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Polis, politicians, polygraph. On the need to verify the political elites

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Abstract

This article discusses the potential use of lie detector tests in public life. It looks at what is already available and suggests ways to prevent dishonesty in areas such as government, the courts and politics. The focus is on mechanisms built into the human brain that facilitate the concealment of lies in politics and explains why solutions to counteract dishonest politics are ineffective. The article also presents arguments in favor of the thesis that the use of lie detection tools, including polygraph, can limit the pathological effects of these mechanisms in public life, particularly in politics.

Key words: politics, public service, deception, lie detection, polygraph, evolution of mind

Introduction: Lie detection in public life as a problem of contemporary democratic societies

Polygraphs are used in many countries in public service. There is extensive literature on the benefits and risks associated with this practice. One of the aims of this text

is to analyze them from the perspective of evolutionary and social psychology. The article also attempts to answer the question of whether testing candidates for the most important positions in terms of their truthfulness on issues important to citizens is a rational strategy. We focused in particular on the potential consequences of adopting such a solution for democracy. Another objective is to determine why the practice of testing candidates for key government positions, or those already holding such positions, using lie detection devices has not developed in democratic societies.

Detecting who is lying and who is telling the truth is usually difficult, sometimes even impossible. At the same time, mistakes in this area can be very costly. The cost is borne by people who are deceived by others. It can be particularly high when entire societies are misled by politicians and leaders through the mass media. It was probably the difficulty of detecting fraud and the lack of appropriate procedures for checking the mental and moral condition of leaders that were responsible for the greatest tragedies of societies that allowed themselves to be deceived by Machiavellian individuals (Florek, 2024). Perhaps the greatest conflict in history, World War II, would not have occurred if it had been possible to verify the truthfulness and morality of one man. As history shows, the spread of lies by those in power is a fundamental tool for enslaving the governed. One of many examples is the Soviet Union, about which Solzhenitsyn (1980: 533) wrote: 'In our country, the lie has become not just a moral category but a pillar of the State.'

It should therefore come as no surprise that when selecting individuals for important positions in the state, citizens are interested in their honesty. This is particularly evident when there are reasons to believe that candidates are not telling the truth on important issues. This was the case, for example, during the last presidential campaign in Poland in 2024. In the second round of elections, supporters of the competing politicians quite often accused the opposing candidate of lying. Both candidates were even called upon to undergo appropriate tests to verify their truthfulness on issues that required clarification: Rafał Trzaskowski was asked to undergo a drug test, while Karol Nawrocki was asked to undergo a polygraph test. Two MPs even brought the device to the parliament for this purpose (Bojakowski, 2024). Although neither candidate underwent the proposed tests, the idea of verifying the truthfulness of politicians, including by means of a polygraph, resonated very clearly during this campaign.

The legislation of many countries provides for the use of polygraph tests, for example in the recruitment of civil servants and public officials or in criminal procedures.

Such solutions have been used for years in many countries, although their scope is rather limited. Considering the disastrous consequences of entrusting key functions in the state to dishonest people who lie about important matters, it is difficult to understand why, as far as we know, no systemic solutions to this problem have been developed anywhere in the world, even though there are appropriate legal regulations in place for lower-level personnel. Recently, however, there have been calls, for example in the United States, for the development of such solutions (Dallek, 2010).

1. Lying and Lie Detection as a Driver of the Evolution of the Mind

It is impossible to determine precisely how the evolution of the human brain proceeded. However, it is possible to identify important factors that drove it. One of these is the development of language, which enabled both more efficient information transfer and disinformation. Lying became an important tool of intra- and extra-group competition in the fight for survival and reproduction. It is therefore not surprising that lying and misleading members of one's own group have been, and still are, forbidden and subject to negative sanctions in probably all moral systems that humans have developed. A liar can gain much at the expense of those who tell the truth, so the ability to detect a lie became a key adaptation. Proponents of the concept of „Machiavellian intelligence" argue that a kind of arms race involving the development of the ability to lie and detect lies is one of the most important factors driving the evolution of Homo sapiens' brain.

Gavrilets and Vose (2006) created a mathematical model of brain evolution consistent with the assumptions of the „Machiavellian intelligence" hypothesis and demonstrated its plausibility. Tooby and Cosmides (1992, 2007, 2008) believe that the specific architecture of the human mind evolved to determine who broke and who followed established social rules. Based on their social exchange theory, they argue that specific psychological mechanisms for social cognition evolved for this purpose, particularly those responsible for detecting, remembering, and punishing cheaters. Tooby and Cosmides believe that many other cognitive competencies, including those responsible for abstract reasoning, developed on the basis of psychological mechanisms for detecting cheaters.

Deception, or acting in such a way as to mislead others, can be done in many different ways: i.a. by falsifying documents, valuable objects, or pretending to be someone else. The most common form of deception, however, is lying. Research conducted by Bella dePaulo (2004), one of the most renowned deception researchers, indicates

that people lie on average twice a day. They lie slightly more often to strangers than to acquaintances. These lies are usually not harmless, sometimes told with good intentions, for example, by assuring someone that they look good despite the reality. Sometimes, however, these lies can ruin entire societies and countries, for example, when candidates for important office declares they are honest and have never committed a crime, even though in reality they suffer from antisocial personality disorder. Power-seeking psychopaths may claim to desire peace and prosperity for their citizens, even though they intend to start a war and are solely concerned with achieving their own selfish goals. The threat of voter deception is extremely real, as humans are very poor natural lie detectors. Experimental studies have shown that the average person detects lies only about 60% of the time, and experts fare only slightly better (Grubin & Madsen, 2005).

2. Detecting Liars in Public Life

Detecting that an individual is untrustworthy because they frequently deceive is more likely when we interact with them frequently. Figuring out who is a cheater was much easier than it is today in hunter-gatherer groups, small villages and towns, or even in the Greek *polis* where the idea of democracy was born. Robin Dunbar (2010) argues that the human brain is adapted to maintaining social relationships with around 150 people. In larger communities, the brain copes much worse. This makes it easier for dishonest individuals to create an attractive but false image of themselves in order to gain citizen support and, consequently, power. The development of media has made deceiving potential voters even easier.

Since the dawn of human history, lying has been perceived as an immoral and dangerous act. Therefore, various measures were taken not only to demotivate potential liars through harsh punishments but also to develop methods for detecting them. Before John A. Larson (Synnott et al., 2015) invented the polygraph in 1921, a device for detecting lies based on the measurement of somatic changes that typically accompany them, methods used were, to put it mildly, unreliable. It was believed, among other things, that a person subjected to torture would be more truthful, or that some higher power would come to the aid of an innocent person suffering to prove they were telling the truth. However, methods with some empirical basis were also used. In China, a person accused of lying was required to chew rice flour. If the flour remained dry after spitting out, they were considered to be lying. Similar methods, based on the fact that stress reduces saliva secretion, were used by inquisitors (Grubin & Madsen, 2005).

In the United States, the polygraph has been used for about a decade to examine intelligence officials (Synnott et al., 2015) and other government agencies (Cumming, 2007) to determine whether they have unlawfully disclosed classified information or are in relationships that carry such a risk. However, the validity of this practice and attempts to expand it to other groups have been questioned since the 1980s due to the polygraph's unreliability (Saxe, 1985). Because the device operates on the assumption that deception alters body function due to stress, it is inevitable that the device will fail due to the stressful nature of the examination, even for those who are telling the truth.

Back in the 1980s, Kleimutz and Szucko (1984) analyzed this problem and warned that using this method to enhance national security without considering the caveats stemming from psychological research could lead to abuse. Problems related to false lie detection led the U.S. Congress to pass legislation banning the use of polygraphs in private employment – the Employee Polygraph Protection Act (EPPA) – in 1988 (Rurbeck-Goldman, 2017). Government institutions have not abandoned this practice, but there has been a trend toward limiting it over the past decade (Synnott et al., 2015).

In Poland, there are legal regulations (Cempura, Kasolik, & Widacki, 2014) regarding the use of polygraphs in personnel selection and as part of recruitment screening procedures for certain services, including customs, counterintelligence, border guard, gendarmerie, police, and those working for internal security and counteracting corruption. There are no legal regulations permitting the conduct of such tests for employees of the Government Protection Bureau, which, according to the aforementioned authors, constitutes clear legislator negligence. The law also permits the use of polygraphs with the subject's consent in criminal procedures for evidentiary and dispositive purposes (ibidem).

Of course, in many other countries, the use of polygraphs is also permitted by law: primarily in criminal proceedings and by services responsible for the safety of citizens or performing other important state functions (Honts and Perry, 1992, Budaházi, 2012, Nikolovsky et al., 2024). Besides the polygraph, other methods based on measuring the body's psychophysical reactions are also used for lie detection. These include thermographic cameras, computerized graphometric examination, layered voice analysis, functional magnetic resonance imaging (fMRI), Eye Thermometer, Silent Talker, and Monoscanner (Budaházi, 2012). Some researchers suggest combining traditional interrogation techniques with fMRI to detect lies more effectively than before (Opancina, Sebek & Janjic, 2024). As Langleben et al.

(2005: 262–263) point out: „[polygraph] specificity is limited because it relies on the correlates of peripheral nervous system activity, while deception is a cognition event with top-down control by the central nervous system (CNS). Experiments using CNS measures obtained by electroencephalography (EEG) or functional magnetic resonance imaging (fMRI) provide hope for more accurate detection of deception by comparing the time course and topography of regional brain activity during exposure to cues designed to elicit truth and lie." The simultaneous use of multiple lie detection methods and AI to analyze polygraph data, particularly neural networks (Rad et al., 2023), raises the hope that these methods will become more reliable.

3. Examining the Truthfulness of Politicians – Selected Aspects from a Psychological Perspective

Lying is a phenomenon that many people associate with politics. Among such persons – along with perhaps many lesser-known figures – was Hannah Arendt. In the context of the scandal surrounding the misleading of American public opinion about the Vietnam War, she pointed out that truthfulness has never been considered a political virtue. Arendt (1971: 2) believes that „lies have always been regarded as justifiable tools in political dealings." She argued that lies appear more credible than reality itself because the liar knows exactly what their audience wants or expects and can appropriately prepare their story „for public consumption." To lend credibility to their lies, important politicians can enlist the help of entire teams of people responsible for creating their media image.

Public debate also surrounds the issue of determining other important characteristics of those in positions of power, such as their mental health (Ingersol, 2023), and particularly disorders related to the violation of social and legal norms, such as antisocial personality disorder (Florek, 2024). Psychotherapists have indicated that among their patients who lied pathologically, over half had personality disorders – including 16% with antisocial personality disorder, 15% with various personality disorders, 13% with borderline personality disorder, and 7.5% with narcissistic personality disorder (Curtis & Hart, 2012). Owen (2008) writes about the concealment of serious mental health problems by US presidents from the public. Between 1906 and 2008, serving presidents struggled with bipolar disorder (Theodore Roosevelt, Lyndon B. Johnson), major depressive disorder (Calvin Coolidge, Woodrow Wilson, Herbert Hoover), breathing-related sleep disorder (William Howard Taft), and alcohol abuse (Richard Nixon; see Owen & Davidson, 2009).

According to Owen, even those not suffering from clinically understood and diagnosed mental disorders may develop „hubris syndrome" during their term. Its symptoms include, among others, an obsession with controlling socio-political reality, a narcissistic focus on image rather than problem-solving, an exaggerated, pompous presentation of one's achievements, an association of one's own benefits with state interests, and a belief in one's own power, infallibility, and being „above" the criticism of others (ibidem). It is increasingly suggested in the scientific literature that hubris syndrome should be formally recognized as a mental disorder by being included in the latest diagnostic systems. Selten (2023) even proposed seven diagnostic criteria (core symptoms) for the syndrome. As the author writes, „[...] there is sufficient reason to consider the hubris syndrome for inclusion in our classification systems. The recognition of the hubris syndrome as a valid diagnostic category and a danger to mankind will constitute an important step toward prevention" (Selten, 2023: 5891).

Dallek argues that „Since at least the late nineteenth century, U.S. presidents have engaged in substantial and unjustified deception in a variety of domains, and future presidents will continue to do so unless new mechanisms are created to ensure greater accountability and oversight" (2010: 9). Dallek believes that misleading the public through lies and omissions became a common practice among presidents after the Civil War. He distinguishes three areas to which this practice applies, among others: presidential health problems, public policy; particularly in foreign affairs and homeland security, and abuses and crimes of executive power. He abundantly illustrates the misleading of public opinion in all three areas by many American presidents. The aforementioned author also expresses the opinion that the violation of moral standards by those who win the presidential election stems from an extremely strong motivation to obtain office and the fear that adhering to these standards could hinder this goal. He asks the question, „Is an ethical presidency—one that can be defined as lawful and honest in its public dealings—possible in the twenty-first century?" (2010: 9). In response, he notes that perhaps the example of George W. Bush, whose concealment of facts brought more harm than benefit, will serve as a warning to future presidents. He also points to the role of the media, which is increasingly aggressive in exposing violations of moral standards, which may lead to a reduction in this phenomenon (ibidem).

