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Interrogation Strategies for an Unconventional Extremist Enemy

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Secretary of Defense Donald Rumsfeld's comments on Tuesday, 14 June 2005, cut to the chase in the realm of interrogation strategies for the terrorists encountered in Iraq and Afghanistan. "The problem is that, to a large extent, we are in unexplored territory with this unconventional and complex struggle against extremism. Traditional doctrines covering criminals and military prisoners do not apply well enough." (Secretary of Defense, 2005).

While prompted in defense of the usefulness of Guantanamo's "Camp X-Ray," Secretary Rumsfeld's words spoke volumes about the need to broaden our approach to the interrogation of terrorist suspects, particularly Islamic Fundamentalists. At the same time, fallout from alleged interrogation abuses requires tact in the selection and application of aggressive techniques which push, but do not rupture, the envelope of our nation's inherent respect for due process and the rights of the accused. What follows, then, is an overview of strategies for the interrogation of extremist terrorist suspects.

I. Assessment of the Subject

Oversimplification of any topic is risky. But a framework built upon a basic foundation is appropriate. Interrogations begin with an assessment of the person being questioned, commonly called "sizing up the subject." (Inbau & Reid, 1953).

There are three principal groupings of subjects for purposes of this discussion, on selection and application of strategies for the interrogation of extremist terrorist suspects: a) Common Criminals; b) Nationalists; and c) Islamic Fundamentalists.

Today in Iraq and Afghanistan, whether wittingly or unwittingly, the "Common Criminals" and the "Nationalists" serve at the pleasure of the "Islamic Fundamentalists." This is true for the most capitalist of reasons: the Fundamentalists have, and control, the money which attracts all other disaffected groups in the name of "Allah." This fact is relevant to the selection of interrogation strategy for each category of offender.

"Common Criminals" aspire to the "terrorist" label for the very same reasons that domestic offenders join street gangs, steal, or commit murder on the streets of any city in the world. To the criminal mind, greed, revenge, empowerment, or the simple desire to belong to a group is just as powerful of a motivation, whether in the name of jihad, drug cartels, or organized crime at any level. (United States Department of Justice, 1994). Unquestionably then, among the "terrorist" population is the Common Criminal element.

But the terrorist encountered in Iraq and Afghanistan (and correspondingly, the terrorist most likely to wind up in Camp X-Ray or at field prisons such as Abu Ghraib) may also be motivated by overwhelming hatred of Westerners for two distinctly different reasons; Nationalism and/or Islam.

Nationalists resent the presence of Western military forces in Muslim countries. They are usually young, educated, inexperienced at violence, and often times manipulated into roles as suicide bombers. (Pape, 2005). They resort to any means, including murder and suicide, out of misdirected political consciousness and nationalistic verve.

Islamic Fundamentalists have as their goal the establishment of Islam worldwide. (Al Qaeda Jihad Training Manual, 2001). From the Al Qaeda Jihad Training Manual, we see that each of these extremists **"has to be willing to do the work and undergo martyrdom for the purpose of achieving**

[1]Notwithstanding the citations to authority, the information and opinions contained herein are based upon the author's independent research and personal interrogation experiences. Philip A. Mullenix is a Chicago attorney and licensed polygraph examiner who has provided interrogation services and instruction since 1978.

the goal and establishing the religion of majestic Allah on earth." (Al Qaeda Jihad Training Manual, 2001). Commitment to the goal is ultimate and undeterred by any fear of death, discovery, or detention. Martyrdom brings the greatest rewards. Tactically, they realize that a world-wide Islamic government would never be established except through violence, and they are taught that inflicting torture, death, and destruction upon anyone standing in their way is morally justified. (Al Qaeda Jihad Training Manual, 2001).

There are two subsets to consider for interrogation purposes:

1. Fundamentalist Zealot
The zealots do not waver; they follow the Al Qaeda tenets to the end and lead others to strict adherence.

2. Religious Idealist
These individuals derive their strength from following the fundamentalist zealots. They believe in the destructive interpretation of Islam taught by the zealots as moral and social ideology. Some will later deviate from strict obedience and will be coerced by their handlers, upon threat of torture or death to family members, to carry out terrorist acts.

Conventional methods of criminal interrogation delineate subjects into "emotional" and "non-emotional" offenders. (Inbau, Reid & Buckley, 1986). Emotional offenders generally perform their crimes in response to uncontrolled but basic human drives, feel some degree of remorse, seek understanding (if not outright approval) of their criminal conduct, and are vulnerable during interrogations to themes such as minimization of the consequences of their behavior or the laying of blame for the criminal conduct upon others, including the victim. Non-emotional offenders, on the other hand, are generally calculating in their conduct, feel little or no remorse, are ambivalent about empathy from others, and are likely to confess only if they believe the act of confessing can be parlayed into a direct benefit to them. These delineations have application to foreign terrorist suspects, as well.

The process of "sizing up the subject" involves multiple and complex considerations. Verbal, non-verbal, and vocal behavior symptoms may provide reliable indications of truth or deception from the interrogation subject. The cultural or economic background of each suspect provides insight into the interpretation of their behavioral responses as well as the categorization among the three principal groupings and two subsets discussed above. Each presents its own challenge.

Before beginning an interrogation, as circumstances permit, study the background of the person to be interrogated. Take time to assimilate all known details and compare them to the pool of other subjects for similarities and dissimilarities, distinguishing leaders from followers. Draw inferences about the person to be interrogated, based upon past experience and profiles to which the interrogator has been exposed. Assess the subject's level of confidence, intelligence, education, experience, maturity, and **knowledge of countermeasures** against interrogational techniques. (Al Qaeda Jihad Training Manual, 2001).

II. Interrogator's Conduct

The interrogator should prepare intellectually for various degrees of initial resistance and the frustration or anger which subjects often attempt to ignite in their interrogator. Patience and a resolve never to underestimate the subject are crucial to maintaining poise and control in the interrogation room. Subjects revel in testing an interrogator's limits. They will read the behavior of an interrogator for fear, uncertainty, and loss of self confidence as assiduously as interrogators attempt to read theirs for truth and deception.

Establish rapport with the subject: gain the subject's respect. This does not mean trying to persuade the subject to like you, trust you, or become your friend. Such a move will be viewed cynically by the subject and be immediately exposed as shallow. It does not mean being overly polite. Perceived weakness invites attack and encourages a subject to attempt to assume control over the interrogation process.

Instead, by all manner of personal appearance, demeanor, and communication,

the interrogator should convey self assurance, self respect, and respect for the subject. Above all, the interrogator should avoid any tactic which demeans the interrogator's own self respect. Subjects instinctively perceive that if an interrogator cannot respect himself, then why should the interrogator be worthy of the subject's respect, rapport, and, ultimately, an admission against the subject's interests. Maintain high standards and self discipline in the interrogation room; and be non-judgmental of the subject's misconduct. Over time, that respect will likely be reciprocated, and the rapport born of mutual respect becomes a welcomed lubricant in the squeeze for valuable information.

Fatigue over the course of a long interrogation, as well as personal animosity that the interrogator might develop internally toward the subject, may erode an interrogator's will to maintain self discipline and to continue to show respect toward the subject. While understandable, that visceral reaction may delay or forever destroy any chance of obtaining useful information. At the very least, an interrogator's display of disrespect toward a subject or his cultural beliefs will be viewed by the subject as a personal victory and a validation of his will to resist.

Anticipate a lengthy interrogation. In the field, the opportunities to question a subject may be brief, so the interrogator adapts. But in a controlled environment, time presents an advantage to the interrogator. Late-night and pre-dawn sessions are effective, because the subject's cognitive ability to resist may be compromised. Accept the fact that interrogations may take days, weeks, or even months to complete. Patience and self control will be rewarded.

III. Preliminary Interview

The preliminary interview presents an opportunity (if the subject is willing to talk) to elicit in a non-accusatory fashion information either about the subject, personally, or about the substantive issues under investigation.

The preliminary interview is not the time to attempt persuasive argument. Instead, it is a time to assess the subject's strengths, vulnerabilities, communication patterns, attitudes, and truthfulness. It is also the time to elicit whatever personal background information the subject is willing to offer, including lifestyle, education, employment, travel patterns, residency, theology, military experience, ideological commitment, and rank among those of similar ideology. Finally, it is the phase of the interrogation during which the subject is asked to provide substantive information at the most benign level of direct questioning. It should not be expected that a suspect will readily "spill his guts." But the opportunity needs to be given. At the very least, a subject's behavioral responses may belie the verbal answers and thereby provide clues to the most fertile areas for intensive questioning later.

Keep questions short and to the point. Generally, avoid questions which seek "yes" or "no" answers. Instead, ask open ended questions which require the subject to provide a narrative. If distortions, omissions, contradictions, or discrepancies occur, point them out and seek explanations. If the subject weakens, push the subject for an admission to the distortion, omission, contradiction, or discrepancy.

Avoid compound questions, i.e., those which contain more than one inquiry in the same sentence. They provide the subject with a way of avoiding hard questions, and the interrogator may never receive an adequate answer to either component of a compound question. At this stage, avoid leading questions, i.e., questions which suggest the answer. They limit feedback which should be actively sought during the preliminary interview.

Behavior assessment of the subject's communication patterns is a significant element of the preliminary interview. Truth and deception can be accurately assessed through the three principal modes of communication: verbal, vocal, and nonverbal. (United States Army Interrogation Training Manual, 1996). Observe the subject, don't just look. Listen to the subject, don't just hear. Study detail, and draw inferences.

"Verbal" communication is defined by the words we choose and represents an estimated 7% of communication. (United States Army Interrogation Training Manual,

1996). "Vocal" communication is defined by how we say the words we choose, and represents an estimated 38% of communication processes. (United States Army Interrogation Training Manual, 1996). "Non-verbal" communication is defined by posture, gesture, and involuntary physical movements, and represents an estimated 55% of communication processes. (United States Army Interrogation Training Manual, 1996).

The underlying premise is that people under stress show it. Verbal, vocal, and non-verbal behavior symptoms are outward manifestations of anxiety, and they occur in-voluntarily as the body's defense mechanism to reduce internal anxiety. Symptoms of stress can be accurately read provided they are viewed for timing (i.e., in response to specific inquiries or stimulus during the interrogation), clusters (i.e., no single isolated behavior symptom can be deemed significant), and changes from the subject's personal or cultural norm. Within the context of interrogation, the subject who manifests well-timed clusters of behavior symptoms which are atypical for the subject and his culture is likely deceptive. (United States Army Interrogation Training Manual, 1996).

Which verbal, vocal, and non-verbal behavior symptoms are reliable criteria of deception? Most are involuntarily triggered by the rush of adrenaline through the body in response to threatening stimulus. (Reid & Inbau, 1977). Adrenaline affects the sensory and motor areas of the brain, including vision, perspiration, muscular contractions, respiration, pulse, blood pressure, skin pallor, saliva production, and eye movements. Some symptoms are obvious; some are subtle.

Non-verbal behavior symptoms are most strikingly affected by the onslaught of adrenaline in response to a threatening interview or interrogation tactic. Signs of deception include sweating; dry mouth; hand tremors; involuntary muscular activity (e.g., leg bouncing, arching and swinging of feet, hand wringing); altered physical appearance (e.g., pale skin, thinning lips, rapid and shallow breathing); aversion of eye contact; displacement behavior (e.g., grooming gestures, dusting or pulling lint from clothes, tapping, pacing, rearranging of jewelry or clothing, or manipulation of small objects); inattentive posture (e.g., crossing/uncrossing arms, leaning away or at an angle rather than frontal alignment, rapid and unnatural posture changes, shifting of position & body movements) and supportive gestures (e.g., placing a hand over the mouth or eyes when speaking, hiding the hands or feet, holding the forehead with hand, or placing hands under or between legs). (Inbau, Reid, Buckley & Jayne , 2001).

Vocal symptoms of deception may include delayed answers, stalling, repeating of questions, answering too quickly as if rehearsed, interrupting a question before it is completed, rephrasing a question, clearing the throat, sniffs, sighs, coughs or yawns, stuttering, nervous laughter, exaggerated facial expressions, mumbling, fragmented or incomplete sentences, and a voice which trails off in volume. (Inbau, Reid, Buckley & Jayne, 2001).

Verbal symptoms of deception are sometimes deliberately induced by a subject and may include qualifiers (e.g., "not that I recall", "at this point in time", "as far as I know", "if I recall correctly", "not really"); selective memory (i.e., uncharacteristic memory gaps at critical times during descriptive narratives); unresponsive answers (i.e., failing to answer a question, changing the subject, answering a question with a question, long winded answers which talk around the point of inquiry); and "explanations of innocence" when an emphatic denial is more appropriate (e.g., "I've never studied chemistry at school, so how would I have learned to handle explosives?" when an emphatic denial of car bombing would be more appropriate to an interrogator's direct accusation; or "I don't even own a gun" when a denial would be more appropriate to an interrogator's direct question whether the suspect fired upon a passing military convoy). (Inbau, Reid, Buckley & Jayne, 2001).

The preliminary interview is a prelude to an intensive interrogation. Inferences about the subject's reasons for associating with Al Qaeda are critical to choosing an interrogation approach compatible with the three principal groupings of suspects described in Part I. Clues to the subject's conduct as a common criminal, a nationalist, or a fundamentalist may well be developed

during the interview as might the subject's ideological standing as either a zealot or an idealist if his motives are Islamic radicalism.

Open ended questions to the subjects about their past, including education, residency, international travel, and political convictions, should probe the level of fundamentalist indoctrination, if any. Absent political consciousness or fervent Islamic beliefs, the suspect may be motivated more by greed, revenge, or simple criminal tendencies. The determination is critical to the choice among alternative interrogation approaches discussed below.

The interview also gives the interrogator a direct look into the window of the willing subject's mind. Probe for vulnerabilities, such as patterns of past failures, whether educational, professional, personal, or relationships. Terrorists are crucibles for psychological frailties which, once identified, are powerful catalysts to confessions.

It is useful, if not necessary, to identify during the interview to which Islamic faction the subject belongs. For example, Sunni and Shiite terrorists are anathema to one another. While they can be united against a common enemy, Western democracy, their hatred for one another is historically confirmed. That schism can be exploited within the interrogation room if the lines are delineated.

Adopt a discipline to aggressively listen and observe the subject during all phases of the interrogation. Aggressive listening includes sharpening recall, so that details of a suspect's statements can be retrieved from memory (the same day or days/weeks later) to contradict an alibi/explanation and thereby erode the subject's confidence in his ability to defeat the interrogator. Aggressively listen for details and nuances in the subject's statements to prompt follow-up questions which inevitably are far more productive than the best scripted questions. Repetition works against the liar, so do not hesitate to throw the same questions hours, days, or weeks after they had been first posed. Aggressively listen for, and point out, discrepancies. At the same time, observe the subject and every aspect of his demeanor for deception and weakness. Time is the interrogator's ally; use it to identify and probe the subject's vulnerabilities.

If the interrogation is event-specific, allow the subject during the interview to establish a detailed time-line of his alibi before, during, and after the event. Encourage a narrative. Let the subject go until completed, and then utilize your sharpened recall. Ask follow-up questions. Mentally note the subject's selective memory, any time gaps at critical times, or the lack of uniformity of memory throughout the time lapse. Give the subject every opportunity to fill those gaps. If he fails to do so, the likelihood is deception. The subject's selective memory will then become a prime target during the ensuing accusatory interrogation.

IV. The Accusatory Interrogation

During the accusatory interrogation, the interrogator turns up the pressure on the subject to obtain a confession.

A. Islamic Fundamentalists

"Islamic Fundamentalists" present two unique challenges to the interrogator's strategy. First, they are schooled in countermeasures to defeat conventional interrogation procedures. (Al Qaeda Jihad Training Manual, 2001). Second, they are inculcated with moral justification for the murder, torture, and destruction which they inflict in pursuit of jihad; hence, they have no remorse for their conduct. (Al Qaeda Jihad Training Manual, 2001).

The Al Qaeda Jihad Training Manual provides a deep insight into the mentality of the Islamic Fundamentalist who is fully committed to his cause. The Manual, which has been found in at least six countries, is a combination of political and religious indoctrination as well as a tactical manual on matters ranging from explosives, assassinations, chemical and biological weapons, and poisons. The Manual addresses the topic of interrogation as well.

1. Countermeasures

The Al Qaeda Training Manual (hereinafter cited within "quotation marks") provides insight into the interrogation countermeasures likely to be encountered. (Al Qaeda

Jihad Training Manual, 2001). The Manual defines interrogation as "a psychological warfare and intellectual combat between the intelligence agent and the suspect through questions and answers related to one or more topics. The interrogator uses all kinds of physical and psychological techniques to break the will of the suspect and lead him to total collapse." (Al Qaeda Jihad Training Manual, 2001).

