf

SPECIAL FEATURES

marbles. The decision bar is placed at a deceptive cut score to help an examiner how many green marbles exist at this cut score. The relationship between red marbles and green marbles should give

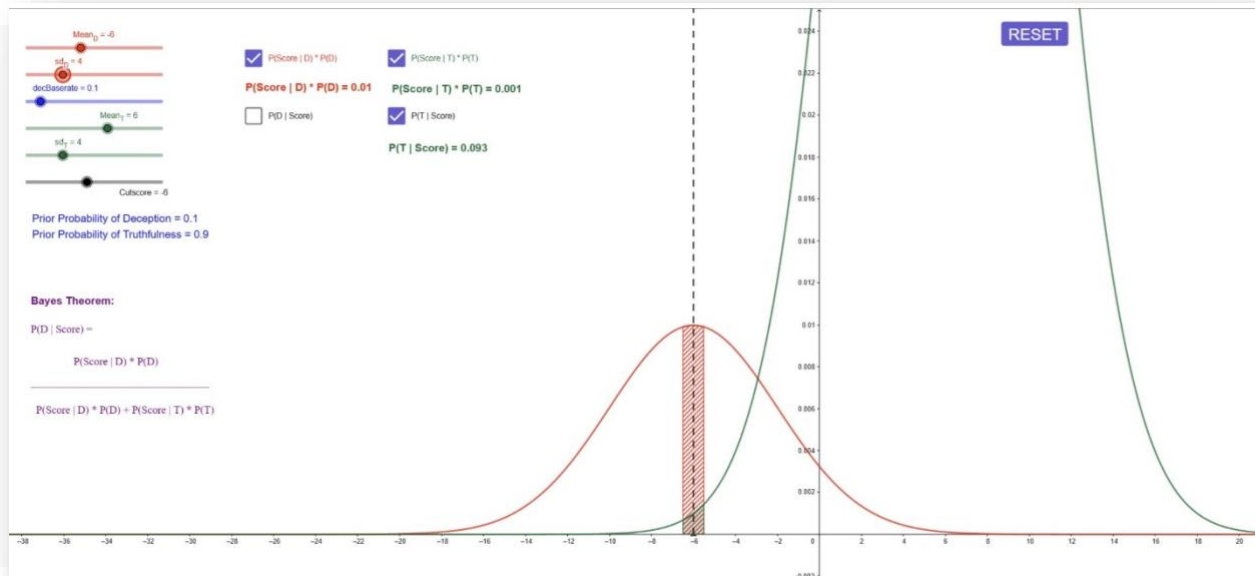
rise to concerns about current practices where low base rates exist. If you are betting on pulling a red marble out of the deceptive bag, you should ask if you would bet on this.



In considering solutions, the author suggests increasing diagnostic value, reducing examiner scoring variance, and potentially adjusting deceptive cut scores as having potential. While it is not possible to always know the base rate, it is possible to adjust cut scores and lower variance that will attempt to address the concerns noted in the NAS 2003 report. Reasonable adjustments by the polygraph profession that require the use of computer scoring tools, mandating

single-issue successive hurdles testing for screening, and adjusting cut scores could reduce variance and possible errors that are displayed in the below drawing. Observe the difference such adjustments make in having greater confidence in pulling out a red marble when you think the test is deceptive. This would negate some of the arguments presented by the NAS report against screening tests.





With these simple adjustments, the author opines that polygraph examiners would have more confidence in decision-making and more accurate polygraph testing would result. Everyone can agree on two things: words matter, and change is hard. If words matter, then words in the APA Standards of Practice really matter to polygraph examiners and are in need of change. Accuracy really matters to the test subject and the polygraph consumer, which should make change easier.

The author wishes to thank the numerous people who helped in the 2021 research study as well as the preparation of this paper.

ADDENDUM #1 Coefficient for Data Quality

Most test data analysis models direct the reviewer to first scan the entire chart

looking globally for stability in the tracing and the ability to assign a score to various diagnostic features that may occur in the tracing waveform. Reviewers use the “bigger is better” rule in assigning scores and that measurements are not needed. Reviewers also require that the response must be timely to be scored. Clearly, data quality will impact pattern analysis with visual analytics. While reviewers possess a better ability to determine if the data is good or “pretty.” They do not perform as well as computers in making fine measurement analyses of data.