One might question whether the practice of investigating the truthfulness of intelligence officers is rational. We believe it is. Moreover, we believe there are compelling reasons why the strategy of investigating the truthfulness of individuals holding key positions in the state or seeking top positions in certain matters should be

considered at least equally rational. When assessing the rationality of any strategy, it is crucial to assess its optimality in terms of achieving the desired goal. Therefore, determining the potential benefits and losses associated with implementing a given practice is crucial.

Assuming the use of a truth testing strategy for key issues involving top government officials, let's examine the potential losses. On the one hand, we have the threat of hindering or preventing access to office for an honest person who fails a truth test. This causes a socially disadvantageous situation in which the office may be filled by someone with a lower level of competence. However, it can be expected that the differences in competence will not be significant, given the large number of potential candidates for important positions, and therefore, the losses to the community should not be significant. Furthermore, it can be assumed that a person who tends to react with high stress during a polygraph examination will react similarly in a situation of serious threat to the country in which they hold power.

The issue of monitoring the US president's health and informing the public on this matter has been debated for many years. The March 16, 2024, editorial of the renowned journal The Lancet is titled „Fitness to lead: the health of US presidents." The authors point out that in 2017, a proposal was made to establish a panel of experts (doctors, lawyers, former presidents, and vice presidents) to assess and report on the president's health. However, this proposal received little attention and, apart from debate, yielded no practical results. However, similarly to Lawrence K. Altman, one of the most prominent representatives of medical journalism, publishing in The New York Times, the authors of the aforementioned text note several problems related to the procedure for an independent and transparent assessment of the president's health, including: how to determine potential political or medical biases of doctors? Would they be required to declare their political party affiliation? Would members of the independent panel personally examine the leader, or would they rely on disclosed information? What should be done if experts disagree? These are important issues, of course. However, bearing in mind that President Dwight D. Eisenhower ordered the disclosure of his 1955 heart attack and then easily won re-election, one must fully agree with the editors of The Lancet that „honesty remains the least complicated, if not also the best, policy" (2024, vol. 403: 997).

The potential losses resulting from the lack of procedures for examining the truthfulness of individuals holding important offices in key matters are widely known and, in some cases, reach the catastrophic proportions. Therefore, if we compare the harm of potentially hindering access to office for an honest but stress-prone person

with the potential harm to millions of people – including the extreme loss of their lives – the result of this cost calculation is obvious.

It is difficult to understand why many countries allow or even mandate lie detector testing for employees of secret services or government agencies, yet do not apply similar practices to those elected to hold key state positions. We believe that the claim that it is worthwhile to verify the truthfulness of those seeking the highest offices in the state, at least with respect to critical issues such as their health and moral condition (e.g., a serious illness that may prevent them from holding office, or a history of serious violations of the law, particularly treason or collaboration with foreign intelligence), requires no further argument. Rather, it requires an explanation as to why candidates for important offices are not vetted in this regard.

4. The Scandal of Overconfidence

Leaving aside the legal, historical, and perhaps philosophical issues responsible for this state of affairs, we will focus on the psychological mechanisms that, at least to some extent, allow us to understand why the demand for research into those holding the highest offices—including their credibility and truthfulness—has not yet gained widespread support; and, with a few exceptions, is not even raised in the public sphere. It seems that there are at least three important reasons for this state of affairs: the reluctance of legislators, the lack of appropriate tools, and the passivity of citizens.

The first two concern issues rather barely related with psychology. However, in this regard, if Arendt (1971) and Dallek (2010) are correct in their assertion that deception is an almost standard strategy in the political sphere, then it is not surprising that politicians lack sufficient motivation to combat it. Assuming that politicians' truthfulness is not so bad, the reason could be sought in the realm of legal philosophy, and in particular in the justified fear of restricting passive electoral right. However, there is no doubt that in the case of important state offices, this right is more severely restricted than active suffrage, for example, in the case of the presidency, on the basis of age; or—looking at US law—place of birth. A clear premise for such restrictions is therefore concern for the qualities of the person holding this important office, including mental and personal competence, patriotism, and loyalty.

Perhaps the reluctance of legislators is motivated by the lack of appropriate tools for assessing truthfulness. If this is indeed the case, one can hope that this problem will gradually be resolved with the development of increasingly reliable methods

for detecting lies. However, it seems that methods with sufficient effectiveness exist, as the tools currently in use have been deemed effective enough by many legislators that—as we have shown above—their use in important areas of social functioning is permissible in many countries.

In this situation, the most likely explanation seems to be civic passivity. If citizens' rights are not clearly violated, they are not sufficiently motivated to take action. From a biological perspective, the standard strategy for action toward other organisms is neutrality (Miller, 2001). Motivation to take action arises when entering into, or avoiding, interaction with another organism can contribute to increased inclusive fitness (Hamilton, 1964), or—to simplify somewhat—affect its chances of survival or reproduction. The human brain relatively easily detects such situations when another human, usually nearby, might provide assistance, threaten it, or become its sexual partner. Due to evolutionary delay, manifested by the brain's maladjustment to the new environment, it is much less able to detect the significance of another human's actions within the situational context generated by cultural institutions. These include, among others, those related to the delegation of power, such as parliamentary elections. In their case, they do not interact directly with important people, so the perceived possibility of influencing them seems limited. Even activating the phylogenetically newest brain regions, the frontal cortex, which enables thinking and decision-making, can only slightly alter the strength of the motivation to take action against those in power and their candidates. In current democracies, the power of a single vote is relatively small, which translates into low cognitive engagement in electoral decision-making and potential electoral passivity. This may be compounded by the belief that it is difficult to obtain reliable information about candidates due to access only to their campaign images. In the case of other actions that could change the status quo, such as launching a legislative initiative or initiating civic movements, moving beyond a neutral strategy is even less likely. Taking such action would entail too high a cost for the individual compared to the potential gain, considering the chances of success and the potential impact on their well-being. Taking a stand against those in power obviously carries an even greater cost and a high risk of suffering a significant loss, given that rulers usually wield considerable power.

Unfortunately, for at least several decades, the process of citizens' alienation from politics has been intensifying in various societies. The spectacular collapse of the great 20th-century utopias, which resulted in unimaginable suffering for millions, certainly contributed to this state of affairs. Paradoxically, the increasing power of the media and public debate over abuses of power do not increase civic participa-

tion, but rather intensify the sense of distance between „ordinary people" and the ruling elites. Trust in political elites is also weakened whenever those who make the law themselves violate its rules. This leads to the recognition that double moral standards are a widespread phenomenon, and consequently to normative chaos and an increased level of anomie (cf. Bornand & Klein, 2022). Slogans about voting for the „lesser evil" have long been prevalent in public spaces, calling into question the validity of elections. The criteria for selecting those in power were rational in small groups or traditional communities, whose members not only knew the candidates' qualities and life histories but could also constantly monitor their actions and decisions. In a world of large, anonymous populations, such oversight is, of course, an illusion. 21st-century societies seem not only disillusioned with trust in politicians but also devoid of hope for positive change in this area. Unfortunately, this is not a optimistic conclusion in the context of developing a civil society. A high level of political alienation can lead to extremely destructive behavior. The feeling that those in power are not fulfilling their promises, failing to meet the needs of citizens, but rather driven by selfish motivations, leads to lack of understanding of social norms, helplessness, and a diminished sense of meaning in life. Desperation can lead to the adoption of radical views and actions not only directed against the establishment but also those that may harm uninvolved and innocent individuals (Florek, Gulla & Piotrowski, 2019). Citizens' sense of loss of control and lack of understanding of political events may also result in support for authoritarian solutions (Neerdaels et al., 2024).

Conclusions

If the above analysis of the current state of affairs is accurate, is there any chance of overcoming the impasse in testing politicians' truthfulness using scientific methods? We believe this is possible if those entering politics demonstrate initiative and are provided with appropriate institutional conditions to verify their credibility and truthfulness (Florek, 2024). First and foremost, it is necessary to determine what questions voters would like to ask individuals holding or running for important offices. One might assume that these questions would concern the morality of their past actions, health status, and intentions in areas that cannot be otherwise verified (e.g., a clean criminal record does not exclude someone from committing a crime). However, this is merely speculation. To determine what average citizens would actually like to learn, appropriate survey research would be necessary. Determining this and creating an appropriate set of questions could motivate politicians to vol-

untarily submit to such testing, as they would have a reasonable basis for believing that a positive test result would translate into gaining or regaining public trust.

It is reasonable to assume that individuals who agree to and pass such credibility tests will thus gain at least a slight advantage in the eyes of the electorate over those who refuse. Gaining even a slight advantage could, in the long run, lead to the widespread adoption of this practice and the creation of an entirely new political elite (Florek, 2024). The very prospect of answering questions important to citizens/voters under the conditions of a polygraph or similar examination would likely be a deterrent for those with much to hide, which would likely limit their participation in public life.

It should be emphasized that detecting fraud is important not only in case of those seeking high-profile public office. It is even more crucial for those already in office. If only because – as Lord Ashton aptly noted – power can corrupt, which is also confirmed by the results of psychological research (Lee-Chai, & Bargh, 2001; Wojciszke, 2011).

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Same Question, Different Scores: Exploration of Two Possible Influences on the Variability between Spot Scores for the BOST

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Abstract

The British One-issue Screening Test is a single-issue polygraph method intended for screening examinations. Although its two relevant questions are virtually the same we have found there to be a large average difference between the total scores for each. We undertook a 21-month study to identify possible contributors to this finding. In one condition examiners used two identical relevant questions. In the other condition examiners used slightly different verbiage

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for the two relevant questions, but the pretest instructions were modified. Using a large sample of control cases, we found no differences between the control samples compared with the use of two identical relevant questions, but there was a significant effect when there was a change in pretest instructions. Implications of this finding are discussed, including possible effects of priming and habituation.

Key words: British One-issue Screening Test, Empirical Scoring System, score variability

From a psychophysiological viewpoint, polygraph examinations are a test of salience, which is the trigger that evokes physiological responding. Salience itself may be primed by emotional and cognitive factors (see Khan et al., 2009). Relative response intensities observed in polygraph recordings provide an index of the personal significance of the test questions – the more significant, the larger the reaction on average. Polygraph testing takes advantage of this tendency to make inferences regarding an examinee's veracity: Stronger reactions to relevant questions have an established relationship with deception, while stronger reactions to comparison questions are associated with truthfulness (Nelson, 2015).

If polygraphy is a test of salience, a related assumption is that relevant questions which share the same content should evoke physiological responses of similar intensity. In a review of 180 manual scores assigned to relevant questions on British One-issue Screening Tests (BOST) carried out in 2022, a test where the two relevant questions cover identical behaviors and time periods, we found an average difference between the total scores of each relevant question to be 4.4 points (sd = 3.17), with a range of 0 to 17 points (unpublished). The correlation between total scores of each of the two relevant questions was significant (Pearson's $r = 0.35$) but small (using Cohen's 1988 interpretation). This modest correlation and the relatively wide range of score differences were not anticipated given that the two relevant questions were virtually identical.

We had two working hypotheses to explain these findings. The first concerned the characteristics of the test questions themselves. We proposed that though the relevant questions are merely a slight rewording of one central question, examinees may attach different levels of salience idiosyncratically, depending on the verbiage of the individual questions. A second hypothesis is that something in the pretest instructions, yet to be identified, differentially affected the salience examinees assigned to the two relevant questions.

To test the first hypothesis, we devised a field study in which a group of examiners used identical wordings for both relevant questions. To test the second, we assigned a group of examiners to use the pretest instructions of one of the examiners whose two scores historically differed less than average (Appendix A).

We also created a control group of examiners who knew they were participating in the study but were advised to continue their current pretest and testing practices. Mindful of the Hawthorne Effect, where behaviors can change merely because they are being observed, we would compare those data with our 2022 findings, and if consistent with them we would combine them to create a larger control group.

To maximize sample sizes we tracked the scores of all BOST cases for the three groups over 21 months.

Method

Examiners and Instructions

We recruited 10 volunteers from among the 46 polygraph examiners in a large offender management program in the UK. All had attended the same APA-accredited polygraph education program, had at least three years of experience, conducted more than 100 field examinations, and participated in continuing education offerings three times per year.