The Manual further describes specific countermeasures for interrogation, including:

a) preparation of disinformation (e.g., "the brother should be careful not to give the enemy any vital information. He should agree with the command on the line of answers to be followed during the interrogation and should answer questions wisely. During the interrogation, say only the things that you agreed upon with your commander."); (Al Qaeda Jihad Training Manual, 2001);

b) monitoring their own behavior symptoms during an interrogation (e.g., "In the first session, the brother would be studied through his statements and manner of dealing with the interrogator. Then a plan is devised for dealing with the brother. However, if they find that the brother is dodging them, they would resort to psychological torture techniques."); (Al Qaeda Jihad Training Manual, 2001);

c) noncompliance (e.g., "the brother should disobey the interrogator's orders as much as he can by raising his voice and cursing the interrogator.") (Al Qaeda Jihad Training Manual, 2001);

d) defiance (e.g., "In the beginning of the interrogation, the interrogator will come to you with fatherly advice, deceitful phrases, and 'crocodile tears' so you might confess and tell him everything. The brother should proudly take a firm and opposing position against the enemy and not obey the orders. The more firm and opposing the reaction, the more beneficial it is. These reactions will not lead to harsher treatment. Do not give the enemy an opportunity or an opening.") (Al Qaeda Jihad Training Manual, 2001);

e) denial (e.g., "The brother should refuse to supply any information and deny his knowledge of the subject in question. The brother should not disclose any information, no matter how insignificant he might think it is, in order not to open a door that cannot be closed until he incriminates himself or exposes his organization."); (Al Qaeda Jihad Training Manual, 2001); and

f) silence (e.g., "Seek Allah's help in doing your affairs in secrecy. The hearts of freemen are the tombs of secrets, and Moslem's secrecy is faithfulness, and talking about it is faithlessness.") (Al Qaeda Jihad Training Manual, 2001).

2. Moral Justification

From the Al Qaeda manual, each of these individuals "has to be willing to do the work and undergo martyrdom for the purpose of achieving the goal and establishing the religion of majestic Allah on earth." (Al Qaeda Jihad Training Manual, 2001). The commitment to the goal is unconditional and undeterred by any threat of discovery or detention. There is no fear of the consequence of being caught, instead, the greater fear is the fear of failure.

Acts which are deemed criminal to us are deemed moral by the Islamic fundamentalist terrorist. The goal of "establishing the religion of majestic Allah on earth is fueled by the belief "that governing the peoples' affairs is one of the greatest religious obligations. These young men realize that an Islamic government would never be established except by the bomb and rifle. Islam does not coincide or make a truce with unbelief, but rather confronts it." (Al Qaeda Jihad Training Manual, 2001).

"The confrontations that Islam calls for with these godless and apostate regimes does not know Socratic debates, Platonic ideals nor Aristotelian diplomacy. But it knows the dialogue of bullets, the ideals of assassination, bombing, and destruction, and the diplomacy of the cannon and machine gun." (Al Qaeda Jihad Training Manual, 2001).

3. Relevance of Traditional Interrogation Methods

Most conventional interrogation methods rely upon sympathetic approaches, including development of themes designed to minimize the moral seriousness of a crime and to place blame for the crime upon

circumstances or persons other than the offender. (Inbau, Reid & Buckley, 1986). The interrogator allows the person being interrogated to save face by opening the door to either a moral justification for the criminal act or a social justification as a result of his own human frailty.

The Islamic fundamentalist, however, is immune to that line of thinking. His hard core attitude drives him not to want to minimize the seriousness of his conduct. (Trial transcript of Zaccarias Moussaoui, 2006). Instead, he thrives on the idea that the more devastating the violence upon the infidel the greater his reward in paradise. Hence, minimization of moral seriousness is the antithesis of his underlying motive, namely to kill or intimidate in the name of Allah. (Mullenix, 2005). To him, the greater morality is achieved through the havoc he wreaks; and for that, he makes no apology.

Similarly, the fundamentalist does not wish to have blame ascribed to anyone other than himself. Only through acceptance of the blame does he achieve his glory as an Islamic warrior fighting for the previously stated goal of "establishing the religion of majestic Allah on earth." (Al Qaeda Jihad Training Manual, 2001).

The countermeasures noted above from the Al Qaeda manual make it even more difficult to employ sympathetic measures. They recognize that the professional interrogation is a psychological exercise. They know the interrogator will study their behavior symptoms; and they also know that except for denial and disinformation, silence is their mandate.

What strategy does the interrogator choose? First, not every terrorist who pronounces himself an Al Qaeda operative is willing to follow the manual and pay the ultimate price. He might be vulnerable to tactics such as minimization, placing blame upon others, or a sympathetic approach. (Senese, 2005). But if not, don't be surprised; and don't be surprised if you've thereby lost your edge with that suspect. If credibility is lost, either turn the interrogation over to a colleague or change the approach immediately. There are two recommended approaches.

a) Find an argument which appeals to the mentality and beliefs of the Islamic Fundamentalist.

Take his logic to the extreme: argue that to achieve the glory of martyrdom he must acknowledge responsibility for the act. It is the converse of minimization: maximization. (Mullenix, 2005). And instead of placing blame upon circumstances or upon others for inciting the offense, the offender is challenged by the interrogator to willingly accept blame in fulfillment of his highest goal. This theory coincides precisely with the admonition previously cited from the Al Qaeda Jihad Training Manual that each of these individuals "has to be willing to do the work and undergo martyrdom for the purpose of achieving the goal and establishing the religion of majestic Allah on earth." (Al Qaeda Jihad Training Manual, 2001).

The case of Zacarias Moussaoui is illustrative. (Trial transcript of Zaccarias Moussaoui, 2006). Moussaoui is the only U.S. defendant charged as a conspirator along with the September 11 hijackers. You may recall that at the outset of his trial, Moussaoui pronounced his allegiance to Osama Bin Laden and Al Qaeda's Islamic fundamentalist views. He dismissed his attorneys, entered a guilty plea to all charges, and challenged the United States Government to execute him in fulfillment of his highest sacrifice to Allah: martyrdom.

Moussaoui quickly sought to amend his plea after he discovered that he may not be escorted to paradise courtesy of the U.S. Government, but instead may be allowed merely to live the remainder of his life in solitary confinement in a maximum security federal prison. Nevertheless, before he understood the practical consequences of his guilty plea, Moussaoui was motivated to publicly maximize his role in the offense. In his mind, by willingly accepting blame, he was fulfilling his highest goal and paving his way to the glory of martyrdom in the name of Islam.

For the intelligence agent who has received traditional training in the art of interrogation, this mindset is unique and presents a dilemma in the approach to be taken. The interrogator's every instinct, training, and experience is to try to minimize

the offense, deflect blame, and rationalize the subject's behavior in order to obtain an admission. The anomaly is that the beliefs and emotions of fundamentalists such as Moussaoui reject that approach. Minimization is an impediment to a confession rather than a catalyst.

b) Factual analysis approach to the interrogation.

Concentrate not upon obtaining a comprehensive confession. Instead, aggressively yet methodically question the subject with the goal of developing facts, miniscule and seemingly innocuous standing alone but useful in the aggregate.

Repetition of the same questions on issues of fact, sequence, time line, people, relationships, places, and events will lead to mistakes in the liar. Emphasize inconsistencies developed during the preliminary interview by pointing them out, and commit the subject to specific answers. The objective is to obtain the initial admission or a change in an alibi, thereby leading to additional admissions, one point at a time.

"Baiting" is useful for this purpose. Once the subject is firmly committed (through repetitive questioning on the same topic) to a particular denial or alibi, the introduction of a singular piece of evidence which contradicts the subject can be devastating. Whether in a courtroom or an interrogation room, the effect is the same: the subject knows that his credibility has been destroyed. The interrogator's inference that more such evidence exists has proven in past cases to be key to the floodgates of information from embarrassed and flustered subjects.

As stated during the above discussion of the preliminary interview, the interrogator must be especially quick mentally to recall the subject's statements minutes, hours, or days earlier. The accusatory interrogation is the appropriate time to pointedly draw attention to the subject's use of qualifiers, contradictions, and prior inconsistent statements. Demonstrate that the deceptive subject is lying. Identify inconsistencies of fact and the weakness or absurdity of the subject's explanations and alibis. Shake their confidence in their ability to maintain their ruse, their composure, and ultimately their belief in their own training.

Challenge every piece of information from the subject as being disinformation. That's what you're going to get if the subject has been taught the principles of the Al Qaeda Jihad Manual. Seek corroboration and details of any information being offered, i.e., how does the subject know what he says he knows. Let the subject see early that you are not naive about his countermeasures. Disregard defiance; and treat denials as inconsequential. Both the defiance and the denials are rehearsed.

If the interrogator's arguments produce high tension in the subject, then either the subject might become so upset as to fail to pay attention to what the interrogator is saying or the interrogator's words and ideas may simply fall on deaf ears. Under those circumstances, be alert to attempting to recondition the subject. Amidst the subject's anger or anxiety, don't use your strongest arguments. The subject won't hear them: defense mechanisms will deflect them. Instead, ease into the stronger arguments. Start with ancillary issues and admissions. Bleed the subject's adrenaline and their "prepared" defenses, explanations, and alibis. Then go back and disarm piecemeal. Don't use all evidence or argumentative ammunition in the opening salvo.

Whereas the "open ended question" is preferred within the preliminary interview as a means of drawing out new information from the subject, "leading questions" (i.e., questions which suggest their answer) are preferred during the accusatory interrogation. New information is no longer the goal. Instead, the leading question is now intended to solidify information which had already been elicited from the subject or to nail the subject's knowledge of information which the interrogator possesses from other sources, such as ballistic, scientific, documentary, or eyewitness evidence.

An especially effective derivation of the leading question is the "dilemma", i.e., a question which presents as its answer a choice between two incriminating alternatives. The dilemma's roots, including its name, are found in Aristotelian and Socratic theories of

logic, persuasion, and debate. For centuries, it was a rudimentary trial technique taught to lawyers. Its successful application within the context of criminal interrogations is undeniable.

Whereas the simple leading question suggests a single incriminating response (e.g., "You were at the roadside checkpoint in Haditha, weren't you?"), the dilemma contains a choice among two suggested answers, either of which is incriminating (e.g., "Were you at the roadside checkpoint in Haditha to detonate the car bomb or simply to meet with the security officer who was on duty?"). Either way the subject answers the dilemma, the result is an incriminating admission against his own interest: he places himself at the scene of the explosion. Even though the second choice is benign as to its intent, the subject's presence at the scene of the terrorist act is established despite previous denials. The interrogation may now focus upon breaking down details of the subject's reasons for being there and the likely exposure of contradictions or prior inconsistent statements toward an admission of complicity in the terrorist act.

c) Find an argument which appeals to the emotions and personal vulnerabilities of the subject.

There are certain psychological tactics which prey upon the subject's personal frailties. You'll recall the discussion at the outset wherein a delineation was made between "emotional" versus "non-emotional" offenders. Tactics described herein, which otherwise might be deemed harsh, assume legitimacy in the context of attacking the emotional vulnerabilities of cold-blooded and seemingly emotionless terrorists.

Through background information or the preliminary interview, a subject's vulnerabilities may be revealed. For example, patterns of past failures in education, profession, military, personal or family relationships may have been a contributing factor to the subject's attraction to the perceived power and allure of an Al Qaeda cell.

Once identified, that pattern of personal failures can be drawn to the subject's attention methodically, poignantly, and repeatedly over a period of hours or days. The result is an inexorable degradation of the subject's self esteem and self confidence. The interrogator offers a life-line by continuing to manifest respect toward the subject, even in the face of the subject's personal disgrace. But the life-line is conditional upon the subject's willingness to reciprocate with the "strength of character" to tell the truth about the issues under investigation. That delicate balance of proffered mutual respect becomes a desperate inducement to the disgraced subject to comply and thereby maintain the esteem of his interrogator. This technique has proven to be devastatingly effective, even among the most cocky and resistant subjects. Caution is to be exercised, as severe application may well render the subject suicidal.

Proxemics can be used to the interrogator's advantage. The closer the interrogator is to the subject, the more psychological pressure he will exert on the subject. Generally, we recognize four zones of "personal space." (United States Army Interrogation Training Manual, 1996).

1. Public Zone (over 12 ft): Intrusions into the public zone are barely noticed.

2. Social Zone (4-12 ft): This is the distance we stand from strangers. Intrusions into the social zone are noticed but tolerated.

3. Personal Zone (1 1/2 - 4 ft): This is the distance reserved for social functions, friends, or regular colleagues. Intrusions are- noticed but tolerated, uncomfortably.

4. Intimate zone (1/2 - 1 1/2 ft): This is the distance reserved for those who are emotionally close. For others, intrusion into this zone creates anxiety, is threatening, causes confusion, and affects clarity of thought.

"Territorial invasion" during interrogation can break down or unnerve the subject. There are three caveats. First, always conduct yourself professionally and respectfully toward the subject no matter how heinous the subject's conduct may be. Second, move in slowly, not abruptly. And third, use caution if the subject is aggressive or resistant. Normally, this tactic is reserved for the latter

stages of an interrogation, but don't be shy about invading the subject's personal space.

Similarly, isolation of the fundamentalist from colleagues after commencement of an interrogation serves a three fold purpose. First it prevents other subjects who have not yet been interrogated from learning the methodologies which await them. Second, it forces the subject to reflect in solitude upon the interrogator's persuasive arguments, thereby multiplying their cumulative effect. Third, and most importantly, isolation denies the subject any opportunity for peer validation which otherwise raises the risk of reinvigorating the subject's will to resist. Self-doubts which may take hours or days to induce in a subject may be immediately reversed by returning the subject to his group, its zealots, and their certain efforts to resurrect Al Qaeda's tenets within the mind of the weakened subject.

B. Nationalists

Many of the tactics discussed with regard to Islamic Fundamentalists are applicable to Nationalists. But there are differences which lie in the Nationalist's motives.

By definition, Nationalists are motivated by a resentment toward the presence of Western military forces in Muslim countries (Pape, 2005). They are often times naively manipulated by Fundamentalists into violence in the name of Jihad, but their real motive is preservation of national or cultural identity. Recent studies suggest that religion is not the most powerful factor in drawing suicide killers to Al Qaeda.

For example, Robert Pape, an associate professor at the University of Chicago and Director of the Chicago Project on Suicide Terrorism, after studying 315 completed suicide attacks by 462 suicide terrorists from 1980 to the beginning of 2004, theorizes "suicide terrorist attacks are not primarily an outgrowth of Islamic fundamentalism and are, almost always, part of an organized campaign to compel a modern democracy to withdraw military forces from territory that the terrorists consider home." (Pape, 2005).

Whereas the Fundamentalist needs no moral justification for homicide in the context of killing "non-believers," the Nationalist often does require reassurance that his conduct, while triggered by secular goals of driving out foreign territorial occupiers, was morally justified. Interrogators who recognize this difference may rationalize for a subject that the terrorist activity was morally justified not as random murder but as a means of national or cultural defense. That rationalization appeals to the Nationalist's pride and paves a moral pathway toward confession by expressing the interrogator's empathy, understanding, and appreciation of the "righteousness" of the Nationalist's underlying purpose. It is useful for the interrogator to point out the "sell-out" of the Nationalists by the Fundamentalists, specifically Osama Bin Laden and Abu Musab al-Zarqawi, who have preyed upon "good" intentions of national and cultural preservation and wasted their fellow Nationalists by turning them into expendable suicide bombers in service of radical Islam. (Zagorin & Duffy, 2005).

Accordingly, in searching for the argument most likely to appeal to the mentality, emotions, and beliefs of the Nationalists, consideration needs to be given to providing the subject with moral justification for his conduct. Such an approach is pointless with Fundamentalists, but it becomes essential to the successful interrogation of Nationalists.

C. Common Criminals

Despite the fact that their terrorist behavior is committed in the name of Jihad, "Common Criminals" are not much different from the criminal element encountered on domestic streets. They are motivated by ordinary criminal instincts such as greed, revenge, or a simple gang mentality. As a result, these individuals are vulnerable to the least sophisticated and most commonly used criminal interrogation techniques. While they may therefore be the easiest to break during interrogation, the bad news is that they may be the least likely to possess high value intelligence. Nevertheless, interrogation of these subjects must be undertaken. Their commitment is not to jihad, idealism, religion, culture, or nation; it is to themselves. Fear of consequences is their vulnerability. Self

preservation is their goal. They will confess if they believe it will serve their own personal best interests to do so.