Thus, clear high-quality data should promote a high level of examiner concurrence in awarding diagnostic scores. Decision points on a polygraph are evaluated at each component tracing, contrasting a relevant question against an adjacent comparison question. This Data Quality Coefficient is created at each decision

point using four criteria and assigning points. The assessment is made by evaluating the area containing two adjacent comparison questions and the relevant question at the decision point for each component tracing. The following criteria and point awards are made for each decision point in creating a Data Quality Coefficient.

- **Interpretable (Stability):** Component tracing demonstrates a consistent stability with an easily distinguishable baseline. The pneumograph tracing has respiratory cycles that are consistently of a similar amplitude (unless a response is occurring) and have a minimum of twelve cycles per minute. The EDA presents a free flowing stable pattern without erratic departures. The cardiograph lacks rolling patterns from poor cuff placement and PBPF and has a stable baseline. All component tracings that lack centering adjustments are preferable to those with many tracing centering adjustments.

√ High – 2 points, Moderate 1 point, Low 0 points

- **Discernible:** Any physiological response is easily distinguishable using visual analytics without relying on tracing measurements between a comparison and relevant

contrast to facilitate awarding diagnostic points in a TDA model.

√ High (Dramatic) – Significant visual difference (RLE, or amplitude is 20% or greater) of three points,

√ Moderate (Distinct) – Clear difference (RLE, or amplitude, is less than 20% difference and 10% or more) two points,

√ Low (Discernible) – (minimal difference) one point.

√ NO difference – computer measures show at or near no difference, zero point. (Concurrence should be for zero) In a correctly functioning CQT, a response should occur at either relevant or comparison question stimulus.

- **Timely:** The appearance of a physiological response appears to occur with the question stimulus and is not likely to cause examiner disagreement. A lack of data stability prior to the question, pre-stimulus arousal, and responses at the outer end of the response onset window are more likely to cause examiner disagreement. Some test data analysis models specify rigid response onset windows



and others do not. Idiosyncratic tendencies of the examinees that are early or late may cause lack of agreement on diagnostic value. The lack of any response in a response onset window in a decision point and chart stability would assume that timeliness exists. (The assumption is made that the question is timely marked on the chart.)

√ Clearly timely- 2 points,
Possibly Timely – 1 point,
Not timely – 0 points

- **Artifacts:** The presence of atypical data or disruptions in a tracing as artifacts should make the question unsuitable for diagnostic scoring. However, some artifacts may not be recognized as such, and examiners may lack consistency in scoring. Intentional distortion of tracings is a polygraph countermeasure, yet it is not possible to label it as such without confirmation of examinee intent. Examiners should treat distorted data as artifacts or unstable

data unless examinee intent is confirmed. As such, artifact will present itself as a low, or no score decision point as the most desirable concurrence for reviewers.