Three groups were created using a random number generator. Group 1 consisted of three examiners whose instructions were to use identical wording for both relevant questions when conducting BOST examinations. Group 2 had four examiners who were provided with a script with which to introduce the two relevant questions in their BOST examinations (Appendix A). The remaining three examiners comprised the control group and were instructed to conduct their BOST examinations without any changes.

Cases

All examinations were conducted on Lafayette computer polygraphs LX5000 or LX6. The recorded data were electrodermal, cardiovascular, vasomotor, a motion sensor and two breathing channels. The study data consisted of all BOST cases conducted by the 10 volunteers between April 1, 2023, and December 31, 2024.

Because the BOST examinations were field cases, ground truth regarding the examinee's veracity was unavailable.

Group 1 conducted 50 BOST cases. Two cases were excluded, one because the examinee failed to follow the examiner's instructions and the second case due to concerns regarding the examinee's mental health. This left 48 examinations for analysis of which 35 resulted in a decision of No Significant Responses (NSR) and 10 of Significant Responses (SR) results, with the remaining three deemed Inconclusive (INC).

Group 2 conducted 34 BOST cases, all of which were included in the study. There were 25 NSR examinations, six SR, and three INC.

The control group conducted 46 BOST cases. One case was removed due to poor quality data attributed to the examinee's health. Of the remaining 45 cases, 28 resulted in NSR, 16 in SR and one as INC.

We compared the control group data to the 2022 data that prompted this study. None of the proportions, average differences or correlations were found to be significantly different between the study data and the previous data (Table I). This supported a conclusion that the data from the study control group was similar to the baseline data of 2022. Consequently, the control group data and the 2022 data were combined to create a larger control group consisting of 225 cases.

Table I. Summary statistics of BOST results and scores comparing the control group with the entire data set from 2022

	Study Data	2022 Data
Sample size	45	180
Proportion of NSR	0.62	0.66
Proportion of SR	0.36	0.28
Proportion of INC	0.02	0.07
Avg difference (s.d.) between R1 and R2 scores	4.31 (3.73)	4.42 (3.17)
Correlation between R1 and R2 scores	0.36	0.35

British One-issue Screening Test

The BOST has been previously described in detail elsewhere (Krapohl et al., 2020). Briefly, the BOST has the same question types and sequence as Variation 1 of the

Air Force Modified General Question Test (AFMGQT) with two relevant questions (Krapohl & Shaw, 2015). However, it differs from the AFMGQT in two meaningful ways. One is that the two relevant questions in the BOST must encompass identical behaviors and time periods such that an examinee must be either truthful or deceptive to both questions, in contrast to the AFMGQT which has no similar constraint. Second, the decision rules for the BOST are based on the sum of all scores whereas decision rules for the AFMGQT consider only the sum of scores for the individual questions (see the next section for details regarding scoring and decision rules). As practiced in this program, all relevant and comparison questions are systematically rotated in the question sequence during the testing phase.

Scoring System

All cases were manually scored by the examiners using the Empirical Scoring System (Nelson et al, 2011). Physiological responses for each relevant question were scored against the stronger response to the closest comparison question presented before the relevant question or the one after it. At the end of testing the scores were summed for each of the relevant questions and for the entire test.

BOST decisions of NSR require that the total of all scores for the entire examination sum to +2 or more. If the total score is -4 or lower the decision is SR. If the results of the examination would be inconclusive, two-stage rules are imposed (Senter, 2003) which require a decision of SR if the sum of scores of either relevant question is -6 or lower. All other results remain Inconclusive.

Procedure

The scores and decisions assigned by the participating examiners were recorded in an Excel spreadsheet. Means, standard deviations and correlations were calculated using applications within the Excel program. Online calculators were used for tests for differences between means and differences in correlations (Pearson's r)*,**. For significance testing of differences between proportions the first author developed a computational sheet in Excel using a statistical formula found in Bruning and Kintz (1997). Alpha was set at .05 for all comparisons. Because this was an exploratory study we made no Bonferroni corrections so we would be able to identify subset of potentially significant effects that could be studied in subsequent research.

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* https://www.medcalc.org/calc/comparison_of_means.php

** https://www.danielsoper.com/statcalc/calculator.aspx

Results

Group 1

Table II shows descriptive statistics for the group of cases in which two identical relevant questions were used in the BOST and the corresponding statistics for the now-larger control group. There were no significant differences found between the two groups.

Table II. Summary statistics for BOST results and scores comparing Group 2 with the control group. No comparisons were statistically significant at $p = .05$

	Group 1	Control Group
Sample size	48	225
Proportion of NSR	0.73	0.65
Proportion of SR	0.21	0.29
Proportion of INC	0.06	0.06
Avg difference (s.d.) in RQ scores	3.96 (2.92)	4.41 (3.28)
Correlation between R1 and R2 scores	0.53	0.35

Group 2

Table III shows descriptive statistics for the group of cases in which there were changes to the pretest introduction of the relevant questions in the BOST compared with the corresponding control group statistics. There were no significant differences found between Group 2 and the control group except for the correlation between the scores of the two relevant questions where there was a significant difference between Group 2 and the control group, with a stronger correlation in the former ($z = 2.52, p < .05$).

Table III. Summary statistics of BOST results and scores comparing Group 2 with the control group. The * indicates a significant difference between Group 2 and the Control Group

	Group 2	Control Group
Sample size	34	225
Proportion of NSR	0.74	0.65
Proportion of SR	0.18	0.29
Proportion of INC	0.09	0.06
Avg difference (s.d.) in RQ scores	3.29 (3.18)	4.41 (3.28)
Correlation between R1 and R2 scores	0.69*	0.35*

Discussion

We found no differences between the control group and the condition in which two identical relevant questions were used in the BOST, even with the increased risk of a Type I (false positive) error resulting from multiple comparisons without Bonferroni corrections. The present data do not support a hypothesis that differences in BOST scores between the two relevant questions are associated with different wordings of the questions. Our findings suggest that it may make no difference whether examiners choose to use identical or slightly different verbiage for the two questions in the BOST, and that rules endorsing one approach over the other may be unnecessary but would benefit from further investigation.

Compared to the control group, the scripted instruction used by Group 2 did not result in any differences in the proportion of test outcomes, nor for the average difference in scores between the first and second relevant question. There was, however, a significant difference in the correlation coefficients for the scores of the first and second relevant questions, with Group 2 having a significantly higher correlation between the scores of the two relevant questions than the control group. This is a mixed finding that defies easy interpretation.

It appears that the verbiage of the test questions may have limited influence on the differences in test scores inasmuch as neither group showed a reduction in the differences in scores between the two relevant questions compared to the control group. But the finding of a stronger correlation between scores for the two relevant questions for Group 2 compared with the control group has two possible explanations. One is simply a Type 1 error, that is, it is a false positive finding. The second is that the changes in the pretest instructions used by Group 2 increased the coupling between the scores of the two relevant questions such that the two sets of scores tended to move in the same direction more consistently than did those of the control group even though there was still a difference in the absolute response. Said another way, though the average difference in the scores between the first and second relevant question seem to be unaffected by how they are phrased, the unique pretest instructions are associated with a tendency for the two scores to follow each other more closely than do the two scores from the control condition.

One of the concerns expressed by some examiners is that occasionally the score of one relevant question in the BOST is of the opposite sign to the score of the other question, despite the fact that they both encompass identical behaviors and time periods. This means that one question could be trending toward deception while

the other is toward truthfulness, the decision then being based on which of the two scores pulls the grand total score over a decision threshold. In a *post hoc* analysis we looked at the frequency for such opposing scores. This occurred in 26%, 23% and 15% of cases for the control group, Group 1 and Group 2, respectively. Tests of proportions (Bruning & Kintz, 1997) found no significant differences in proportions of opposing scores among the groups. Though it may be disconcerting to examiners, the opposite signs may not be as large a problem as it seems. Though occurring in a minority of tests this phenomenon is not uncommon. It may be the result of a habituation effect in cases where there is a lesser response the second time the question is asked, or to a priming effect when the response is greater in the second question, with variation between examinees. This possibility will be explored in a planned replication. Regardless, the use of the grand total score in BOST decision-making would be expected to provide a more stable estimate of the examinee's veracity than the scores of individual questions due to the differences in the number of samples available between the two approaches. The differences in total scores for the two relevant questions may simply be the manifestation of the curse attendant to smaller sample sizes (Lindstromberg, 2023).

It remains the case that the reason for different response intensities to virtually identical questions in the BOST remains a puzzle. We believe that further research exploring this, especially the impact of habituation and priming effects, would be of benefit, not only in explaining our findings with the BOST, but also contributing to a better understanding of the psychology underlying polygraph testing.

Limitations

Ground truth was not available for any but a small minority of cases. Therefore, it was not possible to test for differences in validity among the different conditions in this study.

The manual ESS method used in the offender management program from which the cases were drawn may be different from that used elsewhere. The program has implemented empirically based ESS scoring rules regarding onset latencies (Krapohl et al., 2021) and minimum response amplitudes (Krapohl et al., 2019) that are not universally practiced.

We acknowledge the inflated alpha that is a consequence of our multiple comparisons without Bonferroni corrections. Our chosen statistical approach gives greater confidence to the many null findings than to the finding of a singular significant

effect. Our approach served its purpose in reducing the scope of our planned follow-on investigation, but it did not provide concrete evidence that the single apparent effect is genuine.

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Appendix A. Example pretest interview script for BOST relevant questions

How to scope the RQs in BOST tests

Example questions:

Since we last met, have you had any contact with an under 18-year-old?

Since I last saw you, have you had any contact with someone aged under 18?

'Okay Fred, I'm going to look first at the questions that relate specifically to your licence conditions*. The first one I want to look at is, 'Regarding your licence conditions, do you intend to answer each question truthfully?'

Any discussion that then takes place about the Sacrifice Relevant Question.

Now as far as the other questions about your licence conditions are concerned, your probation officer has only asked me to look at one area with you.

That means I'll have to do something slightly different to the way in which I'd normally do a test because polygraph tests weren't originally designed to look at just one area. The way we get round that is by asking one version of a question and then we ask another version of the same question using slightly different wording. But it means the same thing. So when I'm collecting the charts, it will sound as though I'm asking you about the same thing, twice. It's not a trick or anything that is trying to catch you out. If it was, I wouldn't be telling you about it (hearty laugh!).

So the first version of the question will be, 'Since we last met, have you had any contact with an under 18 year old?'

By 'contact' I mean any face-to-face interaction, including via any type of video app; any contact via a phone – so texts and telephone calls, contact via any type of internet enabled device – so smart phones, laptops, tower computers, xBoxes, Playstations, palms, tablets, smart watches or any other type of internet enabled device you can think of.

There we are talking about contact via websites including dating and contact sites, social media, online forums, chatrooms or message boards – such as WhatsApp, emails or any other type of platform that you have to access the internet to use.

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* The expression "licence conditions" in the UK would mean the same as terms of probation or parole in the US.

It also includes contact in writing – letters, notes, birthday card, Christmas card or anything else that is written or typed and sent or given to someone aged under 18.

Lastly, it includes any contact that takes to form of passing or receiving verbal messages through third parties.

So – if I ask you that question, 'Since we last met, have you had any contact with an under 18-year-old?, what will your answer be?'

Fred: – No

Me: – 'Okay, that's great. So, the second version of the question will be, 'Since I last saw you, have you had any contact with someone aged under 18?' Now, obviously, that means exactly the same thing as the first version of the question. So, would I be right in assuming that your answer to it will be the same as it was to the other version of the question?

Fred: – Yes.

Me: – 'Great – so your answer will be .....?

Fred: – No

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Toward a New Paradigm in Deception Detection: A Psychological Perspective

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Abstract

This paper critically evaluates the theoretical foundations of contemporary polygraphy, arguing that current frameworks such as Psychological Set, Relevant Issue Gravity, and Preliminary Process Theory function primarily as descriptive labels rather than predictive scientific theories. The author contends that these models suffer from a lack of mechanistic depth, an over-reliance on the narrow construct of anxiety, and an outdated dichotomy between cognitive and emotional processes. To address these limitations, the paper proposes a transition toward a new paradigm grounded in modern affective science, specifically Scherer's Component Process Model (CPM). The CPM reframes polygraph reactivity as the distal outcome of a structured sequence of Stimulus Evaluation Checks—including relevance, implications, coping potential, and normative significance—that drive synchronization across organismic subsystems. By applying this framework to various testing formats, the paper demonstrates how physiological responses in the Comparison Question Test, Directed Lie Comparison, and Concealed Information Test can be understood as distinct appraisal pathways rather than direct indicators of deception. Finally, a three-phase research agenda is proposed to validate the role of subsystem synchronization and sequential appraisal in deception detection. This shift from detecting lies to mapping appraisals offers a scientifically grounded path to enhance the legal and professional credibility of the field.