In addition to many of the methodologies described above, particularly the factual analysis approach, Common Criminals are likely to confess in response to a sympathetic approach in which the interrogator attempts to minimize the offenses and shift blame for the event upon others. (Senese, 2005).

The interrogator may treat the terrorist event as something less than it actually appears to be, either by interjecting extenuating circumstances, lessening its significance, or mitigating its seriousness. As early as 1907, Hans Gross in his seminal work on the art of interrogation, *Criminal Investigation*, observed, "It is merciless, or rather psychologically wrong, to expect anyone boldly and directly to confess his crime....We must smooth the way, render the task easy."

VI. Conclusion

The interrogation of extremist terrorist suspects is a challenge beyond our conventional experience. The demands are unique, because the perceptions, sensibilities, and moral compass of the offenders are far removed from Western society.

Despite those challenges and broad ideological gulfs, the fact remains that there are fundamental human characteristics common to us all. Those characteristics include emotional and intellectual vulnerabilities, which are to be exploited to the fullest, with due regard for basic human rights, during the interrogation of terrorists who would destroy the lives and freedoms of honest and innocent people around the world.

Against that background, the interrogator's professionalism need not be compromised -- just sharpened. One caveat is to never engage in a tactic which degrades the interrogator's own self respect in the eyes of the subject. To do so would impede the progress of the interrogation and lower the interrogator to the terrorist's level. Beyond that, we make no apologies for pushing the envelope in developing intelligence through assertive interrogation techniques toward our international defense against terrorism.

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The Role of Subconscious Effects During the Treatment of Posttraumatic Stress Disorder with Alcohol Dependencies in Military Personnel

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Abstract

In patients with Posttraumatic Stress Disorder (PTSD), alcohol dependencies develop differently than in other social groups and represent a more complex disease. Using experimental psychosemantics methods, researchers studied 33 military personnel with various habits of alcohol usage who had returned from combat areas and were receiving base therapy. Additional informed consent forms were signed by 15 patients, forming the main group, each patient of which received 10 sessions of psychosemantic correction using sub threshold stimuli; the remaining 18 patients formed the control group. Treatment results were evaluated after three months and showed that the treatment of PTSD and alcohol dependencies had been more effective in patients in the main group.

Key words: PSTD, alcohol dependency, personality disorder, psychosemantics, psychoprobing.

Posttraumatic Stress Disorder (PTSD) has been a frequent problem in persons who have lived through extreme situations, especially in military personnel returning from combat areas (American Psychiatric Association, 1994). The incidence of PTSD in such subjects has been described in the literature as 10% to 95% (among heavy sufferers) and was directly dependent on the intensity of the stress. PTSD, a long term disease, is hard to treat. Many decades after World War II, 30% to 56% of former prisoners continued to suffer from symptoms of PTSD (Brahmsen, 1995).

According to several authors (Davidson, 1992; Davidson & Foa, 1993; Davidson, Hughes, Blazer, & George, 1991; Foa & Davidson, 1995), the prevalence of PTSD in persons who have spent time in war zones was between 3.6% and 75%. The corresponding epidemiological studies in the USA of veterans from the Vietnam War showed PTSD in 30% of the research subjects 15-20 years after the end of the war. PTSD was found in 15% of male veterans and in 8.5% of female veterans (Kulka et al., 1990). In participants who fought in the Afghan and Chechen conflicts, PTSD was observed in 15-25% of the former military personnel (Soloviev, 2000; Tababrina, 2001).

The most frequently exhibited outcomes of the Vietnamese, Afghani, and Chechen syndrome were the persuasive memories from the constant experience of being in a traumatic situation (fights, explosions, shots). These were exhibited not only during the night in dreams but sometimes during the day while under the influence of the startling mechanism: frightful dreams, desire to avoid past memories, feeling of catalepsy, excitability, and increased vigilance (Clinical Evidence, 2003).

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Traumatic stress is a special form of the general stress reaction, the normal reaction to abnormal circumstances. PTSD arose as the delayed and/or prolonged reaction to stressful events when radical aggression or threat of death (potential risk of physical destruction) was accompanied by intense emotional pressure. Such stress overloaded the psychological, physiological, adaptable abilities of the person and destroyed the individual's protection and therefore the person became traumatized. Thus, the stereotypes of personality and behavior changed. The situation in which a person was an active participant deeply experiencing the event changed the individual's personality.

Experts have distinguished a few behavioral strategies of people who have gone through mental trauma. Originally, during biological evolution, two basic reactions to stress—fight and flight—were generated. They were effective in some cases when it was necessary to fight off, for example, an aggressor (struggle) or to withdraw in time from insuperable dangers (flight). In military personnel who have suffered traumatic stress, such reactions could become fixated. Then, the person tried either to prevent hypothetical danger (and became easily excited or highly anxious) or to escape it (then there were super carefulness, irrational fears, suspiciousness, etc.).

In addition to the reaction of fight-flight, another type of behavioral reaction existed—freezing. It was a protective process of emotional discharge, when the person, powerless to undertake something, lost sensitivity and rejected the sensation of threat.

There were also other behavioral strategies. People who have experienced threats to their lives sometimes accept the internal decision to become a source of danger to their environment. A special type of personality appeared which was a result of combat trauma and also was associated with aversion of such people by society in the post-war period. Here the major factor belonged to the aggressive personality without which it was impossible to overcome difficulties and the dangers arising during the war.

Fixated “battle reflexes” did not seem to be unusual while the person was in the war zone. However, coming back home, if the person continued to behave as if still in the war, and could not modify such behavior, the person was not accepted by society. The anomaly experienced by the subject appeared senseless. The subject had the complicated challenge of forming meanings in unfamiliar social space, the necessity of reassessing tragic experiences, correcting all systems of perception and self perception.

Veterans during the post-war period exhibited two syndromes, as a rule, and were found to feel guilty about comrades who fell in battle while they remained alive, and to feel like heroes betrayed by their country, which caused increased self-alienation and ideo-logical disappointment.

Asthenic types, accentuated by a back-ground of aggressive, depressive experiences during peace time, were subjectively overestimated and added to the weight of everyday stress situations. Such persons had feelings of hopelessness and inability to overcome created crisis; they were convinced they could not solve their problems.

The subjects, who were keeping real or potential dominant control, were inclined to various self-destructive (auto-aggressive) behaviors, such as alcohol or drug abuse, ignoring serious illnesses, excessive work, overeating, smoking, or a passion for risky sports. Tendency to use alcohol, in the opinion of some authors, reached 76.3% in military personnel with PTSD (Chernov, 2003).

Aspiring to escape reality, these people tried to change their mental state artificially. During the use of alcohol, emotional discomfort was eliminated, anxiety decreased, self-esteem improved. The illusion of the restoration of tranquility and compensation of an inferiority complex was achieved. Such subjects became helpless before their predilection; mental dependency and then physical dependency developed.

Alcohol dependencies in war veterans had important features which were not described in alcoholism in other social groups. For war veterans, the motivations for the consumption of alcohol were to achieve calmness, to remove the acute memory of painful experiences, to block emotional stress through suffering, and to actualize psychological trauma.

Other features were brutal forms of behavior (violence, cruelty) and heavy forms of intoxication; fast pro-gradient of alcoholic disease. A wide range of alcohol dependent behaviors were observed, from addiction to brutal-aggressive and auto-aggressive behavior, including the difficulty of treating alcohol dependency. Even without the use of alcohol in veterans, the psycho-organic syndrome developed more quickly. These represented additional factors in the reciprocal aggravation of both diseases (Musienko & Baranenko, 2003; Ouimette, Moos, & Finney, 2000; Pogosov & Smirnova, 2001).

Authors converged in opinion that alcohol dependency in PTSD was a more complex disease and exhibited deeper disturbances than usual dependencies. They considered the starting factor of the disease to be over activation of the stress-realizing systems, leading to damaging effects that fixed in the memory and transformed into pathological programs of behavior. It was not enough to treat such a disease as the usual alcohol dependency. A number of additional therapeutic actions were required, which were previously mentioned: reconciliation with the past, deleting the effects of the past; training to work with their present modality, reconstruction of the future.

In spite of the fact that in all patients with PSTD there were enough common symptoms to classify it as a separate disease, the treatment should be individually designed. Presently, effective treatment of PTSD has been convincingly proven during randomized control studies using methods of cognitive-behavioral therapy, mental desensitization by means of eye movements and repeated experiences of the psychological traumatic events, and usage of parocsetin or sertraline (Clinical Evidence, 2003).

Despite all this, it has been shown in the literature that medicine could induce undesirable side effects. Pitman, Altman, and Greenwald (1991) described six cases of aggravation of depression, renewal of the abuse of alcohol, and relapse of panic episodes.

A number of publications described the difficulties in selecting treatments for the patient and the complexity of predicting the results of therapy (Solomon & Davidson, 1997; Solomon, Gerrity, & Muff, 1992). It was also known that benzodiazepine type tranquilizers used in the treatment of PTSD were capable of breaking the processes of training and memory, suppressing the active adaptation of an organism (Larikova, Chervyakova & Salnikov, 2002; Petrov, 1997; Voloshin, 2004; Voronina, 1992).

Therefore, the exclusively important role in the treatment of PTSD aggravated by alcoholic dependencies was allotted to the psycho-correction of the personality disorder (Greenson, 1972). The strategy of psychotherapy should include not only procedures of suggestion directed by general psycho-emotional relaxation and development of indifference and disgust for alcohol but also procedures to influence the roots of mental and behavioral disorders (Perls, 1969), such as reconciliation with the past, deleting effects of the past, training to work with the modality of the present, and reconstruction of the future (Melges, 1982).

Recently in applied psychology, the methods of experimental psychosemantics have been significantly advanced (Smirnov, Beznosjuk, & Zhuravlyov, 2005). These methods allowed, at the level of the sub-conscious mind, estimation of the importance of semantic elements of human mentality, built a hierarchy of basic motives of the behavior, and allowed the precise diagnosis of changes in personality.

It has been shown that procedures based on the analysis of the speed of complex

visual-motor reaction[3] in response to presentations of various semantic stimuli in a sub threshold range allowed the investigation of the semantic nucleus of the human personality (Smirnov, Beznosjuk, & Zhuravlyov, 2005) and revealed initiating factors for PTSD and the dominating pathological alcohol motive.

According to published sources, many authors have shown repeatedly in experiments the ability of conditional reflexes to activate the decision-making process and the ability to change the connections between semantic fields using sub sensory stimuli (Kostandov & Arzumanov, 1978). These circumstances have encouraged the researchers to investigate the ability of the subconscious and its effects in correction of pathological processes of a patient's psyche with PTSD suffering from alcohol dependencies.

Materials and Methods

The authors investigated 33 military personnel who had taken alcohol. Their average age was 23.5 ± 1.1 years. All of them received medical treatment either for trauma (15 persons with trauma to the lower and upper extremities, four with no penetrating fragmental wounds of the skull but with concussion syndrome), surgical treatment (three persons with penetrating wounds of the thorax, six with wounds of the abdominal cavity), and neurological treatment (five persons with wounds of the peripheral nerves of the upper extremities) in corresponding departments of the military hospital. All had the accompanying diagnosis of PTSD. PTSD had the following clinical symptoms: unmotivated vigilance, general apprehension, attacks of fury, aggression, explosive reactions, dull emotions, memory disorders, concentration of attention disorder, depression, persuasive uninvited negative memories, delusional suffering, sleeplessness, suicidal thoughts, survivor's guilt, and alcohol abuse.

All patients studied took alcohol in attempts to alter posttraumatic symptoms; 14 patients ingested alcohol a few times per week (3 to 5 drinks), 11 drank at least once per week to a degree of heavy intoxication, and

[3]When a person responds to something she/he sees, the total reaction time can be decomposed into a sequence of components.

1. Mental Processing Time. This is the time it takes for the responder to perceive that a signal has occurred and to decide upon a response. For example, it is the time required for a patient to detect the row of numbers on the computer screen and make decision to press a button. Mental processing time is itself a composite of four sub-stages:

a. Sensation: the time it takes to detect the sensory input from an object. This stage likely does not result in conscious awareness.

b. Perception/recognition: the time needed to recognize the meaning of the sensation. This requires the application of information from memory to interpret the sensory input. In some cases, "automatic response," this stage is very fast (simple reaction). In others, "controlled response" (complex reaction) it may take considerable time.

c. Situational awareness: the time needed to recognize the scene objects and layout, extract its meaning and possibility extrapolate into the future.

d. Response selection and programming: the time necessary to decide which if any response to make and to mentally program the movement. ("I should or should not press the button"), electrophysiological studies show that most people exhibit preparatory muscles potentials prior to the actual movement. In other words, the decision to respond occurs appreciably faster than any recordable response can be observed or measured.

These four stages are usually lumped together as "perception time," a misnomer since response selection is decision, not perception.

2. Movement Time. Once a response is selected, the responder must perform the required muscle movement. For example, it takes time to press the button.

eight patients also drank heavily for 2-3 days in a row. Nineteen patients (58%) had been clinically diagnosed with the syndrome of alcoholic dependency stage1 by a group of psychiatrists (specialists in substance abuse) according to established methodology[4] published by Entin (1990) and by Churkin and Martjushov (2000). Fourteen patients (42%) had not been diagnosed as being alcohol dependent by the same group of psychiatrists

All patients received the same base therapy: a single dose of Paxil, 20 mg in the morning during breakfast; Alprazolam 1 mg once a day in the evening for a month. All of the patients were also in individual and group psychotherapy in frameworks of lifeline analysis three times per week for 12 sessions.

The hospital's Ethics Committee approved the research paradigm. Informed consent was obtained from all of the patients for the application of psychosemantic methods for diagnosis, and additional consent forms were signed by 15 patients chosen randomly for correction of their condition. These patients were assigned to the main group and the remaining 18 were assigned to the control group.

For the psychosemantic diagnosis of the semantic nucleus of the personality and discovery of factors for PTSD and for dominating pathological motives for alcohol abuse, the researchers used computer psychosemantic analysis, which was based on the principles of psychoprobing (patent #2218867). It represented the mathematical analysis of the event related reactions tested in response to a presentation of consciously unrecognizable test stimuli to the subject being tested.

Test stimuli were specially picked and grouped as semantically meaningful words, short phrases, and/or images. Then, by disguising the stimuli, the words were presented consciously unrecognizable. Such an approach overcame censorship of the conscious mind to determine which test stimuli were personally significant for the subject being tested and to carry out the diagnostics of the motivational realm of the individual being tested (Smirnov, Beznosjuk, & Zhuravlyov, 2005). The event related registered reaction was a complex visual-motor reaction, which was simple, non-invasive, and highly reliable.

All semantic test stimuli shown were referred to as the semantic base (SB). In the SB program, stimuli of similar semantic values were incorporated into groups (topics): alcohol, fear, etc. The sequence of presentation of the stimuli from the SB was set so that each group was equally spread throughout the procedure. For the test, the researchers set not only the sequence of presentation of the stimuli but also the mode of presentation in combination to the type of expected reaction.

The visual stimuli bearing semantic meaning were shown on the computer screen between 16 and 40 msec; this was not enough time for the subject's conscious recognition, though the visual analyzer (eyes – visual cortex system) registered it. Right after the semantic stimuli appeared on the computer screen for 500 msec, a string of numbers (masker) whose purpose was to interfere with

[4]Clinical diagnoses are based on questioning the patient, his friends and relatives. Following are 6 symptoms which Psychiatrist, specialized in drug and alcohol addictions, uses to diagnose stage 1 alcohol addiction:
1. Usage of alcohol twice a week in amount of 250-500 ml.
2. Need for alcohol in the dose to become drunk and achieve a state of euphoria or a treatment for hang-over.
3. High tolerance to alcohol with the loss of vomiting defense reaction to alcohol.
4. Increase in the length of being drunk up to 8 hours with periods of amnesia, state of mind changes from euphoria to aggression.
5. Loss of control for quantity of alcohol ingestion and usage in appropriate situations (for example: during driving).
6. Increase in amount of alcohol usage with decrease of other human needs. Appearance of pathological traits, the person becomes boastful, callous, troublesome, deceitful, weak will, impudent.

the formation of an image trace of the semantic words/stimuli on the retina, appeared. The examinees pressed the push button when they saw a string of numbers. The time of the visual-motor reaction for the combined stimuli was registered as "word + numbers." The meaning of the word to the subconscious mind influenced this time. The reaction was measured as the time from the moment the subconscious stimulus was presented until the moment the button was pressed. The average time of reaction in each semantic group reflected the subconscious (true) attitude of the examinee to the given topic.