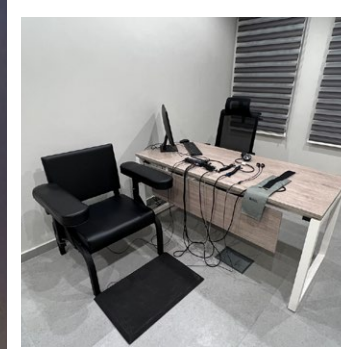
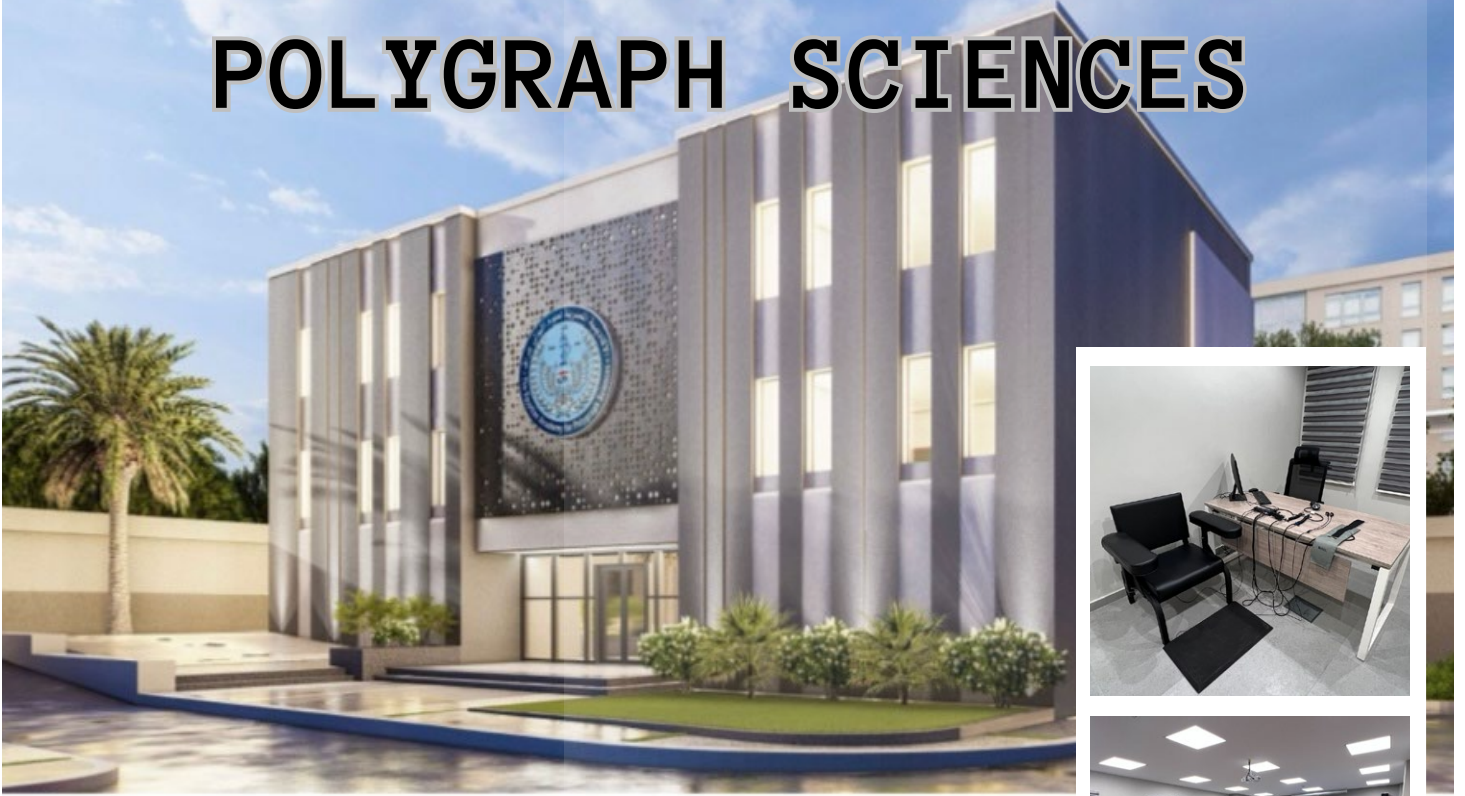
√ No artifacts- 2 points,
Possible Artifact– 1 point,
Artifact – 0 points

Decision points with higher Data Quality Coefficient scores are expected to produce reviewer concurrence and more significant diagnostic value. Decision spots with lower DQC scores are expected to produce less reviewer concurrence and a reduction in diagnostic value. Each decision point includes two pneumograph scores since two component tracings are present. The most diagnostic or highest scoring DQC will be used in looking for examiner concurrence in scoring.

- 7-9 points- High (achieve 90% concurrence)
- 5-6 points- Moderate (achieve less than 90% concurrence)
- 0-4 points- Low (achieve 90% concurrence at zero)



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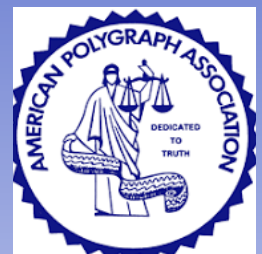
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