Key words: theory, Component Process Model, polygraph reactivity, psychology, emotions

In recent years, the field of polygraph testing has made significant progress, moving towards more rigorous scientific methods and standardized practices. This shift has been driven by a greater emphasis on empirical research, technological innovations, and the integration of more sophisticated software to analyze physiological responses. A good example of this is the development of more objective scoring systems, which move away from subjective interpretations toward data-driven approaches aimed at improving the consistency and reliability of polygraph results.

At the same time, a review of the literature, especially works targeted at practitioners, reveals the lack of consensus on the mechanisms driving physiological responses during polygraph testing. While polygraph research and practice have applied various theoretical perspectives, there is no single, universally accepted framework to explain how to understand the connections between specific questions and question formats and psychophysiological reactions. Some of the concepts developed by polygraphers appear to lack a solid scientific foundation, with one notable example being the Psychological Set concept formulated by Backster (Krapohl & Shaw, 2015; Matte & Grove, 2001). Moreover, they often lack comprehensive empirical validation and exhibit inconsistencies with one another.

Therefore, the aim of this paper is to address this issue by exploring the physiological mechanisms behind the reactions observed during the examination. Drawing on psychological theories of emotion, this paper seeks to offer a more scientifically grounded understanding of how specific question formats engage structured appraisal processes that culminate in coordinated physiological responses. In doing so, it reframes polygraph reactivity as the outcome of goal-directed evaluation rather than a direct indicator of deception.

Understanding the underlying psychological mechanisms of responses in deception detection is crucial for advancing the field beyond reliance on anecdotal evidence or conceptual frameworks rooted in common sense or folk psychology. As Widacki (2022) notes, polygraph practitioners expect improvements to existing methods and seek scientific validation primarily to support their use in professional contexts, such as courtrooms or law enforcement. Therefore, grounding polygraphy in well-established scientific theories can significantly enhance the credibility of polygraphers' claims.

Theory Left (Often) Untold

Despite polygraphy being a widely used tool for deception detection, the theories that underpin its application remain fragmented and underdeveloped. Rather than being grounded in rigorous theories, polygraph examinations often operate on a patchwork of loosely defined concepts that focus more on practical application than on the deeper mechanisms at play.

Krapohl and Shaw (2015) identified four primary theories currently guiding the field of polygraphy: Psychological Set, Relevant Issue Gravity (RIG), Differential Salience, and Preliminary Process Theory (PPT). While these theories provide frameworks for many professionals, the theories do not appear to fully remedy the concerns regarding insufficient scientific foundation. This is particularly evident in the criticism of the now-classic Psychological Set, which only superficially aligns with psychological concepts. As demonstrated by Senter et al. (2010), the concept of psychological set is defined differently in mainstream psychology, making its application to polygraphy problematic. Furthermore, the theory's overfocus on a sense of threat and anxiety seems inadequate in explaining physiological responses during polygraph tests, as the emotional reactions involved are not always indicative of fear or anxiety.

The theory of Relevant Issue Gravity (RIG) attempts to move polygraphy toward a more scientific footing by positing that physiological responses are driven by an examinee's cognitive engagement with specific questions (Ginton, 2009). RIG assumes that responses arise from a focused attention on a stimulus and a subsequent feedback loop that sustains this engagement. While this represents a more grounded approach than earlier concepts, a closer examination reveals significant theoretical gaps.

The first major limitation of RIG concerns the nature of attention in a sequential testing environment. As Krapohl and Shaw (2015) noted, while attention is a necessary prerequisite for a response, it is not a sufficient cause in itself. Because polygraph questions are presented one at a time, they do not naturally compete for immediate cognitive resources in the way stimuli might in a cluttered environment. Consequently, RIG fails to explain why one question triggers a massive physiological shift while another, similarly attended-to question does not.

Moreover, in my view, RIG lacks integration with established models of stimulus engagement, such as, for example, the Biased-Competition Model of Attention (Desimone & Duncan, 1995). Although originally developed for visual stimu-

li, the principles of this model—where stimuli compete for neural representation and attention biases this competition—could provide the mechanism RIG lacks. Without such a foundation, RIG cannot explain how the brain prioritizes one "gravity" over another. This critique is further supported by Attentional Control Theory (ACT), which suggests that negative affect, particularly anxiety, impairs goal-directed attention and shifts focus toward threat-related stimuli (Eysenck et al. 2007) In a polygraph context, questions implying guilt act as these threat-related stimuli, causing a breakdown in attentional control. While ACT provides a useful framework for understanding this shift, its narrow focus on anxiety limits its utility as a comprehensive theory for polygraphy.

Ultimately, RIG functions more as a descriptive hypothesis than a mechanistic theory. It emphasizes that responses arise from how salient a question appears to an examinee, yet it lacks a clear explanation for how these subjective appraisals translate into physiological output. It overlooks well-established models of emotional salience, such as, for example, two-system framework for threat detection (LeDoux & Pine, 2016) or dual competition model (Pessoa, 2017). These frameworks suggest that physiological arousal in response to salient stimuli may arise from both reflexive threat appraisal and goal-directed modulation – a distinction relevant for interpreting psychological mechanisms active during polygraph testing. By ignoring these concepts, RIG remains a fragmentary construct that identifies the importance of salience but fails to explain the underlying processes.

Finally, Palmatier and Rovner (2015) propose the application of the Preliminary Process Theory (PPT) as a theoretical framework for polygraph testing. This theory posits that the physiological responses observed during such testing are not direct indicators of truth or deception, but rather reflections of the cognitive and attentional processes triggered when an individual is confronted with significant stimuli. Specifically, PPT emphasizes the role of the orienting response (OR) – an automatic physiological reaction to novel, meaningful, or otherwise salient stimuli. A core premise is that the greater the perceived significance of a stimulus, the stronger the elicited response. Accordingly, during a polygraph examination, a question related to a concealed memory or relevant act may evoke a more pronounced orienting response due to its heightened personal significance. Applied to the Comparison Question Test (CQT), PPT suggests that this format functions effectively because it creates a differential pattern of stimulus significance: for truthful individuals, comparison questions are more salient, whereas for deceptive individuals, relevant questions hold greater significance.

While I consider applying PPT on the polygraph grounds as a significant step forward, there are, however, major concerns that should be highlighted. Firs of all, as Palmatier & Rovner (2015) noted, PPT remains strongly rooted in earlier polygraph concepts based on determining "salience"—the importance of a stimulus and its capacity to attract attention. The absence of clear differentiation and added value leads to PPT being perceived not as a distinct, revolutionary idea, but rather as an extension or reinterpretation of existing paradigms concerning responses to significant stimuli.

The biggest issue with PPT is, in my view, framing of the polygraph reaction primarily as an orienting response. Orienting response, as conceptualized by psychophysiology literature, is fundamentally a reaction to novelty or change in the environment. In a polygraph setting, where questions are reviewed beforehand and repeated across multiple charts, the "novelty" of the stimulus is systematically neutralized. If the orienting response were the sole mechanism at play, one would expect a rapid decline in reactivity across successive charts due to habituation. The fact that reactions often persist suggests that higher-order cognitive processes, such as memory retrieval, emotional regulation, and evaluative threat appraisal, are exerting a top-down influence that the PPT framework does not fully capture.

Additionally, the reliance on OR creates a "black box" problem regarding the appraisal process. While PPT acknowledges that significance leads to a stronger response, it offers little insight into how significance is determined in the specific context of deception. It essentially replaces the problematic term "salience" with "significance" without explaining the psychological calculus used to weigh a comparison question against a relevant one. This lack of mechanistic detail means PPT functions more as a descriptive label for observed phenomena rather than a predictive scientific theory.

The collective critique of these theories highlights a fundamental lack of mechanistic depth and a reliance on fragmented constructs. Whether focusing on the outdated Psychological Set or the more modern Preliminary Process Theory, these frameworks tend to describe *that* a reaction occurs without explaining the specific psychological calculus of *how* or *why* it is triggered. Most significantly, these theories maintain an artificial separation between cognitive and emotional processes, a dichotomy that contemporary neuroscience and psychological research have long since abandoned. As, for example, Pessoa (2008) argues, the brain's functional architecture does not support a strict division between affective and cognitive regions; instead, complex behaviors and physiological responses emerge

from deeply integrated neural networks. In this light, the perceived conflict between "emotion" and "cognition" in polygraphy is a false one, as these systems are inextricably intertwined in the brain's attempt to evaluate stimulus significance. Ultimately, by failing to account for the dynamic, goal-oriented nature of human appraisal, current polygraph theory remains a patchwork of descriptive labels rather than a predictive scientific system.

In light of the shortcomings of existing frameworks, it is necessary to re-evaluate the role of emotional theories in explaining polygraph reactivity. Within the field, it is frequently argued that emotions are "not enough" to provide a comprehensive foundation for polygraph testing, primarily because the singular focus on anxiety has failed to account for the diversity of physiological patterns observed in practice. However, it is my view that this dismissal of emotional theory is premature and likely based on a narrow, outdated understanding of an affect.

First, the notion that emotional states are insufficient often stems from an over-reliance on primary, basic emotions—such as those described in Ekman's (1992) framework—which may not fully capture the nuance of a polygraph testing. If we move beyond basic fear or anxiety, we find a vast landscape of higher-order emotional states that are far more relevant to the polygraph context. Specifically, self-conscious emotions (such as shame or guilt) and moral emotions (such as a sense of indignation or betrayal of one's self-concept) offer a more accurate lens through which to view an examinee's reactions. These complex affective states are deeply tied to an individual's social standing and internal values, making them potent triggers for arousal.

Second, the claim that emotions are insufficient seems to ignore the vital structural and functional definitions of emotion. When emotion is properly defined as a multi-component process (structural; e.g. (Ellsworth & Scherer, 2003; Frijda, 1986; Lazarus, 1991) and as a system for signaling goal-significance (functional; e.g. Campos et al., 1994), it becomes clear that "emotion" and "cognition" are not two separate things competing to explain a reaction. Instead, they are parts of the same evaluative mechanism. By re-integrating these modern emotional perspectives, we can move away from the reductive "anxiety model" and toward a sophisticated theory that accounts for the dynamic complexities inherent in the polygraph examination.

The limitations identified across existing polygraph theories point to a common and unresolved problem: the absence of a mechanism that explains how a ques-

tion is transformed into a physiological response. Concepts such as psychological set, salience, or orienting response describe *that* a reaction occurs, but they do not specify the psychological operations through which stimulus evaluation produces measurable autonomic change. As a result, the field remains reliant on descriptive constructs that lack predictive precision. Addressing this gap requires a shift from stimulus–response descriptions to a model that specifies the intermediate psychological processes linking perception and physiology. Indeed, contemporary affective science provides such a framework by conceptualizing emotion not as a discrete state, but as a dynamic process emerging from ongoing appraisal.

The Component Process Model: Subsystem Synchronization and Appraisal

Within this perspective, Scherer's Component Process Model (CPM; Scherer, 1987; Scherer, 2005) offers a comprehensive and mechanistic account of how physiological responses are generated. Rather than positing a single trigger such as anxiety or novelty, the CPM conceptualizes each response as the outcome of a sequence of Stimulus Evaluation Checks (SECs), through which the organism continuously assesses the significance of an event for its goals and self-relevant standards (Scherer, 1993, 2009). These checks—relevance, implications, coping potential, and normative significance—operate in a fixed temporal sequence and cumulatively determine the intensity and quality of the response.

In this framework, the physiological signals recorded during a polygraph examination are not direct indicators of deception, nor are they reducible to generalized arousal. They are the distal outcomes of a structured appraisal process that evaluates how a given question relates to the examinee's goals, perceived threats, and internal standards. A response emerges when this evaluative sequence produces a high degree of synchronization across organismic subsystems, particularly within the autonomic nervous system measured by the polygraph.

This reconceptualization resolves the central weaknesses of prior theories. It replaces vague notions of "salience" or "significance" with a defined sequence of appraisal operations, explains why similar stimuli can produce different reactions depending on the individual's goals, and accounts for the persistence of responses even in the absence of novelty. Most importantly, it provides a unified meta-mechanism: physiological reactivity reflects the outcome of appraisal-driven subsystem synchronization, while variation across polygraph formats arises from differences in how specific questions engage this evaluative process.

The following sections apply this framework to specific testing formats, demonstrating how distinct patterns of reactivity emerge from systematically different appraisal pathways.