Besides semantic stimuli, the examinee was shown strings of random numbers, which did not bear any meaning. The average time of this reaction for these stimuli was calculated and used for comparison for further analysis with the average time of reaction for the various semantic topics.

The regime for psychosemantic corrections in the patient did not differ from a regime of psychosemantic diagnosis. The same operational activity tasks with the computer were used, the instructions "not to press" a button for some words and "to press" for others, the same system of punishments for mistakes (a loud voice command transmitted through the headphones when a mistake was made). The only differences consisted in the algorithm of the presentation of the stimuli.

The correction procedure was introduced in two different ways. The first was directed to cancel the priority of the dominating pathological motive. The cancellation was achieved using sub threshold stimuli, superimposing (presenting together or one after another) the concepts, uncovered during testing, with subjective positive value (for example, "vodka" with one's own name) with the concept and with subjective negative values ("fear of death", "cobra"). The results of such influence were to attain reflexive leveling of the significance of these concepts (reduction of a positive degree of one concept and reduction of a negative degree of another). This approach was taken from techniques of superimposition, or collapse of anchors, from neurolinguistic programming (NLP) (Bandler & Grinder, 1979).

The second correctional approach consisted of the presentation in sub threshold mode of short, precise, individual plots of suggestion (word combinations) that defined a desirable direction and the character of behavioral change of the person in the present and the future. Phrases included the following, as well as others: all unpleasant experiences have remained behind as in one's read and forgotten book; forgive everybody and God will forgive you; alcohol craving has completely disappeared; all alcohols are indifferent and disgusting; all alcohols have an awful smell and disgusting taste; all thought about alcohol causes disgust; pleasure only in a sober life; you are the strongest, quietest, confident man; and you love life.

Each patient in the main group had ten 60 to 90 minute sessions of psychosemantic correction. The effectiveness of the PTSD treatment and alcoholic dependencies in all patients was evaluated by observation of the dynamic changes in the clinical picture of the disease. The changes of motivation were evaluated using the semantic differential technique (Osgood, Susi, & Tannenbaum, 1957) before treatment and three months after the treatment.

The semantic differential technique in practical psycho-diagnostics was used to study an individual's system of subjective values for various objects. This was done by uncovering unconscious associative connections between the objects. The following ideas were used as the psycho-semantic objects: life, death, alcohol, fear, self-image present, and self-image in the future. During the treatment, changes in distances from self-image present to death, life, alcohol, and fear and from self-image in the future to death, life, alcohol, and fear in the subconscious mind of the examinees were measured.

For calculation of the statistical data the STATISTICA program (StaSoft) was used. Student's distribution calculations were applied (Spiegel, 1992). The hypotheses were accepted at 95% significance. The controlled variable in the study was having basic treatment provided to both groups, control and main. The independent variable was having psychosemantic correction applied to the main group. Dependent variables were

psychosemantic object ideas: fear, fear of death, fear of captivity, fear of injury, alcohol, vodka. To validate results of psychosemantic analysis and the role of psychosemantic correction of PTSD patients, clinical analysis and the method of Semantic Differential by Osgood et al. (1957) were used.

Results

Investigation of the patients before the treatment.

As a result of the diagnosis of the individual psychosemantic spaces[5] at a subconscious level in 14 patients (93 %) in the main group and 16 of patients (89 %) in the control group, the expressed subconscious reactions to the word "fear" (Table 1) were registered.

Table 1. Differences in Subconscious Reactions to Tested Words Before Treatment (p <0.05)

Testing Words	Main Group		Control Group		Total	
	#	%	#	%	#	%
Topic Fear						
Fear	14	93	16	89	30	91
Fear of death	11	73	13	72	24	73
Fear of captivity	7	47	10	56	17	52
Fear of injury	6	40	8	44	14	42
Topic Alcohol						
Alcohol	10	67	12	66	22	67
Vodka	9	60	15	83	24	73
Total	15	100	18	100	33	100

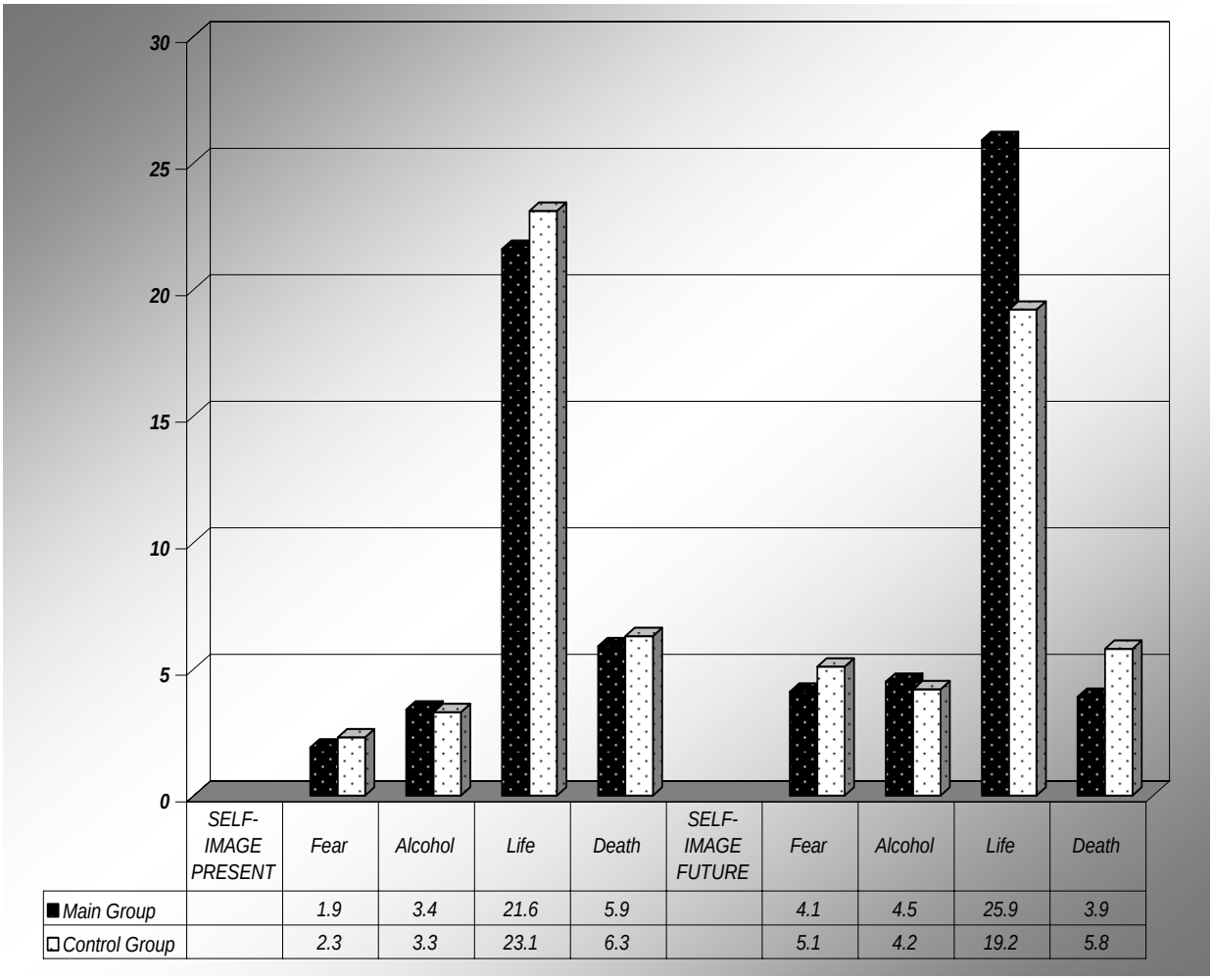
When fear was investigated in more detail, it was found that 24 (73 %) patients (11 from the main group and 13 from the control group) showed significant response (p < .05) to the word combination “fear of death,” which, most likely, was the consequence of the transferred battle trauma with fear of death, underlying the current psychopathological dependent behavior. Other kinds of fear were registered less frequently (p < .05): fear of captivity and fear of wound composed 52 % of the main group and 42 % of the control group (Table 1).

In both groups of patients, significant differences in the average speed of complex visual-motor reactions (p < .05) were observed when the words "alcohol" and a group of indifferent words were tested and compared (Table 1).

To validate the data obtained from subconscious semantic response measurements, the diagnosis of the individual systems of the subjective values of various topics (fear, alcohol, life, death, self-image) for patients using the method of semantic differential by Osgood et al. (1957) was calculated and presented in Figure 1.

The closeness of the distances in the semantic space between the points of

[5]Psychosemantic space is the reconstruction of the individual system of meanings, through which the subject perceives the world, other people, him or her self, and where its genesis, structure and functioning could be studied. The description of the internal image of the world of the single subject, specific character of the system of personal values, description of stereotypes of interpersonal perception and behavior.



	SELF-IMAGE PRESENT	Fear	Alcohol	Life	Death	SELF-IMAGE FUTURE	Fear	Alcohol	Life	Death
Main Group		1.9	3.4	21.6	5.9		4.1	4.5	25.9	3.9
Control Group		2.3	3.3	23.1	6.3		5.1	4.2	19.2	5.8

Figure 1. The average distances shown between the objects of the psychosemantic spaces for patient's self-image in present and in the future of the main and control groups before treatment using semantic differential.

concepts of self-image presently and fear (1.9 in the main group and 2.3 in the control group), self-image in the future and death (3.9 in the main group and 5.8 in the control group) testified to the high apprehension levels in the patients, with the presence of fear and the sensation of no positive vision of the future (Figure 1).

The statistical analysis of both the parameters of the subconscious diagnosis and semantic differential by Osgood et al. (1957) have shown the absence of significant statistical differences ($p > .05$) between the main and control groups. These suggested that both groups were from the same population and, therefore, the division of patients into these groups was arbitrary.

Investigation of the patients 3 months after treatment.

After the treatment, the patients of both groups were subjected to the same diagnostic processes as before the treatment. The results of psycho-probing of the individual psychosemantic spaces using subconscious stimuli have been shown in Table 2.

Table 2. Differences in Subconscious Reactions to Tested Words after Treatment

Testing Words	Main Group		Control Group		Total	
	#	%	#	%	#	%
Topic Fear						
Fear*	3	20	6	33	9	27
Fear of death*	2	13	5	28	7	21
Fear of captivity	3	20	4	22	7	21
Fear of injury	3	20	4	22	7	21
Topic Alcohol						
Alcohol*	2	13	5	28	2	6
Vodka*	3	20	6	33	9	27
Total	15	100	18	100	33	100

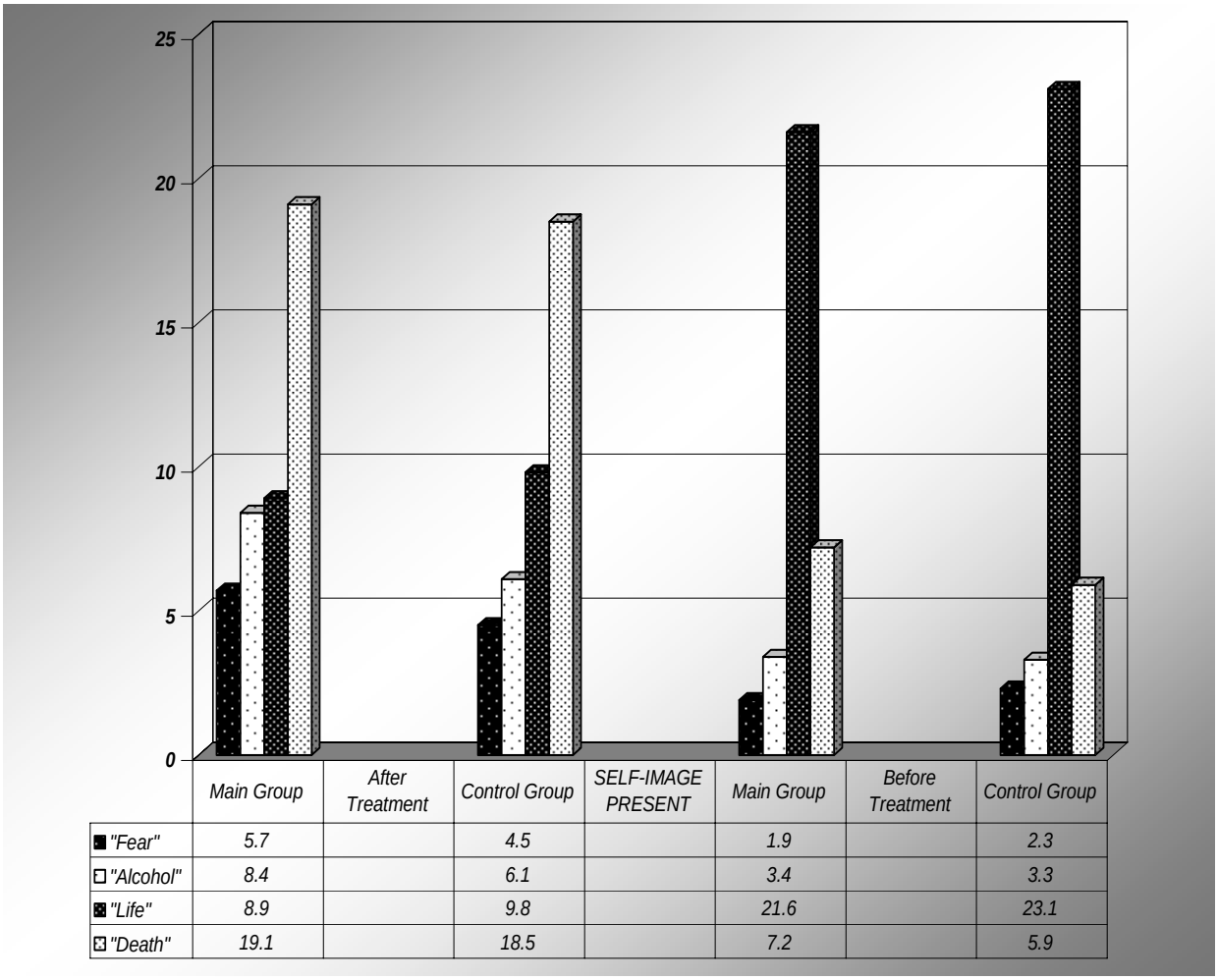
Note: Significant differences between the main and control groups are marked * p<0.05.

In the main group, the subconscious reactions to the testing word "fear" were registered only in 3 (20%) [$t(28) = 2.106$, $p < .05$] and to “fear of death” only in 2 (13 %) [$t(22) = 2.674$, $p < .05$] patients, which was significantly less than in the control group (Table 2). In the presentation of the words "alcohol" and "vodka," significant reactions in the main group were observed much less often (13% and 20% respectively) than in the control group (28% and 33% respectively) [“alcohol” $t(20) = 2.700$, $p < .05$; “vodka” $t(22) = 2.100$, $p < .05$] (Table 2). In other words, in these categories significant changes were not observed. As treatments in groups of patients differed only by the presence of an additional method of treatment in the main group, results of the significant improvement in the main group could only be attributed to the subconscious influences of the additional treatment.

The results of the semantic differential test of the main group have been presented in Figures 2 and 3, showing changes of the average semantic distances in the subconscious minds of the patients for the concepts fear, alcohol, life, and death before and after the treatment. Note the positive dynamics of all parameters after treatment in both groups. The information in Figure 2 reflected the current self evaluation of the patient (the beginning of coordinates corresponded to a point self-image presently).

The data in Figure 2 showed an increase in semantic distance from the point of self-image (the beginning of coordinates) to concepts of fear, alcohol, and death after treatment ($p < .05$). In comparison with the control group, significant differences were observed only for the concepts of fear and alcohol, which were increased ($p < .05$). The technique of imposing subconscious stimuli (anchoring) used in the main group definitely had an effect on deleting effects of the past and reconstruction of the present.

Figure 3 presented the semantic distances after the treatment from the point of self-image in the future (the beginning of coordinates). There were also reliably significant increases in the semantic distance for the concepts of fear, alcohol, and death in comparison with the state of mind before treatment ($p < .05$). In comparison with the control group, the significant differences concerning distances for life decreased ($p < .05$) and the distance for death increased ($p < .05$). Such results testified to patients' greater hope for the future and the effectiveness of positive treatment by suggestion directed to reconstruction of the future presented on a subconscious level. Thus, the semantic differential test, investigating the psychosemantic spaces of the patients, confirmed better results in the main group on reconstruction of modalities of the past, present, and future in comparison with the control group ($p < .05$).



	Main Group	After Treatment	Control Group	SELF-IMAGE PRESENT	Main Group	Before Treatment	Control Group
"Fear"	5.7		4.5		1.9		2.3
"Alcohol"	8.4		6.1		3.4		3.3
"Life"	8.9		9.8		21.6		23.1
"Death"	19.1		18.5		7.2		5.9

Figure 2. Results of the semantic differential test for patient's self-image in present before and after treatment. The average distances shown between the objects of the psychosemantic spaces for patients of the main and control groups

Clinical improvements were observed in both the main and control groups. In the control group, an alcoholic dependency continued in two patients, who showed hard drinking patterns of two to three days per month. Incidental controllable dosages of drinking alcohol and related behaviors were observed in five patients in the control group, and one patient had no improvement and was diagnosed as alcohol dependency stage 1. The other 10 patients in the control group showed indifference to alcohol (Table 3).

In the main group, the periodic consumption of alcohol was revealed in two patients, who had drunk twice for three months in a controlled dose up to 150 ml (Table 3). Reactions in the other 13 patients were expressed aversion to alcohol. Persuasive memoirs, dreadful dreams, feelings of catalepsy, excitability, and high vigilance had stopped. Real optimistic plans for the future appeared, including intentions to continue studies and complete their education.

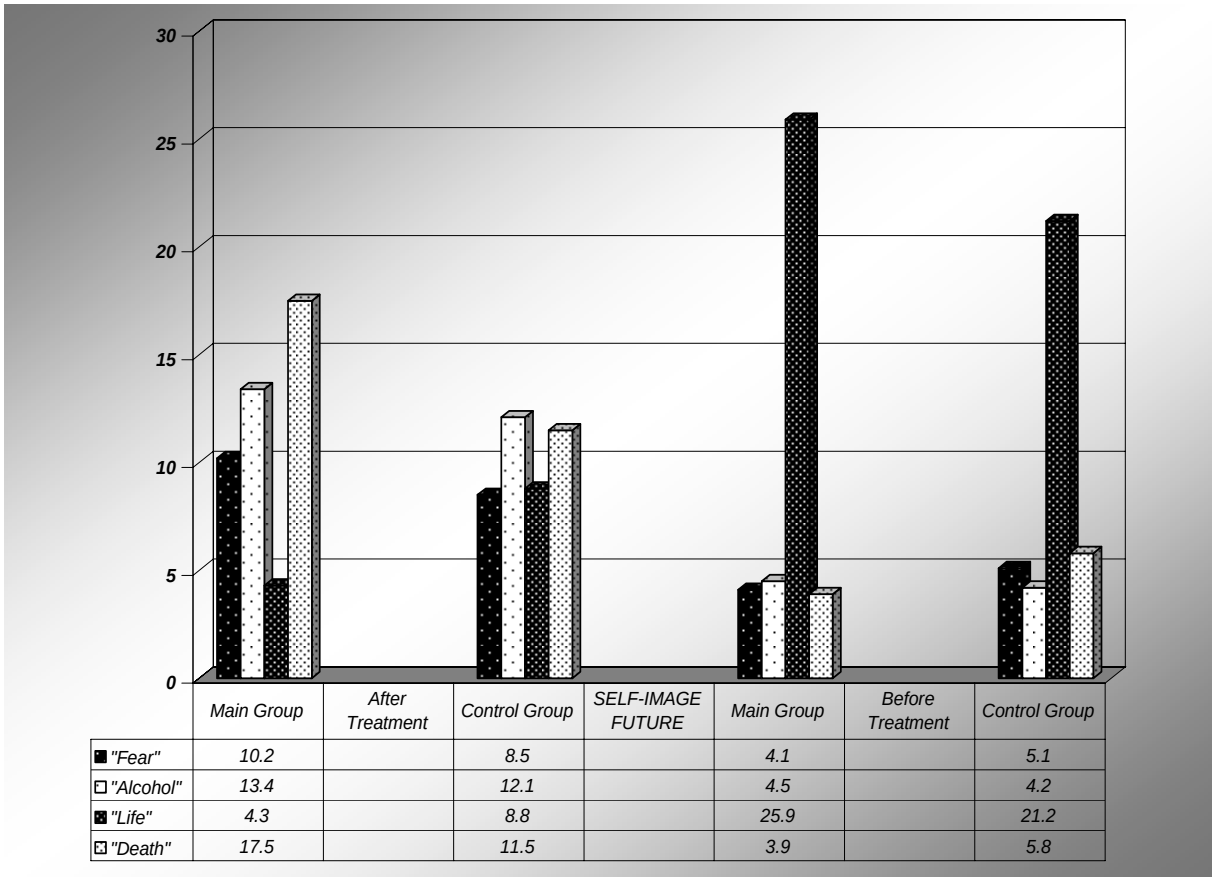


Figure 3. Results of the semantic differential test for patient's self-image about future before and after treatment. The average distances shown between the objects of the psychosemantic spaces for patients of the main and control groups

Table 3. Dynamics of the Alcohol Dependencies Changes for Main and Control Groups

Groups	Stopped using alcohol	Using alcohol once per week (social drinking, controlled dose)	Alcoholic stage 1 diagnosis	Hard drinking pattern
Control group before treatment	0	8	6	4
Control group after treatment	10	5	1	2
Main group before treatment	0	6	5	4
Main group after treatment	13	2	0	0

During work with these patients, the researchers noted that a connection could be traced between the level of comprehension of the meaning of life and the level of socio-psychological adaptability. Those who learned to find purpose in life or those individuals, who considered that persons were capable of controlling their lives, freely made decisions and acted on them, successfully overcoming the profound consequences of PTSD and alcohol dependency.

Discussion

The results of treatment in both groups were positive; however, the best results of the treatment were observed in the main group ($p < .05$), providing evidence that PTSD is a disorder affecting many mental and physiological levels of the temporal prospective. Therefore, to increase efficiency, correctional work should be based on the profound analysis of mental condition of the patient to influence the roots of mental and behavioral disorders, such as reconciliation with the past, deleting effects of the past, training to work with a modality of the present, and reconstruction of the future.

The method of the analysis of the changes of the complex visual-motor reactions to subconscious stimuli allows understanding of the real mechanism of formation of the pathological need for alcohol, the changes of the hierarchy of basic motives, underlying the diseases. The treatment, using the subconscious stimuli, allows artificial changes to the internal picture of the patient's world and the importance of semantic elements of the individual's psyche in all temporal modalities (Table 4).

Table 4. Method of Subconscious Influence Works in All Temporal Modalities

Modalities	Earlier applied methods	Method of subconscious influence
Modality of the past	Psychoanalysis	Erasing effects of the past
Present modality	Gestalt therapy	Changes of hierarchy of the basic motives, assigning priority motivation to achieve a socially acceptable goal
Modality of the future	Psychotherapy by Melges (1982)	Individual fables

The method allows not only precise diagnosis of the changes of the patient's personality but also treatment of them both pathogenically and etiologically; for example, canceling the priority of the dominating pathological motive of alcohol and appointing a priority of motivation of achievement of a socially comprehensible goal.

Conclusions

The researchers suggested a technique for the diagnosis and treatment of patients with PTSD and alcohol dependencies, which was capable of studying the psychosemantic nucleus of the personality to investigate mechanisms of pathological mental processes and to carry out pathogenic and etiological treatment of patients in all temporal modalities necessary for effective treatment of such conditions. The results of psycho-probing of the individual psychosemantic spaces, after treatment with the subconscious stimuli, in the main group showed an authentic reduction of the quantity of the subconscious reactions to the words "fear," "fear of death," "alcohol," and "vodka" in comparison with the control group.

The semantic differential test studying the changes of the psychosemantic spaces of the patients showed the best results in the main group on reconstruction of modalities of the past, the present, and the future in comparison with the control group.

The clinical diagnosis after treatment in the main group with only periodic consumption of alcohol was revealed in only two patients and 13 patients exhibited an expressed aversive reaction to alcohol, whereas eight patients in the control group showed various degrees of alcohol dependencies and 10 patients expressed indifference to alcohol.

Thus, the method of analysis of the changes of the complex visual-motor reactions to the subconscious stimuli can be used in complex treatment therapy of alcohol dependencies in military personnel with PTSD.

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An Introduction to the APA's Panel on International Developments in Polygraphy

Frank Horvath, Ph.D.

In 2005, at the APA seminar in San Antonio, the first-ever APA "International" Panel was organized. The purpose of the Panel was to serve as a forum for discussion of contemporary events in polygraphy and credibility assessment in countries outside of the U.S. The advent of the internet, changes in social, political and legal areas, the menace of terrorism and the growing problem of trans-national crime have raised the need for an awareness of developments in the field of polygraphy. The panel was the APA's initial step in that direction.

The International Panel presentations, hopefully, will be a continuing feature of the annual seminar. Generally the organization will be as follows: Each Panel will consist of three or four presenters, each from a different country. Panelists will make a 20-30 minute presentation, after opening remarks from the moderator. After the featured "country" presentations, the moderator will summarize and integrate the important points. That will be followed by a question and answer session, with questions posed by audience members to the panelists. This organization is intended to promote greater interest in international issues and a better understanding of how practices and policies in other countries are related to those in the U.S.

In addition to a presentation at the seminar, each panelist also agrees to prepare a more detailed paper, in a relatively consistent way that will be submitted to the APA's Editor for publication consideration. Examples of items that are to be covered in each of the papers include: Who is credited with the initial development of polygraph testing in the country? When? Who uses polygraph testing? How many examiners are there and how are they selected and trained? What kind of instrumentation is used? What are the dominant procedures ("techniques") in use? What are the legal issues of most concern? What is the public perception of polygraphy?

In the last issue of *Polygraph,* a paper by Frederic Dehon from the second International Panel was published. In this issue we are pleased to publish another paper from that International Panel in 2006. In this paper, Dr. Jan Widacki describes polygraphy in Poland.

About the author:

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He attended the Jagellonian University (School of Law and Administration) where he earned an M.LL (1969)., a Doctorate of Law (Dr., 1972) and a habilited Doctoral degree (Dr. hab.,1977). His academic specialty is in criminology and criminalistics. He has authored or co-authored more than 20 books and 200 scholarly papers, some of which deal directly with Polygraphy. [Please see Widacki, J. and Horvath, F. (1978). An experimental investigation of the relative validity and utility of the polygraph technique and three other common methods of criminal identification. *Journal of Forensic Sciences*, 23, 3, 596-601.]

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Polygraph Examinations in Poland: An Historical Outline

Jan Widacki

It might be mentioned as a curious, interesting detail that one of the discoverers of the Galvanic Skin Response (GSR), was a Russian physiologist, Tarchanoff, who spent his last years as an emigrant in Poland. It might also be noted that his Polish student collaborator and friend, Napoleon Cybulski, known for his work on catecholamines, was a professor and rector of the Jagiellonian University (1).

Before the Second World War, a polygraph instrument was in the possession of the Institute of Mental Hygiene in Warsaw (2). It was employed for psychological experiments and research but not for criminal investigation, or at least no mention of such an application has survived. Nevertheless, as early as the pre-war period the notion of polygraph examinations and their usefulness in criminal investigations was already known in Poland. For instance, in a study published in 1939, W.K. Zielinska presented the essence of research into polygraph examinations and described the experiments carried out by Benussi and Larson (3). She also quoted an eminent European criminologist, Ernst Seelig, who claimed in his commentary on Larson's work that it would be a mistake to overlook the opportunity to use the polygraph for criminal investigation purposes.

In the early postwar period, the subject of polygraph examinations received only passing mention in current psychological works (4). In the criminological literature comments were mostly critical and revealed the authors' limited knowledge of the subject (5).

The first application of the polygraph in a criminal case in Poland took place in 1963 during the course of a murder inquiry (Voivodship Court in Olsztyn, No IV 94/63). This examination was carried out by Professor Pawel Horoszowski, who at that time was Head of the Department of Criminalistics at the Warsaw University. He used a Stoelting polygraph he had purchased in the United States. Professor Horoszowski coined the term wariograf which has since been used in Polish literature as synonymous with poligraf. The results of his examination constituted part of the evidence in the Voievodship Court in Olsztyn. In the second instance (that is, on appeal), the Supreme Court did not decide that the method was unacceptable. The court did not forbid the use of polygraph examinations in criminal proceedings but neither did it exclude treating the results of such tests as evidence (decision of the Supreme Court on 11 Nov 1964, No. 111K 177/64).

Since that case polygraph examinations have been used occasionally in criminal investigations. In the meantime, a wide-reaching debate has arisen in legal and criminological journals on the admissibility of polygraph examination results in criminal proceedings. In the 1960s most opinions were critical. The detractors of the polygraph testing questioned its effectiveness and its conformity with Polish law; they also questioned such testing on moral grounds. This debate made it clear that persons living behind the Iron Curtain were virtually ignorant of the accomplishments in polygraph research (especially in the U.S.) because they had no access to literature on the subject (6).

It was at about that time that the first reliable paper on polygraph testing was published in Poland. In this paper the author described the polygraph examination and its application in the U.S. and other countries (7).

It is likely that in the late 1960s the first polygraph instruments were purchased by the Polish intelligence services, both civilian agencies controlled by the Ministry of Internal Affairs, and the military services. The purchase of these instruments and the purposes to which they were put were confidential to the highest degree. It is known today that the instruments were used to train intelligence agents who were to operate in the U.S. and Western Europe. It is likely they

were also used to test the loyalty of the services' own agents, and for counterintelligence purposes. It can be said with certainty though, that polygraph testing was never used by the Communist political police (Security Service, or Sluzba Bezpieczenstwa [SB]) to persecute the anti-Communist opposition in Poland.

The Polish army employed polygraph testing in intelligence and counterintelligence activities in a way analogous to the civilian intelligence services. Polygraph testing was also used by the Military Police (which formed part of the Military Internal Service, or Wojskowa Sluzba Wewnetrzna [WSWJ]). The latter institution used polygraph examinations in the investigation of crimes committed by soldiers serving in the military services, most frequently, and with best results, in cases where weapons had been lost or stolen. The Military Police experts occasionally provided assistance in civilian criminal investigations, mainly in homicide cases. These same experts participated in conferences organized by universities or scientific societies and published articles about polygraph testing in the generally available scientific and professional journals.

In the late 1970s and 1980s experimental scientific research was carried out alongside with other forensic tests in the course of investigations, usually in murder cases, at Polish universities. These studies were done mainly at the Jagiellonian University, and later at the Silesian University in Katowice. During this period, scientific publications on polygraph examinations were most abundant. Their character ranged from scientific experimental reports and case studies to analysis of field research findings (8).

At the turn of the 1970s and 1980s polygraph examinations were carried out in criminal cases at the Department of Criminalistics at the Silesian University. The results of these examinations were accepted by the courts as evidence. During this period about 100 persons were examined each year at the University of Silesia at the request of prosecutors, the police, or courts. It was also at this time that polygraph testing was used to eliminate suspects in a manhunt of a serial killer of women. In the course of this investigation alone, over 500 persons were given polygraph examinations.

Training

People who carried out the first polygraph examinations in Poland were self-trained practitioners. A clear example was undoubtedly the already mentioned Professor Horoszowski, who in the early 1960s, at his own expense, acquired in the U.S. a Stoelting polygraph instrument which he learned about from professional and scientific literature. Professor Horoszowski may have trained the first examiners in the intelligence services of Communist Poland. It is possible, however, that they were also self-trained. This cannot be established with any certainty because Professor Horoszowski left Poland in 1968 and died abroad in the 1970s. It is nevertheless certain that these first (possibly self-trained) practitioners trained their followers, among whom were the experts of the Military Police. As a rule, they used the CQT (Control Question Test) method. They also used POT (Peak of Tension) tests when appropriate. There can be no doubt that the book by J. Reid and F. Inbau (1966), *Truth and Deception*, was well-known. It was regarded by the examiners not as a mere textbook, but almost a Bible. Similarly, researchers at universities working with the polygraph acquired their knowledge about polygraph techniques on their own, using the available literature (mostly American), or exploiting their contacts with scientists from the U.S. (primarily), Japan and Czechoslovakia. As a result, some joint publications were published (9). It was also the case that some university researchers and the Military Police experts exchanged information and experiences concerning the application of polygraph testing in criminal cases. However, no contacts existed between the university researchers and the intelligence and counterintelligence agents, who remained isolated from university scientists because their work was absolutely confidential.