Predicting Reactions Across Polygraph Formats

The Component Process Model allows polygraph reactivity to be specified as the outcome of distinct appraisal sequences, rather than as a unitary "response to deception." Within this framework, the physiological activity recorded during an examination reflects the peripheral efference component of a synchronized emotional episode, emerging from a structured sequence of Stimulus Evaluation Checks. Crucially, different polygraph formats elicit different configurations of these checks, depending on how questions engage the examinee's goals and self-relevant standards.

In the Comparison Question Test (CQT), deceptive and truthful examinees diverge at the level of appraisal. For a deceptive individual, relevant questions are processed as highly goal-relevant, as they directly threaten the primary goal of avoiding detection. This is followed by an implication check in which the stimulus is appraised as strongly goal-obstructive, given its potential consequences. The coping potential check typically yields low perceived control, further amplifying the response. This sequence—high relevance, strong goal obstruction, and low coping potential—produces a high degree of subsystem synchronization, resulting in a pronounced physiological reaction.

For truthful examinees, relevant questions are generally appraised as goal-conducive, as answering truthfully supports the goal of exoneration. Consequently, these questions elicit relatively weak synchronization. In contrast, comparison questions engage a different appraisal pathway. Rather than threatening external outcomes, they implicate internal standards. Through the normative significance check, the examinee evaluates the question against their self-concept and moral identity. When the question implies past wrongdoing, it creates a discrepancy between the stimulus and the individual's standards, generating a form of goal obstruction at the level of self-evaluation. This appraisal sequence—moderate relevance combined with normative incongruence—can produce a level of synchronization comparable to that seen in deceptive individuals responding to relevant questions.

From a CPM perspective, the CQT does not differentiate "lies" from "truth," but rather contrasts two types of appraisal: externally oriented goal-threat appraisal in deceptive individuals and internally oriented normative appraisal in truthful indi-

viduals. Similar physiological outputs emerge not because the underlying processes are identical, but because both pathways converge on high subsystem synchronization.

A similar logic applies to Directed Lie Comparison (DLC) formats, though the underlying appraisal structure differs. For truthful examinees, the directed lie is embedded within the overarching task goal of successfully completing the examination. As a result, the stimulus is appraised as highly goal-relevant, and—critically—as goal-conducive, because performing the instructed deception is perceived as necessary for demonstrating cooperation and credibility. This appraisal engages the implication check in a positive direction (goal facilitation), while the coping potential check reflects high perceived ability to execute the task correctly. The result is increased allocation of cognitive and physiological resources to the directed lie, producing measurable synchronization.

For deceptive examinees, however, the appraisal is dominated by the relevant issue. Relevant questions carry maximal goal relevance and strong goal obstruction, which prioritizes them within the evaluative sequence. In this context, the directed lie is appraised as comparatively low in urgency and significance. Although it may still be processed as goal-conducive at a task level, it does not compete effectively with the threat posed by relevant questions. Consequently, it elicits weaker synchronization.

Thus, the effectiveness of DLC formats can be understood as a redistribution of appraisal weight across stimuli: for truthful individuals, the directed lie becomes a focal point of goal-directed processing, whereas for deceptive individuals, it remains secondary to the primary threat. However, it should be emphasized that this mechanism depends heavily on the examinee's cognitive engagement with the instructions. If the examinee perceives the directed lie merely as an artificial technicality rather than a critical task demand, the appraisal of goal relevance and urgency may diminish, leading to weaker subsystem synchronization. Thus, while the CPM framework for DLC formats remains theoretically grounded, it also suggests that their practical efficacy is closely tied to individual task-oriented motivation and to the examiner's ability to establish the perceived significance of the instruction.

Moreover, while traditional polygraph frameworks frequently struggle to explain why an innocent individual might react strongly to a comparison question, the CPM conceptualizes this phenomenon as a goal-relevant reaction. When an innocent examinee chooses to answer a comparison question dishonestly, the act of

lying introduces an immediate, localized situational threat. The examinee's primary overarching goal remains to pass the test and maintain overall credibility. Consequently, the comparison question triggers a high-relevance check followed by an implication check, as the potential detection of this specific lie is appraised as highly goal-obstructive to the broader objective of being perceived as trustworthy. This psychological calculus leads to an intense allocation of cognitive resources and subsequent subsystem synchronization. The CPM thus provides a possible explanation for the reactivity observed in dishonest innocent individuals, framing their responses not as an anomaly, but as a direct outcome of immediate, goal-directed processing.

The CPM also provides a mechanistic account of memory-based formats such as the Concealed Information Test (CIT). Rather than treating the response as a passive byproduct of recognition, the model conceptualizes it as an appraisal-driven process. When a critical item is presented, it is first detected as distinct from neutral alternatives (novelty check), but this alone is insufficient to generate a strong response. The key step occurs at the relevance check: for an examinee with concealed knowledge, the recognized item is appraised as highly relevant to the goal of remaining undetected.

This triggers an implication check in which the stimulus is evaluated as goal-obstructive, as the recognition signals a potential breach in concealment. The coping potential check often yields low perceived control, given that recognition is automatic and cannot be suppressed. This sequence leads to rapid synchronization across subsystems, producing the observed physiological response.

Importantly, this account explains why recognition alone does not always produce strong reactions. Only when recognition is integrated into a goal-relevant and goal-obstructive appraisal does it result in full synchronization. In this sense, the CIT effect reflects not memory per se, but the appraisal of memory as a threat to ongoing goals.

Across all formats, the CPM provides a unifying principle: physiological reactivity reflects the outcome of structured appraisal sequences, and differences between tests arise from how specific stimuli engage relevance, implication, coping potential, and normative significance. This shifts the interpretation of polygraph data from detecting deception to identifying the configurations of appraisal that produce synchronized physiological responses.

How to Move Forward: Research Agenda to Test the CPM in Polygraph Context

To transition the Component Process Model from a theoretical proposal to an empirical reality in the field of detection of deception, I propose the following research agenda. This plan focuses on isolating the sequential Stimulus Evaluation Checks and measuring the resulting subsystem synchronization that Scherer (2009) identifies as the hallmark of an emotional episode.

Phase 1: Validating Subsystem Synchronization

The first priority is to move beyond analyzing single physiological channels (e.g., skin conductance) and instead measure the "synchronization" of multiple organismic subsystems.

1.1. Multimodal Physiological Profiling Researchers should conduct Comparison Question Tests (CQT) while simultaneously recording a wider array of subsystems: peripheral efference (polygraph), motor expression (high-frame-rate facial micro-expression analysis), and central nervous system activity (EEG or fMRI).

• **Hypothesis:** Significant polygraph questions (Relevant for deceptive, Comparison for truthful) will show a higher degree of statistical coherence and synchronization across these different channels compared to neutral or habituated stimuli.

1.2. Time-Series Analysis of SECs Using high-resolution EEG, researchers can track the temporal sequence of appraisals. Scherer posits a fixed sequence (Novelty > Relevance > Goal Conduciveness > Coping > Normative Significance).

• **Hypothesis:** Event-related potentials (ERPs) will reveal a sequential processing of questions that follows this order, with the "Significance" of a polygraph response being determined by the cumulative result of these checks.

Phase 2: Experimental Manipulation of SECs

This phase aims to prove that by manipulating specific appraisal dimensions, we can predictably change the physiological output.

2.1. Manipulating Goal Conduciveness and Urgency In a mock-crime scenario, researchers can vary the consequences of detection. For one group, the "Goal Obstruction" (failing the test) results in a minor penalty; for another, a major penalty.

• **Hypothesis:** Increased goal urgency and lower conduciveness will lead to linear increases in autonomic synchronization, validating the CPM's predictive power over traditional "fear" models.

2.2. Isolating Normative Significance in Truthful Subjects To understand "false positives," researchers can manipulate the wording of comparison questions to vary the level of "moral threat" (Normative Significance).

• **Hypothesis:** Truthful participants will show higher physiological synchronization when a comparison question is framed as a direct challenge to their moral identity rather than a general inquiry into past behavior.

Phase 3: Applying CPM to Memory and Task-Based Formats

3.1. The "Memory-Appraisal" Link in CIT In Concealed Information Tests, researchers should compare responses to "guilty" items that have high goal-relevance versus those that are recognized but have no impact on the examinee's safety (e.g., items the examinee was told are "irrelevant" to the investigation).

• **Hypothesis:** Recognition alone (Novelty) will produce a smaller, fragmented response, whereas recognition paired with Goal Obstruction will produce full subsystem synchronization.

3.2. Directed Lie Task-Demand Analysis By varying the perceived importance of "Instructional Compliance" in DLC formats, researchers can test the "Task-Oriented Goal" hypothesis.

• **Hypothesis:** Truthful examinees who are told the test's accuracy depends entirely on their reaction to the directed lie will show significantly higher synchronization than those told the directed lie is merely a technicality.

This research plan shifts the focus of polygraph science from "detecting lies" to "mapping appraisals." By validating that physiological reactions are the distal outcome of a goal-oriented evaluation process, the field can finally provide the scientific validation required for legal and professional credibility.

Limitations of the Concept

Although the Component Process Model offers a more mechanistic and integrative framework than traditional polygraph theories, several important limitations must be acknowledged.

First, the CPM does not fully solve the central "black box" problem underlying polygraph reactivity. While the model specifies a sequence of appraisal operations through which stimuli are evaluated, it still cannot definitively explain how a par-

ticular configuration of appraisals is transformed into concrete autonomic output. In this sense, the framework shifts the explanatory level from simple notions such as "salience" or "psychological set" toward structured appraisal processes, but it does not yet provide a complete neurophysiological account of response generation.

The proposed model also remains partially inferential. The existence and temporal ordering of Stimulus Evaluation Checks are theoretically grounded in affective science, yet directly measuring these processes during polygraph examinations remains methodologically difficult. Consequently, proposed mechanisms currently rely on indirect interpretation of physiological and behavioral indicators rather than direct observation of appraisal dynamics themselves.

Moreover, although the CPM appears capable of explaining many phenomena observed in Comparison Question formats, its explanatory power may differ across testing paradigms. In particular, the framework currently offers a stronger account of truthful examinees reacting to comparison questions than of deceptive or innocent responses in Directed Lie Comparison formats. Similarly, some false-positive reactions may emerge from appraisal pathways unrelated to deception itself, including ambiguity, uncertainty, task interpretation, self-conscious emotions, or individual differences in moral self-evaluation.

Finally, the model does not claim that polygraph examinations measure deception directly. Rather, the CPM conceptualizes physiological reactivity as the outcome of appraisal-driven synchronization processes related to goal relevance, coping potential, and normative significance. As a result, the framework explains why deception may produce physiological responses, but it also predicts that similar responses can emerge from psychologically distinct states that share overlapping appraisal structures.

Conclusion: Toward a New Paradigm in Deception Detection

The evolution of polygraphy from a practice rooted in folk psychology to a rigorous forensic science requires more than just technological advancement; it demands a robust, mechanistic theoretical foundation. As this paper has demonstrated, traditional frameworks—from the early concept of Psychological Set to more modern iterations like Preliminary Process Theory—have provided valuable stepping stones but ultimately remain descriptive rather than explanatory. By maintaining an artificial dichotomy between "cognition" and "emotion," and by

over-relying on the narrow construct of anxiety, these theories fail to capture the dynamic, multi-layered psychological calculus performed by an examinee during a polygraph test.

The proposal to adopt Scherer's Component Process Model offers a path forward that aligns polygraphy with contemporary affective science. By reframing the physiological responses on a polygraph chart as the distal outcomes of sequential Stimulus Evaluation Checks, we can finally explain the "how" and "why" of reactivity across diverse formats. Whether it is the goal-threat appraisal of a deceptive examinee in a CQT, the moral-identity appraisal of a truthful person facing a comparison question, or the goal-oriented task compliance seen in Directed Lie formats, the CPM provides a unified explanation based on subsystem synchronization.

Ultimately, shifting our focus from "detecting lies" to "mapping appraisals" transforms the polygraph from a controversial "stress detector" into a sophisticated tool for measuring stimulus significance. The research agenda outlined herein provides a roadmap for validating this model through multimodal profiling and time-series analysis, offering the empirical evidence necessary to meet the high standards of modern legal and professional contexts. By embracing the complexity of the human appraisal process, the field of polygraphy can move beyond fragmented constructs and establish itself as a credible, scientifically grounded discipline within the broader landscape of psychological research.

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Respiratory Hyperawareness in Polygraph Evaluations: A Psychophysiological Analysis and Critical Appraisal

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Abstract

Breathing is a unique bodily function controlled both automatically by the brainstem and voluntarily by conscious thought. When individuals become overly aware of their breathing—a phenomenon called respiratory hyperawareness—this dual control system becomes disrupted, leading to irregular breathing patterns. This paper examines how respiratory hyperawareness affects polygraph testing accuracy and proposes evidence-based solutions to minimize measurement contamination.

During polygraph evaluations, examiners often mention breathing mechanics or instruct examinees to "breathe normally." However, these well-intentioned instructions paradoxically trigger hyperawareness, causing examinees to consciously monitor an otherwise automatic process. This conscious attention activates brain regions responsible for processing internal bodily sensations, particularly the insular cortex, and creates competition between voluntary cortical control and automatic brainstem regulation. The resulting breathing irregularities—changes in

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rhythm, depth, and rate—cascade into cardiovascular responses that polygraph instruments record as potential indicators of deception, even when no deception exists.

Drawing on established theories including ironic process theory and interoceptive processing frameworks, this analysis reveals how attentional focus on breathing amplifies bodily sensations and anxiety, particularly in individuals already prone to heightened internal awareness. The paper critically evaluates current polygraph practices, identifying significant gaps in empirical validation and standardized measurement protocols.

To address these limitations, this work recommends adopting the orienting reflex framework, implementing objective respiratory line excursion or line length measurements available through modern instrumentation, and utilizing a "silent answer test" baseline protocol with nonsensical questions. These evidence-based modifications can establish uncontaminated physiological baselines and improve credibility assessment accuracy. Ultimately, advancing polygraph methodology requires moving beyond traditional training dogma toward scientifically validated, standardized practices grounded in psychophysiological research.

Key words: respiratory hyperawareness, interoception, dysfunctional breathing, attentional bias, autonomic nervous system, polygraph evaluation, psychophysiology, respiratory control

Introduction

The connection between conscious attention, bodily awareness, and automatic physical processes is a critical area of study, offering profound insights into both physical assessments and the mind-body connection. While breathing is primarily controlled automatically by the brainstem, we can also control it voluntarily, placing it uniquely between automatic and conscious physical functions (Paulus, 2013; Van Diest, 2019). When a person pays too much attention to their breathing, it disrupts this automatic control—a condition known as respiratory hyperawareness (Sardinha et al., 2009; Vidotto et al., 2018). This issue is relevant to conditions like panic disorder and anxiety, as well as specific settings like polygraph evaluations (Sardinha et al., 2009; Vidotto et al., 2018). The reasons behind this involve a complex mix of how we process internal bodily signals, where we focus our mental energy, and the spectrum of voluntary versus involuntary breathing control (Ritz et al., 2024; Weng et al., 2021).

Some examiners look at this phenomenon during polygraph exams, arguing that simply talking about breathing mechanics may accidentally trigger hyperawareness, which then corrupts the physiological measurements. This highlights a largely unexplored crossover between physical psychology and forensic testing. This structured review of the subject will analyze polygraph ideas against established scientific literature.

2. Core Thesis and Theoretical Framework

2.1. Central Hypothesis

for many polygraph practitioners, the main hypothesis is that explicitly mentioning breathing before a polygraph test causes examinees to become hyper-aware of their breathing, fundamentally altering their natural breathing rhythm. Whether the examiner is explaining the equipment, telling the person to „breathe normally," or trying to fix a measurement issue, drawing attention to breathing makes it a conscious effort rather than an automatic one. This leads to changes in breathing speed, depth, and regularity (Vidotto et al., 2018). This idea makes sense when looking at „ironic process theory" (Wegner, 1994), which suggests that explicitly trying to control or normalize a behavior often makes us focus on it more, disrupting its natural execution. In terms of breathing, this creates a feedback loop where increased attention amplifies bodily sensations, which further disrupts natural breathing patterns (Paulus, 2013).

2.2. Conceptual Foundations

The framework relies on a few established concepts. First is "interoception," which is how we perceive our internal physical states. When we focus our attention inward, the brain processes these signals and compares them to what it expects to feel (Khalsa et al., 2018; Pinna & Edwards, 2020). Second, polygraph practitioners are frequently taught that our breathing patterns are deeply connected to our autonomic nervous system, influencing both heart rate and stress responses. Variations in heart rate that sync with breathing (respiratory sinus arrhythmia) are key indicators of our nervous system's flexibility (Sperry et al., 2018). Irregular breathing can cascade into cardiovascular changes, potentially ruining polygraph readings that track multiple physical responses simultaneously. Finally, the framework looks at attentional bias, showing that people with high anxiety tend to focus heavily on their internal body signals, including their breathing (Rossignol et al., 2016). This creates a hypervigilant cycle, where focusing on breathing amplifies any perceived irregularities, leading to more anxiety and further breathing disruption (Van Diest, 2019).

2.3. Theoretical Positioning

Some polygraph practitioners contact polygraph-induced hyperawareness to functional respiratory disorders—conditions where people experience breathing symptoms without an underlying physical disease (Vidotto et al., 2018). These conditions share the common feature of heightened breathing awareness and disrupted natural regulation (Sardinha et al., 2009). By drawing this connection, the polygraph profession builds a strong theoretical bridge between forensic testing and the broader study of breathing dysfunction.

3. Critical Analysis: Strengths and Limitations

3.1. Strengths of the Arguments

Polygraph practice has demonstrated difficulty identifying a real-world problem within polygraph testing, an area that has not deeply explored how psychological factors cause measurement errors (Khalsa et al., 2018). Research supports the idea that breathing is highly sensitive to psychological states like attention and expectation (Lapidus et al., 2020; Paulus, 2013). Recognizing that an examiner's words can accidentally change a subject's physical state shows a nuanced understanding of the testing environment.

Additionally, some polygraph literature blends cognitive psychology (how we focus our attention) with biology (how the brainstem controls breathing), avoiding the trap of looking at the issue through only one lens (Ritz et al., 2024). Brain imaging and physical studies consistently show that focusing on breathing alters how we breathe (Van Diest, 2019; Vidotto et al., 2018; Weng et al., 2021). A highly practical recommendation: examiners should minimize explicit references to breathing during the setup phase (Meckley, 2013). Finally, it accurately describes this hyperawareness as a temporary state that fades once attention is redirected, which is supported by behavioral research (Vidotto et al., 2018).

3.2. Limitations and Weaknesses

A significant weakness found in literature produced by the polygraph profession is its complete lack of experimental data or statistical analysis to back up its claims (Khalsa et al., 2018). Given that polygraph results carry heavy legal consequenc-

es, claims about testing validity require strong empirical proof (Paulus, 2013). Without this, the recommendations cannot be immediately applied to practice.

As practitioners, our mentors have failed to explain exactly *how* these physical and mental processes interact to cause hyperawareness, ignoring specific neural pathways identified in modern research (Ritz et al., 2024; Weng et al., 2021). Seldom does the polygraph literature explore how individual differences—like a person's natural anxiety levels or bodily sensitivity—might make them more or less susceptible to this and other phenomenon (Rossignol et al., 2016; Snell, 2019). Furthermore, it does not deeply engage with existing research on bodily awareness or breathing disorders (Van Diest, 2019; Vidotto et al., 2018). Lastly, research created by the polygraph profession is too often methodologically vague; it doesn't clearly explain how researchers could measure respiratory activity, such as hyperawareness or separate it from other forms of stress during a test (Meckley, 2013). It treats all individuals as reacting identically, which contradicts the substantial individual differences well documented in the literature (Lapidus et al., 2020; Sperry et al., 2018).

4. Key Psychophysiological Mechanisms

4.1. Interoceptive Processing and Respiratory Awareness

Being aware of our internal body signals (interoception) is vital for emotional regulation and mental health (Khalsa et al., 2018; Pinna & Edwards, 2020). For breathing, this means interpreting signals from our lungs, muscles, and blood oxygen levels (Van Diest, 2019). Our brains constantly predict how our bodies should feel; when the actual feeling doesn't match the prediction, we become consciously aware of it (Paulus, 2013). If an examiner draws attention to breathing, the person's brain becomes hyper-sensitive to these signals, making normal breaths feel unusual. Studies show that people who are highly sensitive to their bodies have stronger physical reactions to stress (Lapidus et al., 2020), and focusing on breathing naturally increases awareness of it (Vidotto et al., 2018). Brain imaging points to the right anterior insular cortex as a key area that connects this awareness to feelings of discomfort (Weng et al., 2021).

4.2. Attentional Bias and Cognitive Monitoring

People with anxiety disorders tend to obsess over their bodily signals, leading them to misinterpret normal sensations as dangerous (Rossignol et al., 2016; Van Diest, 2019). Consciously monitoring a normally automatic skill actually makes us worse at it, which explains why instructions to "breathe normally" often makes breathing erratic (Paulus, 2013; Vidotto et al., 2018). This disruption happens because conscious processing competes with automatic brainstem control.

4.3. Autonomic Nervous System Involvement

Because breathing is tied to heart rate and stress levels, disrupting it can trigger hyperventilation, lower blood carbon dioxide, and cause a spike in anxiety and physical arousal (Kyriakoulis & Kyrios, 2023; Perna et al., 2004; Sperry et al., 2018). This may mimic the exact physical signs of deception that polygraph practitioners look for, confusing test results.

4.4. Voluntary Versus Involuntary Respiratory Control

This interference occurs because the conscious part of our brain (the cortex) competes with the automatic part (the brainstem) for control over our breath (Ritz et al., 2024; Weng et al., 2021). Drawing attention to breathing engages the voluntary control network, producing the exact breathing irregularities that polygraph examiners view as indicative of deception (Prado et al., 2017; see also, Weng et al., 2021).

5. An Applied Remedy

Historically, the polygraph profession has been hesitant to embrace established scientific explanations for the physiological responses recorded during assessments. However, regardless of the specific polygraph paradigm employed, these recorded responses are fundamentally the result of a well-documented physiological phenomenon known as the orienting reflex (OR). Decades of rigorous research have examined how the OR influences the physiological parameters measured during polygraph examinations (Barry, 2006, 2009; Palmatier & Rovner, 2015a, 2015b).

Regarding respiration specifically, the relevant phenomenon is known as the respiratory pause. Traditionally, polygraph practitioners are trained to evaluate respiratory responses using a subjective feature assessment to assign categorical scores—a quali-

tative practice dating back to 1963. In contrast, both academic and applied scientists have long quantified this respiratory pause objectively as respiratory line excursion (Kircher & Raskin, 2002) or respiratory line length (Timm, 1982). Currently, it appears that only the Limestone Technologies Paragon and ParagonX instruments (Lafayette Instrument, n.d.) provide these objective measures as a metric, achieving accuracy up to 1/10,000 of a millimeter.

To improve the assessment of credibility, practitioners should conduct the initial physiological recording using a "silent answer test" comprising nonsensical questions (e.g., "Are there 12 months in a year?", "Are there 7 days in a week?", or "Does the sun shine at night?"). This initial test is presented to the examinee simply as an opportunity to become acquainted with the testing procedure. During this phase, the examinee is instructed not to answer any questions verbally and, if they prefer, to not even formulate an answer mentally. Their only instruction is to remain still and acclimate to the environment (i.e., "do not move, do not take deep breaths, and do not hold your breath"). Because of the mundane nature of this practice test, the resulting physiological data serves as an excellent, uncontaminated baseline for comparison with subsequent recordings.

Finally, when an examiner utilizes an instrument capable of precise respiratory line measurements, the OR can reliably distinguish which question is most salient to the examinee. This is typically indicated by a shorter measurement, whether it is a relevant or comparison question. Crucially, this physiological discrimination remains accurate even if the examinee consciously attempts to manipulate or alter their breathing patterns.

7. Conclusion

Understanding respiratory dynamics provides crucial insight into the field, particularly by highlighting how breathing hyperawareness can compromise polygraph accuracy. While psychological and physiological sciences have firmly established the connections between bodily awareness, anxiety, and conscious respiratory control, polygraph practitioners' understanding of these issues will remain largely theoretical without concrete data, standardized measurements, and a deeper engagement with existing research.

The established scientific literature clearly demonstrates that drawing an examinee's attention to their breathing disrupts its natural rhythm, triggering physiological stress responses that can easily be misread as deception. Moving forward, the field

must prioritize a comprehensive understanding of the orienting reflex and conduct controlled, empirical studies to evaluate these phenomena in testing environments. To advance as a discipline, the polygraph profession must champion the development of instruments that yield scientifically validated measures and adopt methodologies that are scientifically defensible—moving away from dogmatic practices traditionally used to train new examiners. Embracing these evidence-based efforts will substantially improve the accuracy of polygraph testing and deepen our understanding of how bodily awareness impacts physiological assessments.