To this day, no specialist training exists in Poland for examiners and experts on polygraph testing and "forensic psychophysiology." Neither are there any schools, programs of formal training or formal examinations allowing candidates to receive the official status as a polygraph examiner.

Prospective examiners practice individually under the supervision of more experienced colleagues.

Examiners

In Poland there are no more than 20 examiners who carry out polygraph examinations. Among this number are university researchers (6 people), officers of intelligence services (no more than 6 people), police officers (2 people) and examiners employed in various private security and detective agencies (no more than 5 people). Three of these examiners are women, two of whom have a degree in Psychology. All of the examiners have a university degree and some of them have experience working in law enforcement.

The examiners' level of professional competence is varied. Unfortunately, it is usually low. This is a consequence of the absence of formal training procedures, procedures for obtaining licenses, a lack of mutual control among professionals and non-existent competition.

Association

In the mid-1990s, the Association of Polish Polygraph Examiners was founded. The members include the majority of people who are active polygraph examiners, those who conduct experimental research in the field, and those who are interested in the issue from a legal perspective. Altogether the number of members is about 30.

At the time of its foundation, the Association was intended to be an integrating force for the professional community, a forum for sharing experience, a propagator and supporter of experimental research in the field of forensic psychophysiology, and an organization that would establish standards for research, training and control of the field. The Association also planned to publish a journal. Very little of these salutary and necessary actions have been realized to date. The major accomplishment has been the adoption of The Standards for Polygraph Examination in Criminal Cases (a set of methodological rules for conducting examinations). So far the Association has been unsuccessful in adopting The Standard for Pre-Employment and Screening Examinations and in passing a code of ethics for examiners. As I have indicated, the Association has had very limited success in implementing the plans that accompanied its foundation.

Examinations

Polygraph examinations are used in criminal investigations, pre-employment investigations and control checks (screening). The last two procedures are also applied in government institutions (intelligence services and law enforcement agencies) as well as by private businesses. There is no institution in Poland which keeps statistics about polygraph examinations and for that reason complete data are not available. We can go as far as to estimate that less than 100 examinations are conducted annually in criminal cases. Considering the fact that almost 1,000 killings are investigated each year, with the total sum of all investigations going into the hundreds of thousands, it becomes clear that polygraph examinations are very rarely used. That number, however, is much less than the number carried out for other purposes, such as pre-employment and screening examinations. In government agencies (Agency of Internal Security or Agencja Bezpieczenstwa Wewnetrznego [ABW], Military Information Services or Wojskowe Sluzby Informacyjne [WSJJ, Police [Policja], Border Guard [Straz Graniczna]) several hundreds of examinations are probably conducted every year. No precise data have been published.

Private agencies, when requested, perform polygraph examinations for banks and large companies. Some large detective agencies and some firms providing business information check their own employees with polygraph examinations. Sometimes these examinations are not typical pre-employment or screening checks; they may be "internal investigations," undertaken in connection with some minor offense committed within a company, presumably by an employee. Similarly, polygraph testing ("screenings") may be resorted to in order to learn how confidential information leaked out of a company. Such "screenings" are similar to examinations carried out in criminal investigations.

Legal issues

The term "polygraph" (in Polish poligraf) or "polygraph examination" (in Polish badanie poligraficzne) is not explicitly used in any legal act in Poland. The Code of Penal Procedure (CPP) defines a polygraph examination as an application of technical means aimed at controlling the unconscious reactions of the body (CPP, Art. 171 Par. 5 Subpar. 2; CPP, Art. 192a; CPP, Art. 199).

The Internal Security Agency and Intelligence Agency Act (dated 24 May 2002, *Journal of Laws* dated 2002, No 74 Item 676 with subsequent amendments) in Art. 46 Par. 2, and Military Information Services Act (dated 9 July 2003, *Journal of Laws* dated 2003, No 139 Item 1326) in Art. 39 Par. 2 Subpar. 4, define a polygraph examination as a psychophysiological examination.

Polygraph examinations are allowed in an investigation as a method of finding evidence and eliminating suspects. Article 192a of the Code of Penal Procedure states that in order to reduce the number of suspects or to determine the evidence value of revealed traces and with the consent of the person to be examined, an expert witness is allowed to apply technical means aimed at controlling the unconscious reactions of the body. Article I 99a of the Code of Penal Procedure restates that the application of technical means aimed at con trolling the unconscious reactions of the body is possible only with the aggrieved party's consent.

The Supreme Court and the Courts of Appeal accept the results of polygraph examinations as evidence, upon several general conditions. First, the examination must be carried out with the examinee's consent (CPP, Art. 192a; CPP, Art. 199a). Second, the examination must be performed by an expert in the course of applying his or her expertise, the result of which must be a report complying with the regulations of Article 200 of the CPP. Third, the examination must not be a part of other proceedings, e.g. interrogation (CPP, Art. 171, Par. 5 Subpar. 2). Of course, the expert must possess the necessary professional and moral qualifications in the opinion of the court (or the prosecutor at that stage of the investigation; CPP, Art. 193; CPP, Art. 195; CPP, Art. 196). (10). The acts regulating the activities of intelligence services in the above-mentioned regulations say that in the case of a candidate applying for service in the Internal Security Agency or Intelligence Agency in a position requiring special skills or predispositions, the qualification proceedings may be extended to include procedures aimed at checking the candidate's suitability for the position, including a psychophysiological examination (The Internal Security Agency and Intelligence Agency Act, Art. 46, Par. 2). The same regulation appears in Article 39, Paragraph 2 of the Military Information Services Act. No legal act regulates (or prohibits) the use of polygraph examination by private organizations for either pre-employment or screening examinations.

Political and Social Issues

Polygraph examinations, especially when used in criminal eases, are widely accepted by the general public. The fear of crime is strong in Poland and public opinion is ready to accept all methods of fighting crime that are presented as effective. To date no opposition has arisen to employing the polygraph by private organizations in employee-related cases.

Those who oppose using polygraph examinations in criminal investigations, let alone accepting the results as evidence by courts, can be found in some legal circles, especially among scholars specializing in penal procedures. Their reservations concern the procedural and moral aspects of polygraph testing, based on the position that such testing is an invasion of privacy and is self-incriminatory, that is, persons who undergo polygraph examinations are, in effect, asked to assist in finding evidence against themselves.

In 2003 an amendment to the Code of Penal Procedure, which consisted of adding Article 192a, Paragraph 2, and Article 199a, unambiguously tipped the scales in favor of the acceptability of polygraph examinations in criminal investigations and it also put an end to the debate which had been raging as long as there was no explicit legal basis for polygraph examination.

Testing techniques

The techniques used by polygraph examiners include various forms of the Control Question Test (CQT), according to the procedures devised by Reid or Backster, and the Guilty Knowledge Test (GKT). The latter technique (GKT) is preferred recently by examiners in the police services. But this fact is not a result of their experience, but rather it comes from the influence of some American authors.

Research

Unfortunately, during the last two decades not a single work based on experimental research has been published in Poland. In the 1970s and 1980s, such publications were numerous. They focused on diagnostic value (11), analysis of field research (12), or discovering latent information (13). After this long interval, the Department of Criminalistics of the Frycz Modrzewski College started an extensive research project on polygraph examinations. The aims of this project include an analysis of the practice of polygraph examinations in the years from 1989 to 2006, devising methods of distinguishing between persons "possessing knowledge" of an event(s) from those who are "active participants," determining the diagnostic value of polygraph screening in cases of personality disorders (especially schizoid and antisocial personalities) and, in cooperation with specialists in neuropsychology and neurophysiology, a study into patterns of deception.

Instrumentation

The number of polygraph instruments used in Poland is about 15. All of these were produced in the United States by either the Stoelting or Lafayette companies. Some of these devices have been used since the 1970s, but some are new; there are also a few that are computerized. In the 1990s a voice stress analyzer, a Psychological Stress Evaluator, was purchased for the Police. So far the device has not been put to use in a criminal investigation (14). There have not been any results of experimental research that have been published with this device.

Problems

There are two closely related and basic problems concerning polygraph examinations in Poland. The first problem is the decline of scientific experimental research, as well as field research and analysis of field practices. The few recently published works on polygraph screening focus on either legal procedures or certain legal aspects of polygraph testing (15), or they are popularized articles for lawyers and law enforcement officers (16) or chapters in handbooks on Criminalistics (17). The second problem is that there is no uniform system implemented in Poland regarding the training of polygraph examiners or the granting of licensure; there are no clear requirements for the legal regulation of examiners. As a result of these problems, the professional community exercises no control over the level of examiners' work. This, in the long run, inevitably leads to deterioration in the standards applied to examiners and in their performance.

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Polygraph Terms for the 21st Century

Mark Handler and Raymond Nelson

Abstract

This paper explores the phenomena described as "psychological set" and "anti-climax dampening concept" outside of the polygraph lexicon for more parsimonious terms. Unique to the polygraph field, these terms are discussed in their historical context with an attempt to reconcile their meaning with vocabulary and concepts from related sciences. The purpose of this paper is to propose a modernization of our language to align it with mainstream terms and concepts. The authors argue that the term "psychological set" and "anti-climax dampening concept" are inadequately defined while the construct of *salience* may be more suited to providing an accurate conceptual framework to describe the psychophysiology underlying the science of polygraph testing.

Introduction

William of Occam was a 14th century Franciscan friar who is known today for "Occam's Razor" (Wikipedia, 2007), the maxim named after him. Occam stated "Entities should not be multiplied unnecessarily." The "razor" portion of the term refers to the "shaving" of the unnecessary to arrive at the simplest possible explanation. The implication of Occam's Razor is that the simplest explanation is often the best. This principle has been expressed in Latin as the "lex parsimoniae" principle, the law of parsimony or the law of succinctness (Wikipedia). Many disciplines employ the concept of parsimony to allow those who are not intimately familiar with their discipline to comprehend and bridge ideas.

The polygraph has long been relied upon as decision support tool, and the science of polygraph testing is best understood in a vocabulary in common with the related sciences of psychology, physiology, and psychophysiology. More courts are recognizing polygraph professionals as experts, and accepting the testimony of these examiners. Adjudicators and other decision makers rely on input from examiners when making decisions that affect people's freedom and livelihood. With this comes the burden of ensuring proffered testimony is based on scientific evidence and scientific theories that have adequate general acceptance among the scientific community and can withstand scrutiny. This evidence requires the professionals involved in the discipline of forensic psychophysiological detection of deception (PDD) to embrace the more commonly accepted vocabularies of the fields of psychology, physiology, and psychophysiology. By so doing we can more easily explain to other professionals the mechanisms underlying polygraph testing. We must speak a common language with those who may be called upon to critique our examination.

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In 1996, a group of professionals interested in PDD testing presented a *Brief of the Committee of Concerned Social Scientists as Amicus Curiae in Support of the Respondent* to the United States Supreme Court in the case of United States vs. Edward Scheffer (No. 96-1133). In this brief the committee pointed out that during a 1996 survey of members of the Society for Psychophysiological Research, roughly two thirds of the MDs and PhD members supported PDD testing alone or when accompanied by other information (Honts & Peterson, 1996).

In order to foster better understanding of PDD testing among professionals in other disciplines, we must continue to improve the science of polygraph while adhering closely to, and aligning with, principles and knowledge from related sciences. This will ultimately result in improved general acceptance of the science of PDD testing. To achieve parity among the forensic sciences we must be able to communicate. To this end we should seek terms or descriptors to aptly and succinctly describe what we are measuring.

Background

In 1960, Cleve Backster described the terms "anti-climax dampening concept" and "psychological set" in a school handout (Matte & Grove, 2000). These two terms are widely used in polygraph testing. "Psychological set" was said to have come from what was described as a "widely used textbook *Psychology and Life* by Floyd L. Ruch (1948)" (Matte & Grove). "Psychological set" was defined as follows:

> A person's fears, anxieties and apprehensions are channeled toward the situation which holds the greatest immediate threat to his self-preservation or general well being. He tunes in that which indicates trouble or danger by having his sense organs tuned for a particular stimulus, and he tunes out that which is of a lesser threat to his self-preservation or general well being (Matte & Grove, 2000, p. 197).

Matte and Grove (2001) described the "anti-climax dampening concept" as being based on the theory of "psychological set." Matte and Grove asserted that the concept implies that a lying subject will tune in the relevant questions and tune out the comparison questions and the truthful subject will do the opposite. They further state that an examinee may direct his attention to the most intense relevant question and may perceive but not be affected by a weaker relevant question.

We conducted a careful review of the Ruch (1948) text, and several other editions by the same title and author, but failed to find the term "psychological set" mentioned anywhere. Though the quotation listed earlier is correct, Ruch's textbook never uses the expression "psychological set" as had been reported by Matte and Grove (2001). Therefore, whatever the origin of the expression, we have ruled out Ruch as the original source. Matte and Grove stated that Titchener had also used the term "psychological set" in a 1914 textbook. We conducted a search of the electronic version of that book through Questia, an on-line library of books and journals, and were unable to find the term "psychological set." For the moment we are left to conclude that the commonly held belief in the origin of the expression "psychological set" may be mistaken.

There was a related problem when a search was undertaken with psychological literature databases. A PsycINFO search conducted for the term "psychological set." PsycINFO is an abstract (not full-text) database of psychological literature from the 1800s to the present. About ten abstracts returned that included the term "psychological set." "Psychological set" was used as a term of convenience as opposed to a term of construct. The abstracts varied in the context in which they applied the term and none used the expression to refer to the same phenomenon we do in polygraphy. There appears to be a disparity between polygraphy's use of the expression "psychological set" and the rest of science.

The term "psychological set" and its earlier synonym "mental set" have been used in mainstream psychology to refer to problem solving situations when people rigidly use strategies that have worked in the past, often with a detrimental effect. Both terms have been used extensively to describe the results

of experiments by Rees and Israel in the 1930s, Luchins in the 1940s and others. "A mental set exists when people use problem-solving strategies that have worked in the past." (Weiten, 2007) This concept is not in accord with how the expression is used in polygraphy.

In a rejoinder to Matte (2000), Honts (2000) stated "The notion of "psychological set" is a contrivance of the polygraph profession and has received little scientific validation. Moreover, "psychological set" is not a term that is currently used much in mainstream psychological science." Our recent Internet and literature search clearly supports Honts' assertions. The paucity of information on the definition of "psychological set" and "anti-climax dampening concept" led us to search for terms that were more conventional.

We question the broad assumption of the current psychological set theory. The current theory posits that an examinee will focus their fears or anxieties on either the comparison or the relevant questions. Recent research (Offe & Offe, 2006) has shown this to not be the case. These investigators reported the differential reactivity is achieved through differential significance of the relevant questions only and not through the comparison questions. In other words, both guilty and innocent participants reported similar levels of stress for the comparison questions. The difference in reported stress was found in the perceived salience of the relevant questions by both groups of participants.

There is a more accurate alternative to "psychological set". Krapohl (2001) pointed out that in polygraphy we gauge differential arousal or differential reactivity between comparison and relevant questions. From this differential reactivity we infer the relative *salience* of these two categories of questions. Greater *salience* to one category than the other permits highly accurate assessments of credibility. This is accomplished through measuring differences in reactivity to the relevant and comparison stimuli. While field examination techniques are distilled to the procedural assignment of points and use of threshold cut scores, the mathematical operations are intended to provide statistical inferences regarding the significance of differences in the subject's response to the test stimuli.

Wikipedia describes *salience* in neuroscience as the "state or quality of standing out relative to neighboring items. *Salience* is considered to be a key attentional mechanism that facilitates learning and survival by enabling organisms to focus their limited perceptual and cognitive resources on the most pertinent subset of available sensory data." *Salience* describes that which is particularly important or relevant. As discussed below, the concept of *salience* applies to field polygraphy and laboratory based examinations and studies. The Oxford Dictionary of Psychology defines *Salience* as "the prominence, conspicuousness, or striking quality of a stimulus" (Colman, 2001).

Despite their prominent use by polygraph examiners, the terms "psychological set" and "anti-climax dampening concept" are rarely recognized by practitioners in sister sciences. An exhaustive search of the online EBSCO database of psychological literature, along with a keyword search on the Internet failed to find the expression "anti-climax dampening concept" described outside of PDD testing, The expression "psychological set" was found to denote a different phenomenon unrelated to that for which it is used in polygraphy. It would appear that both expressions are idiomatic terms with either conflicted or no meaning beyond the small field of polygraphy. While researching these terms, the first author contacted numerous professionals in the academic field of psychology. One researcher informed the first author that electronic correspondences containing the term "anti-climax dampening concept" were being flagged as possibly containing adult content.