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Literature Review

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Polygraph testing: 10 years of practical application*

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Abstract

The article analyzes the evolution and effectiveness of polygraph testing in the Republic of Moldova over a decade of institutional application (2014–2023) within the Forensic and Judicial Expertise Center of the General Police Inspectorate. Relevant quantitative data are presented concerning the frequency of polygraph tests and the types of requests received, highlighting a high degree of accuracy and significant practical applicability. In order to assess the actual impact of the method, the test results were compared with court rulings, and the use of polygraph was examined from multiple perspectives. The article also addresses the current status and implementation of polygraph testing in the Republic of Moldova, United States of America, Romania, and Ukraine. Based on the gathered experience, it can be concluded that polygraph testing effectively contributes to the clarification of complex cases and, in certain situations, enables the retrieval of additional relevant information.

The conclusions emphasize the relevance of the polygraph as a complementary investigative tool, while also underscoring the need for continuous development of the field through advanced professional training, regulatory harmonization, and the expansion of its application under scientifically rigorous and ethically responsible conditions.

Key words: polygraph, polygraph testing, simulated behavior detector, criminal investigation, personnel selection, judicial decisions, Forensic and Judicial Expertise Center

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Introduction

Throughout history, people have faced the need to investigate crimes, and unsanctioned offenses have had a negative impact on the perception of security and public trust in the justice system. In this context, polygraph testing has proven to be an effective tool not only in combating crime but also in preventing it, playing a significant role in obtaining relevant information for establishing the truth.

Methods for assessing human truthfulness have deep historical roots, grounded in practices and techniques developed over time to identify deceptive behavior and to safeguard the integrity of decision-making processes. In this regard, polygraph testing represents a standardized, technologically advanced method for analyzing physiological responses associated with the veracity of statements.

The use of polygraph testing in the Republic of Moldova is not limited to the activity of the Forensic and Judicial Expertise Center (FJEC) of the General Police Inspectorate (GPI) under the Ministry of Internal Affairs (MIA), but also involves the contribution of other public institutions. However, the present article focuses exclusively on the experience accumulated within the FJEC, highlighting the most relevant aspects of its polygraph-related activity. To better understand the development and institutional consolidation of polygraph use, it is necessary to outline several key chronological milestones:

1. In the 1990s, a polygraph testing laboratory was established within the Forensic Department. Its primary objective was to support law enforcement bodies in solving crimes and establishing the truth, with demonstrably positive results in investigative practice.

2. In 2008, Law No. 269 on the application of simulated behavior detection testing (polygraph) was adopted, regulating the essential aspects of polygraph-based examinations [1].

3. In 2012, the Law on Special Investigative Activities was amended, removing "interviews using simulated behavior detectors" from the list of operative investigation measures [2]. This legislative change marked a shift in the legal treatment of the polygraph, excluding it from the category of operational tools.

4. Subsequently, in 2014, Government Decision No. 475 was issued, establishing the State Commission for Polygraph Testing (SCPT). The Commission developed regulations defining the status, competencies, and responsibilities of polygraph examiners and their assistants [3].

5. Starting in 2017, polygraph testing was also extended to personnel selection procedures, such as employment and internal transfer.

6. In 2018, the Constitutional Court ruled that requiring a positive polygraph test result as a mandatory condition in personnel selection processes constitutes a disproportionate measure. At the same time, the Court acknowledged that no less intrusive and more effective alternatives to polygraph testing were available [4]. As a result, during the period 2019– 2021, the legal basis for initiating such tests in selection procedures was repealed at the initiative of the National Integrity Authority (NIA), the Superior Council of Prosecutors, and the Superior Council of Magistracy (SCM) [5].

7. In April 2023, the Polygraph Testing Section was created within the Forensic and Judicial Expertise Center of the General Police Inspectorate under the MIA.

8. In 2024, the right to conduct polygraph testing was extended to additional institutions, such as the State Protection and Guard Service and, subsequently, the Ministry of Defense, based on governmental decisions adopted toward the end of the year.

Despite challenges such as legislative changes and legal or operational obstacles, the application of polygraph testing continues to expand across various public institutions.

Methodology

To carry out this study, a mixed methodological approach was adopted, combining both quantitative and qualitative analysis of the data available within CTCEJ. The methods used include logical reasoning, comparative analysis, systemic analysis, description, and deduction. The quantitative analysis focused on data from CTCEJ's internal registers and official statistics available on the portal statistica.md. Additionally, a comparative analysis was conducted between polygraph test results and final court rulings, accessed via the platform instante.justice.md.

The research integrated both theoretical and practical perspectives, utilizing official and scientific sources and applying standardized techniques to provide a clear overview of the effectiveness and applicability of the polygraph in the Republic of Moldova.

List of abbreviations

APA – American Polygraph Association
EPA – European Polygraph Association
FJEC – Forensic and Judicial Expertise Center
GPI – General Police Inspectorate
MIA – Ministry of Internal Affairs
NIA – National Integrity Authority
SCM – Superior Council of Magistracy
SCPT – State Commission for Polygraph Testing
USA – United States of America

Results and discussions

Summarizing the carried out activity, we begin with an analysis of the dynamics in the number of requests received for polygraph testing during the 2014–2023 period (over 10 years of practice), submitted by various authorities legally empowered to initiate such examinations (Table 1).

Table 1. Number of requests for polygraph testing

	General Police Inspectorate	Prosecutors Office	Superior Council of Magistracy	Ministry of Internal Affairs	Customs Service	National Integrity Agency	National anticorruption center	Other	Total
2014	185	9	-	7	-	-	-	17	218
2015	127	4	-	3	1	-	-	12	147
2016	154	16	-	5	2	-	1	20	198
2017	100	18	-	1	-	-	3	1	122
2018	86	34	-	2	3	-	-	-	125
2019	61	5	65	-	2	-	-	-	133
2020	120	13	40	3	-	1	-	-	177
2021	125	17	-	2	2	8	-	-	154
2022	106	55	-	1	5	-	-	-	167
2023	104	15	-	7	-	-	-	-	126
Total	1168	186	105	31	15	9	4	50	1568

All requests were processed, and the examinations were conducted using validated testing techniques, selected in accordance with the specific objectives of each case. The GPI was the authority with the highest number of requests throughout the entire period, totaling 1,168, which represents approximately 74.5% of all submissions. Over the years, the Forensic and Judicial Expertise Center has collaborated with nearly all institutions authorized to initiate polygraph testing. Overall, the following conclusions can be drawn:

1. The average number of requests is approximately 150 per year, indicating a consistent volume of activity in the field of polygraph examinations.

2. The years 2014 and 2016 recorded the highest number of requests — 218 and 198 respectively — due to the fact that, despite legislative changes, investigative officers who had previously experienced the benefits of polygraph testing continued to use it to clarify the circumstances of the information provided by individuals involved in criminal cases. This practice highlights the significant role of the polygraph as a complementary tool in the process of investigation and in obtaining crucial information for solving crimes.

3. The years 2017 and 2018 marked a decline in the number of requests, with 122 and 125 respectively. No direct or objective cause was identified; however, it became evident that the main initiator of such examinations—GPI—began to make less frequent use of polygraph testing. If personnel selection-related requests are excluded, a comparative analysis of all recorded criminal offenses by year versus the use of polygraph testing can be conducted (see Table 2) [6].

Table 2. Statistics of all registered crimes in the period 2014–2023

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total crimes	41783	40302	41921	35581	32035	31657	26342	27159	26833	24001
Polygraph requests	218	147	198	108	113	65	125	143	139	115
Polygraph aplication	0,52%	0,36%	0,47%	0,30%	0,35%	0,21%	0,47%	0,53%	0,52%	0,48%

The correlation between the use of polygraph testing and the total number of registered criminal offenses in the Republic of Moldova provides an indicator of the method's relevance in investigative practice. Between 2014 and 2023, out of more than 327,000 reported crimes, polygraph testing was requested in 1,371 cases, corresponding to an average frequency of 0.42%—or approximately 4 tests per 1,000 cases.

The most common types of cases for which polygraph testing was requested are:

- Theft – 442 requests;
- Personnel selection – 196 requests;
- Murder – 190 requests;
- Hooliganism – 111 requests;
- Rape – 97 requests.

The statistical data shows that the largest number of requests for testing comes from theft cases – 28.2%, personnel selection and murder investigations – 12% each, hooliganism – 7%, and rape – 6%. However, when examining all recorded offenses during the period 2014–2023, it becomes evident which types of cases most frequently involve the use of polygraph testing (see Table 3) [6].

Table 3. The Percentage of Polygraph use for crime detection (2014–2023)

	Total recorded	Polygraph application	%
Murder	1617	190	11,75%
Rape	2913	97	3,33%
Hooliganism	13195	111	0,84%
Theft	110393	442	0,40%

Although theft accounts for the highest absolute number of requests, the relative use of polygraph testing is significantly more intensive in homicide cases, where 190 tests were conducted out of a total of 1,617 cases (11.75%). This indicator highlights the strategic value of the polygraph in complex investigations. Given the gravity of such crimes and the increased need for their swift resolution, the polygraph becomes an effective tool for confirming or refuting investigative leads. Therefore, the high frequency of polygraph use in homicide cases is justified by the necessity to expedite investigations and by the support it provides in the process of establishing the truth.

The practical importance of polygraph testing is further demonstrated by the fact that, between 2019 and 2023, out of 693 examinations conducted, in 62 cases (8.9%) confessions of guilt or essential information for case resolution were obtained:

- 41 confessions were obtained during testing;
- 21 confessions were obtained after the testing, either following the presentation of the results by the criminal investigation officers or in court.

The use of the polygraph is an inherently humane, ethical, and non-violent method that does not infringe upon a person's honor, liberty, or dignity [7]. In addition to the fact that the Constitutional Court has ruled in favor of the continued use of polygraph testing, it is worth emphasizing that this method represents a balance between the rights of the individual being examined and the need to employ such tools in the pursuit of justice and the protection of public interest [4]. It is more than a "lie detector"; it is a "truth detector." For instance, as shown in Table 4, results confirming the truthfulness of statements are twice as frequent as those indicating deception. When properly applied, the polygraph enhances the accuracy of statement evaluation by helping identify inconsistencies or verify the credibility of declarations. In this regard, the polygraph becomes an essential complementary tool in the investigative process, supporting both the efficiency and fairness of judicial proceedings.

Table 4. Results of Polygraph Tests

		Total	%
1	NDI	678	43,3%
2	DI	350	22,3%
3	Was absent	343	21,9%
4	The person refused	73	4,7%
5	The necessity disappeared	54	3,4%
6	Impossibility of testing	51	3,3%

Out of a total of 1,568 requests, 1,047 polygraph examinations were actually conducted. Approximately 21.9% of individuals for whom testing was ordered did not appear, while in 4.7% of cases, individuals presented themselves but refused to undergo testing. In about 3.4% of cases, the need for testing became irrelevant, as the investigative bodies clarified the situation through other means before the materials reached the examination stage. Another 3% of cases involved situations where testing was deemed impossible due to contraindications identified prior to or during the examination, which prevented its continuation, in accordance with Law No. 269/2008 (e.g., health issues, pregnancy, age under 18, advanced age, medical contraindications, etc.) [1].

The accuracy of the polygraph is further confirmed by a comparative analysis with court rulings, as verified through the National Judicial Portal [8]. A total of 164 cases were identified in which polygraph testing had been used and a final court

decision had been issued. According to the collected statistics, polygraph results aligned with court conclusions in 84.8% of cases (see Table 5).

Table 5. Polygraph Tests in Relation to Court Decisions for the Same Case

Year	Court decision	Matches	Does not match	Reference to polygraph
2014	18	18	0	8
2015	8	4	4	0
2016	28	24	4	16
2017	7	7	0	6
2018	11	8	3	7
2019	10	6	4	6
2020	25	23	2	17
2021	26	19	7	12
2022	17	16	1	12
2023	14	14	0	6
Total	164	139	25	90
		84,8%	15,2%	54,9%

A reference to the polygraph indicates how often the court, in its rulings, mentioned that a polygraph examination had been conducted or explicitly referred to its results.

In 84.8% of cases, the results of polygraph testing were consistent with the court decisions, demonstrating the effectiveness and reliability of this tool. This high degree of correlation between polygraph results and judicial conclusions highlights the polygraph's capacity to contribute to a more equitable justice process by providing additional relevant information in the evaluation of evidence and the establishment of the truth in the examined cases. This can be considered a strong result, especially when compared to the findings of a 2003 meta-analysis conducted by the U.S. National Research Council, which reported that the median accuracy rate of validated polygraph tests ranged between 80% and 90% depending on the type of test used [9]. Another important factor should also be taken into account: each examinee has the right to request a retest. If the average probability of error, according to existing research, is 15%, then in the case of two independent tests, the probability of obtaining a correct and accurate result increases, and the probability of error decreases to $0.15 \times 0.15 = 0.0225$, resulting in an average accuracy of 97.75%.