It would seem Backster (1960) created the term "anti-climax dampening concept" in an attempt to explain to those unfamiliar with polygraph the notion of *salience*. It appears that the term was used to explain how an examinee can fail to react significantly while lying to a particular question, because a concurrent test question holds greater salience for the examinee. .

Polygraph examiners generally report the examinee as being deceptive regarding the

relevant issue under investigation. The ability of polygraph to discriminate crime roles has not been thoroughly researched. Explicit laboratory research on role discrimination using the polygraph is limited to one published study (Podlesny & Truslow, 1993).

Salience in Field Polygraphy

The National Academy of Sciences report discussed a variety of psychological phenomena as the basis for *salience* of the test stimuli, including fear, stress, guilt, anger, excitement, and the examinee's orienting response to information (National Research Council, 2003).

In criminal specific testing situations, it is generally accepted within the polygraph profession that the driver for *salience* is fear of the consequences associated with detection of deception. For the innocent examinee this would make the comparison questions more salient: for the guilty the relevant questions would be more salient. A measure of differential reactivity in this type of test could then be explained by the degree of *salience* an examinee places on a question or questions.

We must also consider the effects of habituation. For an innocent examinee it is possible that both the relevant and comparison questions are initially threatening and possess similar degrees of *salience*. As the examination proceeds, however, the relevant questions become less threatening than the comparison question to the innocent examinee. Iacono, Boisvenu and Fleming (1984) reported that habituation can be pronounced over the course of an examination.

Habituation describes the decrease in physiological responsivity that occurs with repeated presentation of the same stimulus (Andreassi, 1995). The Russian psychologist Sokolov (1963), distinguished between the Orienting Reflex (OR) and a Defense Reflex (DR). Sokolov showed that the OR occurred as a result of exposure to a novel stimulus and the DR to a potentially painful one. Habituation studies have shown that in general there is less habituation with very intense stimuli, more important stimuli, more novel and complex stimuli (Andreassi). In general, the OR habituates rapidly and the DR very slowly.

It is quite possible that an important stimulus (such as the question with more *salience*) can generate prolonged responses, without necessarily generating defense responses. Sokolov (1963) demonstrated stimulus complexity (the information inherent in the stimulus) was shown to be an important determinant of its resistance to habituation (Cacioppo, 2000; Sokolov). It is possible that both the relevant and comparison questions generate ORs, and one is more important, possessing "signal stimulus" qualities, and thus habituates more slowly. It is also possible that one is eliciting DR and other OR. In 1963 Sokolov reported some success in differentiating the OR from the DR (Cacioppo; Sokolov). Turpin reported difficulties replicating Sokolov's work in this area (Cacioppo; Turpin, 1986).

Sokolov's framework of either OR or DR can be applied to polygraph. It is possible the innocent examinee habituates to the less threatening relevant question while the comparison questions maintain a greater *salience*. The opposite effect would be assumed to occur with a guilty (lying) examinee.

Salience in Laboratory Based Polygraphy

Scientists who study PDD testing have been able to show that when studies are properly designed (realistic settings, employing field examination techniques and using experienced examiners; see, Kircher, Horowits & Raskin, 1988) very good results can be achieved. In 1996, the 17-member ad hoc Committee of Concerned Social Scientists reviewed the scientific literature and found nine high quality laboratory studies involving 457 examinations. Those scientists found that excluding inconclusive results (approximately 10% of the cases) the examiners correctly classified about 90% of the guilty subjects and 92% of the innocent subjects (Honts & Peterson, 2001).

Anderson, Lindsay, and Bushman (1999) reported: "…correspondence between lab and field based effect sizes of conceptually similar independent and dependent variables was

considerable. In brief, the psychological laboratory has generally produced truths rather than trivialities." This study examined empirical data across a broad range of psychological domains and found external validity of psychological tests to be high.

The underlying causation of differential arousal may or may not be very different in laboratory based polygraph examinations, relative to field examinations. Arousal could result from a number of causes including guilt, fear, excitement or content complexity (Vrij, 2000). While it is difficult to determine the cause of the arousal, the fact remains that high levels of accuracy have been found in laboratory polygraph studies (see extensive review by Honts, Raskin, & Kircher, 2005). The consistency of these findings suggests that primary emphasis on fear as the basis for reaction may be misguided. The degree of *salience* an individual places on a particular question can be inferred to be the source of differential reactivity.

Salience is a term used throughout the forensic scientific community. A Wikipedia search for the term "*Salience*" as used in just the neurosciences listed eight major branches and over 25 major themes of research (Wikipedia, 2007). As a scientific construct, *Salience* has more universal understanding than the undefined construct of "psychological set."

With an increasing emphasis on *Daubert* and similar requirements for court admissibility, it would seem unwise to limit our understanding of the psychological mechanisms of polygraphy to a single explanation, and especially unwise to continue to endorse an explanation that lacks general acceptance and definition. The National Research Council (2003) discussed the psychological mechanisms underlying the polygraph with consideration for a number of recognizable psychological constructs, including conditioned response theory (Davis, 1961), dichotomization theory (Ben-Shakhar, 1977), conflict theory (Davis), arousal theory (Ben-Shakhar, Lieblich, and Kugelmass, 1970; Prokasy & Raskin, 1973), threat of punishment theory (Davis). We propose that the construct of *salience* has better general acceptance and recognition, and provides a more adequate conceptual vocabulary for achieving an integrative understanding of the variety of psychological response elements underlying the physiological mechanisms monitored by the polygraph test.

While the undefined construct of "psychological set" cannot adequately accommodate the various explanations provided by these different theoretical frameworks, the general concept of *salience*, or the tendency for people to notice and focus on the outstanding or important features of a given stimulus or information context, provides a general explanation of the phenomena that people will attend to some stimuli more than other in any context, whether mundane or unique. Moreover, *salience* does so without moving precipitously into un-supportable or reductionistic explanations about the reasons that certain stimuli are selected as more important than others (e.g., fear, threat, etc), and leaves our understanding of such reasons to correlations that are best established through empirical inquiry.

Summary

"Psychological set" and other terms such as "GSR", "control questions" and "stim tests" are idiomatic jargon used within the polygraph profession, and should be discarded in favor of more generally accepted end empirically supported constructs. The expressions "psychological set" and "anti-climax dampening concept" do not convey their meaning in common terms to those outside the polygraph community. This does not mean that "psychological set" and "anti-climax dampening concept" are by definition wrong, any more than "psychogalvanic reflex" is wrong but only that the concepts are already captured in more modern language. The term *salience* is more widely understood in the scientific literature and its use by the polygraph profession will serve to garner more respect than the use of jargon.

The science of PDD will benefit by the acceptance of sister disciplines. This is more likely to happen if we share a common language. One prominent researcher criticized our use of such terms, writing: "Alice-in-Wonderland (AW) terminological usage employs basic terms in a systematically misleading and taxonomically anarchic way

(Furedy, 1991)". As Krapohl stated, "it does not benefit the science of PDD to set itself apart from the family of behavioral sciences" (Krapohl, 1996).

Approximately forty years ago, Cleve Backster helped crystallize essential concepts by giving them names and definitions, an important step in the evolution of the field. Without a doubt these terms and expressions were vital for the profession to communicate within itself. Now at the beginning of the 21st century, as polygraphy has moved from the realm of investigative aid to a forensic scientific tool, polygraph practitioners and researchers must embrace the language of science if they are to communicate with the larger scientific community. The time has come to recognize that *salience* is the widely accepted and overarching concept that encompasses both "psychological set" and "anti-climax dampening concept." *Salience* has the distinct advantage of both explaining the phenomena and having a more universally recognizable meaning. If the polygraph profession is serious in its pursuit of general acceptance, it must be prepared to replace its idioms with language and constructs that have more in common with other sciences. *Salience* is an important step in that direction.

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Current Legal Status of Polygraph and Level of Practice in Poland

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Abstract

In a 2006 survey with a total of 436 respondents: judges, court curators, and law students have divided opinions about the value of evidence from polygraph examinations in criminal procedures. Their evaluation of value as low was also reasonable if compared to other types of evidence in criminal cases such as fingerprints and eyewitness testimony. The answers for another question regarding estimation of a chance of error for a polygraphist in a criminal case was 32.8% of magistrates, 43.5% of judges, 31.4%-44.5% of law students chose options: 20-30%, 50%, and 50% or more.

Polygraph examinations were first introduced to Poland by Polish intelligence in the 1950's in espionage and internal affairs cases. Now a total of 10-20,000 employees of Polish national intelligence and security agencies are administered polygraph examinations; mostly during the recruitment process. The attempts to introduce examinations for Customs General Inspection (GUC) were disputed in 2003, in the Polish Supreme Administrative Court and polygraph was dismissed as not based on adequate legal regulation. Simultaneously, polygraph examinations for the Polish Border Guard (SG) were regulated by law and are conducted by a special unit for its 18,000 employees, the largest practice in Poland. For general employment in public or private business, admissibility of polygraph is still not legally regulated and without limitations. The scale of practice is small, mostly in internal investigations and very slight in recruitment. There are no data available regarding how many applicants are disqualified in law enforcement agency pre-employment examinations in Poland; but its effectiveness should be similar to American practice. The goal is to uncover disqualifying information, but also to verify favorable or mitigating circumstances offered by the examinee to explain past misdeeds. Usually such information cannot be verified by any other means, including a background investigation.

The first official use of the polygraph in a criminal case in Poland took place in 1963. Since then the Polish Supreme Court has passed several judgments on the admission of polygraph examinations into evidence as ancillary but not as independent evidence. In the sixties and seventies polygraph entered university forensic science laboratories in Poland and in the nineties private business. During 1969-1998, the special polygraph unit of the Polish Military Polices examined 5,200 persons in support of 1,180 criminal cases, the majority of which were homicides and the theft of military firearms and ammunition by soldiers.

The law in Poland left open court admissibility of polygraph evidence until 1997, when in the new Code of Criminal Procedure came in to power with regulation for polygraph: art. 171 4/2: prohibited “hypnosis and drugs or technical devices, influencing psychological process of person under interrogation or oriented to monitor

About the Author

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unconscious reaction of organism with relation with interrogation." In the draft of that bill two pages of arguments regarding polygraph were presented: humanistic resistance to intrusion into sub consciousness, the unreliability of the examination of a nervous, innocent suspect and the negative attitude of Polish society, which still remembers the past, towards procedures connected with the police. Only a few courts contested this regulation as not sufficiently clear, because polygraph examination is not an interrogation and accepted polygraph into evidence as expertise. Other judges shared the common view that they were generally prohibited in criminal procedures.

Finally in 2003, a new article was added to code "art. 192 a /2 ... for purpose of eliminating suspects or evaluation of the value of collected evidence, with the consent of the subject, a court appointed expert (forensic) may use technical devices for the purpose of monitoring unconscious reactions of the subject's physiology." After this amendment a new regulation from the General Chief of Police described conditions of use and practice for police experts in this field. The Police Central Forensic Laboratory purchased Lafayette polygraph instruments and in 2005, police experts conducted 120 examinations in support of criminal investigations. If he is willing to submit to polygraph examination administered by a court or police appointed expert, a defendant is entitled to offer testimony by a polygraph expert concerning the truthfulness of his statements. The practice is limited and oriented for the early stages of investigations. Fewer cases will reach trial once the use of polygraph is fully developed by the prosecution and police. The regulation is open also for verification of witness testimony and for trials, but in most of the Polish lower courts and police units polygraph examination is still unknown.

In Poland the results of the Widacki (1982) laboratory study of polygraph validity were published but are known by only a small number of specialists. The results for validity (accuracy) were 92.5 % with 80 participants. The experiment was also presented internationally (Widacki & Horvath, 1978) and cited in American professional literature (Abrams, 1989). Widacki is well known to the public since he was previously deputy minister of internal affairs and later a defense attorney in parliamentary committee or trial hearings but his specialization and works with polygraph are not well known. Polish judges in 2006 still were not familiar with the new law favorable to the admissibility of polygraph as evidence and many saw it more as a trick than as a helpful investigative method on behalf of law enforcement and justice. According to Polish Supreme Court decisions and professional literature, the purpose of polygraph examination is: "To discover traces in memory and emotional relation to the matter under investigation" and any remarks concerning lie detection or evaluation of testimony are excluded.

A nationwide sample of American defense attorneys, prosecuting attorneys, psychologists specializing in industrial and military psychology and sociologists specializing in criminology were sent questionnaires with 14 questions to determine their attitude toward polygraph. In a 1973, survey by Ash (1975, p.79-93) of 703 defense attorneys and 317 prosecuting attorneys the median estimate in answers was 79 cases for defense attorneys and 81 for prosecutors for the following question:

> How accurate do you believe polygraph tests results are? Out of 100 cases, in how many (from 0 to 100) do you believe the examiner would correctly determine the guilt or innocence of the examinee, or, the truth or falsity of his statements? Enter your estimate, a number from 1 to 100:

The range of answers was substantial, from a low estimate of less than 10 out of 100, to a high estimate of 100 out of 100 (2.5% of respondents). The information about validity – chance error (0% to 50%) was not provided to respondents of the questionnaire and was not analyzed by the author in the report.

Iacono and Lykken (1997) in a survey of 183 psychophysiologists asked if they agreed that the "Control Question Technique (CQT) is at least 85% accurate in tests of guilty and innocent suspects." A five position Lykert standard scale was used to record responses. Three fourths of the respondents answered that it is unlikely that validity could be as high as 85%. Another question "Best

estimate of the accuracy of the CQT.... for testing innocent (guilty) suspects?" was answered by168 psychologists whose mean score was approximately 61%.

The explanation that validity can not be lower than 50% was not offered and an unknown number of answers such as 10%-40% lowered the average (mean). In the report it is clear to the authors that the respondents, even though they were professionals, were unaware that 50% accuracy reflected chance. In psychology for reliability x= ... or probability p.=. the measuring scale 0-1 is used and a range 0%-100% seems more natural for any evaluation. For the first question, the choice of options were limited, however for the second they were totally open, to include those contrary to the logic. Answers with a validity lower than 50% were not analyzed by the authors and the mean and median as a measure of central tendency are giving grounds for contradictory conclusions from the results. Attorney General John Ashcroft estimated the error rate at 15%, about one in - six at a news conference, but the same question arises: What is polygraph's chance error rate in this generalization 0% or 50% (Vergano, 2002)?

Girdwoyn (2004) conducted a survey of law students and defense attorneys in which they evaluated different methods of identification such as fingerprints, DNA evidence and polygraph examination as evidence in criminal cases. In this survey 60% of the attorneys and 54 % of the students answered the question: "What is the scientific value of evidence from polygraph examination?" to be: "low, quite low, very low." Is it a negative evaluation for the value of polygraph examination? They were inexperienced with polygraph and based on intuition, personal feelings, and probably concern of their own integration and ethical grounds they gave this rating which can be considered as more reasonable than positive or neutral answers (Girdwoyn, 2004).

In a survey of opinion on polygraph answered by students from law schools at two universities, the two groups were comprised of 167 and 170 students of both sexes. The same questions were also answered by 93 judges and court curators (A "court curator" is a position in the Polish court system that combines the duties of forensic psychologist, social worker, and parole/probation officer.) of 11 lower courts in regions with populations over 2 million. All of the participating students answered the survey and only a 30% return rate was achieved for the other survey participants. In the two page long questionnaire about honesty and stealing, two questions regarding polygraph were added. The time required to complete the survey was approximately 15 minutes. The following questions concerning polygraph were placed at the end of the form:

> How often are expert's opinion based on polygraph examinations (The description "lie detection" is not correct and the examination has a limited goal to discover traces in memory and emotional relation to the matter under investigation) conducted according to court orders and with the consent of the person under investigation Incorrect? Chance of error?: about: 0%, 1-2%, 5%, 10%, 11-19%, 20-30%, 50%, 50% or more, no answer,
>
> What is the scientific value of evidence from polygraph examinations?: very low, low, quite low, average, quite high, high, very high, no answer

According to the methodology for social science by Babbie (2001) answers could have scientific value if the questions are adequate and understandable by the respondents. The second question was added for the purpose of replication and comparative analysis without any change in form and there was no correct or incorrect answer. General findings of this research are limited to the first question about validity-chance of error and problem of error, internal, external validity should be shortly analyzed. There is no significant difference between the work of Ash (1975) and this survey in methodology or factors analysis, however a different sampling method was used for the selection of the respondents. There is no group other than the legal profession more adequate for this question however. Respondents didn't have personal experience with polygraph, but judges and court curators saw many different types of expertise and opinions for fingerprints and from psychiatrists or psychologists. It is very likely that they did not know anything about

the procedure of polygraph examination with the stimulation test and different types of tests for the elimination of accidental reactions to critical questions. However it was easy to imagine that an expert appointed by the court can not base his own professional practice on errors.