The results of polygraph testing during the analyzed period highlight not only its consistent and sustained applicability but also its high degree of reliability, relevance, and effectiveness in supporting both criminal and administrative proceedings.

An analysis conducted in 2013 by the Center for Analysis and Prevention of Corruption emphasized that polygraph testing is an ethical and non-violent method, applied in over 75 countries across various fields, offering both benefits and certain limitations [7]. In Romania, polygraph testing is officially recognized as a form of judicial technical expertise, and psychologists authorized to perform it must meet strict requirements established by the Ministry of Justice. Obtaining the status of judicial technical expert in this specialization involves a rigorous process of professional training, culminating in an examination before an evaluation commission organized by the Ministry. According to the National Register of Psychologists with the right to independent practice, managed by the Romanian College of Psychologists, 159 certifications were issued between 2005 and 2025 for specialists authorized to conduct polygraph testing [10]. Currently, approximately 120 psychologists hold active licenses for this specific activity.

According to the Ministry of Justice's Guide on Judicial Expertise, polygraph testing falls under the category of "Psychology and Behavioral Sciences," specialization 74 – Psychology, with the subspecialization "Applied Psychology in the Field of National Security" [11]. This subspecialization permits expert evaluations within the domain of "judicial psychology," in which polygraph testing is recognized as a method for assessing simulated behavior. Thus, in Romania, psychophysiological polygraph testing is fully integrated into the judicial system as an accredited form of expert evaluation.

In Ukraine, the field of polygraph testing has experienced accelerated development in recent years, having been officially regulated in 2015, when this activity was included in the list of admissible judicial expert examinations [12]. Currently, more than 500 active polygraph examiners are registered with the National Association of Polygraphologists of Ukraine, which maintains branches in all regions of the country [13]. The status of certified polygraph examiner is granted upon completion of specialized training courses and the attainment of a state-recognized certification. Furthermore, the equipment used in Ukraine must comply with the technical requirements established by the national standard DSTU 8692:2016 (Ukrainian State Standard), which governs the methodological and procedural aspects of polygraph examinations. This national standard shares

multiple conceptual and operational similarities with the ASTM standard series developed in the United States (American Society for Testing and Materials), which are dedicated to research in the field of psychophysiological detection of deceptive behavior. Although each system reflects the specificities of its respective legal framework, there is a demonstrable methodological foundation common to both, centered on scientific validity and adherence to standardized examination protocols.

In the United States, the fundamental standards for professional practice have been developed by the American Polygraph Association (APA), which establishes internationally applicable methodological and ethical norms. Currently, over 2,700 accredited polygraph examiners are active in the U.S., employing scientifically validated techniques and standardized protocols to maximize the accuracy and reproducibility of test results. At the European level, these principles are reflected in the work of the European Polygraph Association (EPA), an organization that brings together members from 35 countries. Both APA and EPA promote methodological convergence and the harmonization of professional standards to enhance operational effectiveness and ensure ethical safeguards throughout the examination process [14].

In the Republic of Moldova, the field of polygraph testing remains in an early stage of development. At present, only 7 certified polygraph examiners and 2 assistants are active within authorized institutions. According to Law No. 269/2008 on the application of simulated behavior detection testing (polygraph), nine public institutions are authorized to initiate such examinations. Given the multiple purposes for which this method is employed—such as pre-employment screening, internal investigations, or criminal inquiries—it is estimated that each institution would require between 3 and 5 specialists, depending on workload. Consequently, polygraph testing in the Republic of Moldova represents an important area for development, with considerable potential for expansion.

Conclusions

Polygraph testing represents a promising direction for strengthening the capacity of state institutions to prevent and investigate crime, substantially contributing to the establishment of truth. A significant advantage for the Republic of Moldova lies in the existence of a clear legislative framework and procedural regulations that grant legitimacy to the application of this tool.

Data analyzed over the course of a decade demonstrates the consistent and effective applicability of polygraph testing, particularly in complex cases. The statistics reveal a significant concordance between polygraph results and court rulings, attesting to the high reliability and relevance of this method in the truth-seeking process.

It is important to emphasize that when used in accordance with international standards and national regulations, the polygraph operates within an ethical framework, as a non-violent method that respects human dignity. Moreover, polygraph examinations can facilitate the acquisition of valuable additional information during investigations, thanks to the structured interaction during the pre-test and post-test phases, which allow for the identification of relevant details through communication with the examinee.

An upward trend is observed in the integration of polygraph specialists within state institutions, indicating a positive shift in attitude toward this investigative tool. Drawing inspiration from international best practices and the experience accumulated at the Forensic and Judicial Expertise Center, it can be concluded that polygraph testing offers a concrete and sustainable operational advantage.

Therefore, the polygraph is not merely a technical verification tool but a valuable complementary instrument in criminal investigations, personnel selection, and the clarification of sensitive cases. Its use contributes both to increasing the efficiency of investigations and to strengthening public confidence and the perception of security within the justice system of the Republic of Moldova.

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Report

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Report from the III International Polygraph Conference in Budapest

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On 19–20 May 2026, the III International Polygraph Conference was held in Budapest. The venue of the conference was the Grand Council Hall of the Riot Police at Kerepesi út 47–49, Budapest. The conference brought together representatives of the polygraph community from many countries, including Croatia, Serbia, Bulgaria, Macedonia, Romania, the Republic of Srpska, Slovakia, Poland, Belgium, Spain, Canada, and the United States.

The conference was officially opened by Maj. Gen. Dr. Szilvia Tomin, Director-General. In her opening remarks, she welcomed the participants and emphasized the importance of international cooperation in the development and practical application of polygraph examinations.

The first day of the conference was devoted primarily to methodological and practical issues related to polygraph examinations, as well as pre-test and post-test interviewing. After a brief summary of the First and Second International Polygraph Conferences, Shaun Smith from Canada delivered a presentation on single- and

multiple-issue tests. In his next presentation, he discussed the issue of anticlimax dampening. The presentations were followed by a question-and-answer session.

In the afternoon session, François La Fevre from Belgium presented a paper on the post-test interview and the use of the Méndez Principles. This was followed by a presentation by Goran Kojic from Serbia, who discussed the Scharff Technique as an upgrade to pre-test and post-test interviewing in polygraph examinations. The day concluded with a roundtable discussion devoted to the topics raised during the presentations.

The second day of the conference was largely technical and presentation-oriented. Solutions offered by polygraph equipment manufacturers were presented. Products were introduced by representatives of Stoelting Co., Lafayette Polygraph Co., and P.O.L.A.R. The P.O.L.A.R. system, a new product on the market manufactured in Brazil, attracted particular interest. The presence of several manufacturers allowed participants to compare different technical solutions currently used in polygraph examinations.

The scientific part of the second day also included a presentation entitled "Memory Distortions, Confabulation, and Their Impact on Polygraph Examinations," delivered by Michał Widacki, Ph.D., representing Andrzej Frycz Modrzewski Krakow University. The presentation addressed the issue of memory distortions, confabulation, and their potential impact on the course and interpretation of polygraph examinations.

An important part of the programme was also a criminal case presentation. It concerned a case involving the concealment of a child's body. In the course of activities aimed at locating the body and identifying the perpetrator, a two-stage approach was applied: first, a voice analyzer was used, followed by a polygraph examination. This concept appears to be sound, as obtaining consistent results from two such different methods of deception detection may strengthen confidence in the accuracy of the findings and, consequently, increase their evidential or investigative value.

The III International Polygraph Conference in Budapest was a valuable scientific and practical event. It provided an opportunity for knowledge exchange among specialists from different countries, the presentation of current directions in the development of polygraph examinations, and familiarization with the latest technical solutions available on the market. The meeting confirmed the importance of international cooperation in this field and the need for further discussion on standards, methods, and the practical use of polygraph examinations.

News

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Newsletter
Polish Society for Polygraph Examinations
(Polskie Towarzystwo Badań Poligraficznych)

Over recent months, the Polish Society for Polygraph Examinations has continued its activities aimed at advancing the standards of polygraph practice in Poland and strengthening cooperation with professional, academic, and institutional partners.

A particularly important confirmation of the Society's international standing has been the renewal of its Divisional Affiliate status with the American Polygraph Association (APA), as well as the continuation of its cooperation with the European Polygraph Association (EPA). The maintenance of these affiliations reflects the Society's continued commitment to internationally recognized standards and to the exchange of professional knowledge and experience within the broader polygraph community.

At the national level, the Society has continued its educational mission through the organization of specialized training sessions for prosecutors, devoted to the practical and procedural dimensions of polygraph examinations. These initiatives form part of the Society's broader efforts to promote informed and responsible use of polygraph evidence in institutional and legal practice.

The principal event in the Society's 2026 calendar will be the forthcoming Scientific and Training Conference of the Polish Society for Polygraph Examinations,

scheduled to take place on 25–27 September 2026 at Reszel Castle, Poland. The conference will provide a forum for professional exchange, the presentation of current developments, and further integration of the expert community engaged in polygraph-related practice and research.

As a result of the contacts established during the International Polygraph Conference in Budapest, the Reszel conference is expected to be expanded to an international level. The professional relationships developed there have already led to invitations being extended to experts from other countries who were present at the Budapest conference, thereby broadening the scope and international character of the forthcoming event.

The Polish Society for Polygraph Examinations remains steadfast in its commitment to the promotion of high professional standards, the strengthening of methodological foundations, and the advancement of responsible and expert practice in the field of polygraph examinations.

Marcin Gołaszewski

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Newsletter Polish Polygraph Association (Polskie Stowarzyszenie Poligraferów) – Summary of Activities Over the Last Nine Months

The Polish Polygraph Association (Polskie Stowarzyszenie Poligraferów – PSP), as an organization bringing together polygraph examiners employed by state institutions, has carried out intensive organizational, educational, and professional activities over the past nine months. The Association's efforts have focused on the development of professional standards, the enhancement of members' qualifications, and the promotion of knowledge concerning the role of polygraph examinations in the fields of security, and justice.

One of the most significant events during this period was the General Assembly of Members held on 9 September 2025. During the meeting, new governing bodies of the Association were elected and the PSP Code of Ethics was formally adopted. This measure was intended to further strengthen standards of professionalism and professional responsibility within the polygraph community.

An important area of PSP activity involved work on the development of standards for conducting polygraph examinations in Poland. Consultations held among members of the Association addressed issues related to examination methodology and documentation procedures. The primary objective of these efforts was to unify professional practices and improve the quality of polygraph examinations conducted in Poland. The consultation process also served as a platform for exchanging professional experience and jointly developing solutions relevant to the polygraph profession.

A key objective of the Association remained the continuous improvement of members' professional qualifications through the organization of and participation in training courses and specialist events. Of particular importance were the workshops entitled "Forensic Opinion Based on a Polygraph Examination", during which participants had the opportunity to exchange views and experiences with Judge Arkadiusz Makowski of the Regional Court in Warsaw. The meeting focused on practical aspects of the use of polygraph examinations in judicial proceedings.

As part of efforts to enhance technical competencies, PSP also organized training on the new LXEdge software, conducted by representatives of the Lafayette Instrument Company. The training addressed modern technological solutions applied in contemporary polygraph examinations.

In order to further improve its educational activities, the PSP Board adopted a resolution on 5 May 2026 establishing the Training Coordination Committee. The Committee is responsible for developing training plans and organizing educational events aimed at improving the qualifications and professional competencies of Association members.

Another important aspect of PSP activity involved promoting knowledge concerning the significance of polygraph examinations in the field of state security. During a scientific seminar organized by Jan Długosz University in Częstochowa and devoted to the functioning of the state under conditions of military threat and wartime emergency, PSP President Piotr Kuźdub presented the role of polygraph examinations in information verification processes and in supporting operational decision-making during armed conflict. In addition, Dr Piotr Herbowski Professor of Law at the University of Jan Długosz discussed the potential application of polygraph and eye-tracking technologies in verifying information during border control procedures in situations involving security crises. The presentations emphasized the practical importance of polygraph examinations in minimizing risk and enhancing the effectiveness and safety of operations conducted under crisis conditions.

The activities undertaken during the reporting period confirm the Polish Polygraph Association's consistent implementation of its statutory objectives and demonstrate the professional community's continued commitment to the development of high professional standards for polygraph examinations in Poland.

Dominika Słapczyńska

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Reid, J., Inbau, F. (1966), *Truth and Deception: the Polygraph ("Lie-detector") Techniques*, Baltimore: Williams & Wilkins.

Abrams, S. (1973), Polygraph Validity and Reliability – a Review, *Journal of Forensic Sciences*, 18, 4, 313.

and (Reid, Inbau, 1966), (Abrams, 1973) inside text.

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