If compared to the questions used in the Ash (1975) survey it was easier to answer because ready to choose options from the scale were offered with an additional handicap of the elimination of 50-100% chance of errors. This scale generated more answers in the middle and at the same time helped respondents to stay away form wrong options. Based on professional forensic and legal literature for polygraph examination, explanation was offered with definition of "traces in memory and emotional relation to the matter under investigation" (Konieczny, 2002; Widacki, 1982). To help understand the question a guide was offered through negation with the words: "The description "lie detection" is not correct..." The question should be interesting for respondents if they had previously considered it, otherwise answers may be accidental and without sense (Babbie, 2001). Any information about polygraph –"lie detector" from the media or movies leads to the question: "Is it valid at all?" Most likely, this problem generates more thoughts than "value as scientific (legal) evidence." How many answers reflected real opinion and how many were generated by error will never be known, but in this matter the same limitations applied to answers in the above cited Ash (1975) and Iacono and Lykken (1997) surveys.

Every second student in G. group was in a control group which answered only the second question. It means that the other half of students were influenced in their opinion regarding the value of polygraph by first question about chance of error with scientific and legal definition. Respondents in the control group were asked the same questions as in the Girdwoyn (2004) survey. This allowed the possibility of comparing the answers. The first question is similar to that used by Ash (1975) in his survey. Under some conditions these answers can be compared as well. Respondents in this survey were provided with a scale of answers to choose from. This was advantageous in that it was easier to give the correct answer and more difficult to omit the question. The answers from all groups of respondents for the second question regarding evidentiary value were influenced by the first question concerning chance errors with scientific and legal definition of polygraph examinations.

Value as evidence

In the year 2005/6 judges, court curators and law students, a total of 436 respondents participated in survey for the purpose of comparing answers with the results of other surveys. The control group of students answered only the second question regarding the evidentiary value of polygraph and gave 29% "negative" answers, when the other half influenced by the first question gave only 22.1% of this kind of answers. The difference could be explained with positive correlation and means that scientific and legal definition or explanation brings more positive answers towards value of polygraph as evidence. For the same question at the same location students in Girdwoyn's (2004) survey gave 54% "negative" answers when they had to assess the value of polygraph in a questionnaire with other questions evaluating other forensic methods such as fingerprints and DNA evidence.

Girdwoyn (2004) and this 2006 survey correct answers for questions about the value of polygraph as evidence could be *very small, small, quite small* because even unasked opinions should be derived from comparative analysis to the value of other methods such as eyewitness testimony, and fingerprints. These kind of negative answers about the value of polygraph may be in compliance with professional knowledge of court procedure and seem logical. All of these answers came from all groups of respondents of this survey at the rate of 21.3%-43.8% and can be treated as reasonable or just as a matter of opinion. The psychological process of any evaluation generates opinions with relation to arguments, standards and justifications. In this case it is a means of comparing polygraph to other methods of identification as well, and its low value in evaluations is not unexpected, and is more adequate than high.

Results of 2005/6 survey:
Table 1 - answers: Opinion survey regarding polygraph validity and evidentiary value

Survey of 2005/6 Answers n=436		*G. region*		*Law Students*		
		Court curators N=61 f=35, m.=21	*Judges n=32 f=17, m.=11*	*W. n=164*	*G. n=86*	*G. Control g. n=93*
Error rate Error	About. 0%	0	0	0	0	not
	a. 1-2 %	4	1	15	7	-
	a. 5 %	7	2	17	10	A
	a.10%	61	1	8	14	S
	a.11-19%	4	2	25	**17**	K
	a. 20-30%	**12**	2	**32**	14	E
	a. 50%	6	**11**	**32**	6	D
	control: 50% <	2	1	9	7	
	no answer	20 (34.4%)	12 (37.5%)	16(9.8%)	11 (12.8%)	-
	Negative answers 20-30/50/50<	**32.8%**	**43.5%**	**44.5%**	**31.4%**	-
Value as evide-nce	very high	0	1	2	0	1
	high	2	2	12	6	14
	quite high	7	3	43	**27**	21
	average	**25**	**10**	**52**	25	**28**
	quite low	4	7	24	14	15
	low	7	5	16	4	9
	very low	2	2	8	1	3
	no answer	14(23.0%)	2(6.3%)	7(4.3%)	9(10.5%)	2(2.2%)
	Negative answers q. 1. / low / v.1.	**21.3%**	**43.8%**	**29.2%**	**22.1%**	**29.0%**
	Questions	2 . questions (error rate + value)				1 q. (value)

Measure of central tendency - mode - most frequently obtained score: **25 10 52** Evaluation of value - differences between groups for two % negative answers: p.(probability) = ...

- Court curators G. / judges G. 21.3% - 43.8% p.= 0.0255
- judges G. / students G. 43.8% - 22.1% p.=0.0145
- students W. / students G. 29.2% - 22.1% p.=0.2352
- students G / students G (control) 21.1% - 29.0% p.=0.2853

Error rate - validity

The answers for the first question in this 2006 survey generated a big surprise, when 31.4%-44% respondents from the legal profession estimated the error rate of polygraphy in criminal procedure as 20% - 30%, 50%, 50% or more. The correct answer for this question should be easy and based only on logical thinking for estimation about one error out of 10 cases or less. The decision in criminal matters is relatively easy for the polygraphist and inconclusive opinions are not evaluated as errors. This improves the validity of polygraph examination. In this survey the 436 respondents gave a total 284 evaluations. The estimated median error rate fell in the range of 11%-19% for 48 respondents, with 102 respondents giving a lower estimate and 134 providing a higher estimate. It means that the analysis of the results of surveys reported in publications with median, (or mode) as measures of central tendency, without data about the range of answers, are concealing an unacceptable number of incorrect answers. This may lead to totally opposite and contradictory conclusions from the surveys.

In the Ash (1975) survey, attorneys rated the validity (accuracy) of polygraph 79%-81% rate (median) and no other data about the range of answers were provided in his report. The results were summarized only with: "It should be noted that 80 out of 100 hit rate is below that actually observed in the studies of the validity of the polygraph when well-trained examiners are used" (Ash, 1975). Comparative analysis with the Polish survey is not easy if for the measure of central tendencies a mode was used and the questions also had a different form. However, it is very likely that the number of totally incorrect answers was also high in the Ash (1975) survey if no statistically significant difference could be found in the evaluation of validity (accuracy) in his survey and rate of error in 2006 survey. The validity with a median of 79%-81 % is very close to the error rate median in the range 11% - 19% of the Polish survey. Ash's (1975) resulting median was achived with free estimation (open scale 0%-100%) but, the Polish survey with a closed range of answers as mode (48 answers, 11%-19%). Of the Polish participants, 102 gave a lower estimation for the error rate and 134 higher (20%-30%, 50%, 50%>) the "mean" could be near 19%. It should be noted that it will be more a free estimation of quality analysis of results than quantity with full application of methodology.

Validity and reliability of polygraph testing

Scientific data collected in the 1983, Congressional Office of Technology Assessment (OTA) Report for the US Congress or by the American Polygraph Association are accessible on the Internet, but are not known by the public and legal professionals. The validity of polygraph is clearly established and currently is not a subject for objections, or dispute in the Polish scientific community, but only forensic science professionals are more familiar with data about polygraph.

Validity testing for polygraph includes two procedures: field and laboratory. The first deals with studies of real life situations, and the second involves research in laboratory settings employing volunteer subjects. In real life situations, the examinee risks possible imprisonment, financial loss or shame if deception is discovered. This is one of the reasons why polygraph validity cannot be as high in laboratory simulations as in field situations. In laboratory simulations the truth is known so that an exact determination of accuracy can be made. In the field, verification is not objective in the same way and even confession is not a 100% dependable criterion for the validity of polygraph. Experiments conducted in the laboratory for the purpose of validating the effectiveness and reliability of the polygraph technique, although successful, did not reflect the high level of accuracy and effectiveness experienced by polygraphists in the field. This opinion is in common with that of Matte (1980) and authors of the 1983, OTA Report.

The pre-employment test is a type of examination that seeks to verify information contained in a job application and develop relevant information deliberately omitted from the application. The periodic polygraph examination, also known as a "screening" because it is used to screen employees periodically to determine their honesty with the organization. Employee screening as used by the government can reduce security risks. The validity (accuracy) and reliability

(consistency) of these examinations raise more objections, but this does not mean that the polygraphist in these matters is making more errors or examinations are less affective.

In review of three studies of polygraph field validity (Honts 1994, Honts, et al. 1988, Patrick et al.1991) selected by Vrij and Mann (2001) the rate of error for guilty subjects was 24%, 0%, 2% for not guilty 0%, 0%, 8% and the authors on two occasions explained that chance error was 50%. If the average rate of error is approximately 5% its means that only one out of 20 people could be misclassified when chance error was one in two, and if the error rate was 2% only one of 50 people could be affected by an error.

In the APA (1997) report different kinds of experiments were summarized. The 80 research projects published since 1980 involved 6,380 polygraph examinations or sets of charts from examinations. Researchers conducted 12 validity studies which included 2,174 field examinations, and provided an average accuracy 98%. Researchers conducted 11 studies involving the reliability of independent analysis of 1,609 sets of charts from field examinations confirmed by independent evidence, proving an accuracy rate of 92%. Researchers conducted 41 studies involving the accuracy of 1,787 laboratory simulations of polygraph examinations producing an average accuracy of 80%. Researchers conducted 16 studies involving the reliability of independent analysis of 810 sets of charts from laboratory simulations producing an average accuracy of 81 %.

In the 1983, OTA Report for the U.S. Congress six prior research reviews were cited with an average validity ranging from a low of 64% to a high of 98% and the OTA's own review of 10 individual field studies showed:

correct guilty detection averaged – 86.3%,
correct innocent detection averaged – 76.0%,
false positive rate (innocent persons found deceptive) averaged – 19.1 %,
false negative (guilty persons found non - deceptive) averaged – 10.2%.

The OTA report was written under the supervision of an advisory council comprised of a majority of psychologists and its conclusions were under criticism from the polygraph community and U.S. Department of Defense Polygraph Institute. In the OTA report they concluded that "No overall measure or single, simple judgment of polygraph testing validity can be established on available scientific evidence." Both the OTA report (1983) with an average validity of 76%-86% and an error rate of 10%-19% (average rate of error will be 15%) and APA 1997 with average validity of 80% (laboratory) and 98% (field) provide grounds for the estimation of validity or generalization. Opinion surveys of polygraph validity can be compared to these reports.

The current unofficial opinion of American Psychological Association presented without supporting results of new research that most psychologists agree that there is little evidence that the polygraph test can accurately detect lies (American Psychological Association, 2004). A working group of British Psychological Society (BPS) shares the view of the National Research Council (2003) review: "Almost a century of research in scientific psychology and physiology provides little basis for the expectation that polygraph test could have extremely high accuracy." In its report the working group also offered the last out of 13 points conclusion:

> The polygraph is one among a number of procedures, that could be used in attempt to detect deception and integrity but, like all procedures, it has inherent weaknesses. Error rate in polygraphic deception detection can be high. The most appropriate procedure or combination of procedures will depend on the circumstances. Polygraph detection deception procedures should not be ascribed a special status. We must not deceive ourselves into thinking that there will ever be an error free way to detecting deception (British Psychological Society, 2004 p.29).

Opinions like these cannot be found in the 1983 OTA Report and may lead to errors when used to answer questions in surveys about the practical validity of polygraph examinations and may generate answers with an elevated rate of errors for polygraphists providing opinions in typical criminal cases as well.

Reducing chance errors

In the opinion of Reid and Jayne (1989), global evaluation incorporates factual and behavioral analysis into a diagnostic process and increases the examiner's accuracy, and guards against false positive errors. Polygraph validity depends on four variables: examiner or independent expert assessments of field and laboratory charts. When all assessments are consistent: chart analysis combined with factual and behavioral evaluation has higher accuracy than chart analysis alone. Factual analysis refers to forming a probability of truthfulness based on evaluating a suspect's opportunity, access, and motives. Behavioral analysis involves assessment of the subject's verbal and nonverbal (body language) behavior during the examination.

Table II. - For assistance in orientation with studies and researches of polygraph validity

Validity of polygraph exam	1. Description of event 2. Conditions of evaluation (charts)	Factual assessment	Behavioral Assessment
highest	1. real event 2. evaluation by expert (own)	Yes	Yes
high*	1. real event 2. evaluation by independent expert	Yes	No
very high*	1. laboratory simulation (experiment) 2b evaluation b expert (own)**	No	Yes
medium	1. laboratory simulation (experiment) 2. evaluation by independent expert **	No	No

The presented table does not have precise scientific value but provides a guide for orientation in all mentioned experiments, studies and reports included those cited by the APA and OTA: * The difference between “high” and “very high” depends on the scenario of laboratory experiment. **The difference also depends on the experts' (examiner) experience. An evaluation by an inexperienced examiner may have the same accuracy as an independent evaluation.

Two options for the evaluation of results of polygraph examinations are possible: charts analysis and global analysis. In the first situation, a polygraph examiner relies exclusively on chart recordings in rendering an opinion of truth or deception. In global analysis the examiner is trained not only in detecting deception through physiological indexes but also through factual analysis and behavioral analysis. The global approach relies on three interrelated assessments of a subject in formulating an opinion of truth or deception. Research indicates that persons trained in factual analysis and behavioral analysis are highly accurate in predicting the truthfulness of suspects (Buckley, 1987). Other studies failed to demonstrate a correlation between experience and chance of detection of deception (Vrij & Mann, 1997). This is especially meaningful in view of the fact that at least one polygraph school (Reid technique) and many polygraphists in the field place great emphasis on behavioral observations to support their chart analysis. Results of studies clearly indicate that polygraphists should restrict their basis for decisions to the physiological recordings on the polygraph charts (Matte,1980). However, according to Jayne, (1989) the global evaluation is not used to reverse chart indications and this process may lead the examiner only to question the

validity of deceptive test reactions. The principle is that the polygraph examiner must acknowledge the possibility of errors within a technique limited only to chart analysis (Jayne, 1989).

Is validity of polygraph examination high only under conditions of global evaluation with factual and behavioral assessments? In motivational-emotional approaches psychophysiological reactions occurring in the body during examinations may be explained by theories of: conditional response mechanism, conflict, and punishment and motivation (Amsel, 1997). While all of these affect physiological reactions, the threat of punishment and motivation have a greater impact on polygraph validity as is evident when an actual crime is under investigation instead of a simulation for a laboratory experiment. Accordingly, polygraph validity is higher in field studies with real events without the need for global evaluation with factual and behavioral assessment.

Chance of error - review of opinions

Polygraph developer John E. Reid claimed a percentage of known errors of less than 1% in over 35,000 cases performed in his laboratory (Matte, 1980, p.8). His partner Richard (Dick) Arther reported that he has discovered errors in only 0.05 percent of all of his examinations and estimated the maximum possible error rate of not more than one percent (Barland, 1975). In one hearing in an American court a polygraphist as witness for the question of judge:

> Have you ever made a mistake in rendering an opinion ? answered: Knowingly, I have four such mistakes. Q: In 25, 000 tests ? - A: Yes. Q: Am I correct, then in assuming that in many of the cases where you have diagnosed truth or deception that either an outright admission, subsequent interrogation or investigation, other circumstances - corroborated the polygraph recordings in your opinion? A: That is correct. (Ferguson & Miller, 1973, p.34).

The fallacy of reasoning that one error in 100 cases gives 99% accuracy, in view of Barland (1975), becomes apparent if we add one more fact: of 100 examinations, the examiner knows positively in only 10 of the cases whether his decision is correct "So it is best to stick with what you really know, that here is one error in ten verified cases, and accuracy rate in this hypothetical instance is 90% with an error rate 10%." All of these opinions are not sufficient for an evaluation of the scientific validity of polygraph, but are reasonable in light of previously presented data regarding validity and the practical conditions of examinations conducted in support of criminal investigations. They could also represent group interests, but are not cited by the polygraph community to promote polygraph or as discussion arguments.

Matte (1980) opined that “Approximately 75% of the examinees referred by defense attorneys were guilty of the offense for which they were polygraphed, as evidenced by the polygraph results that were in most cases substantiated by their own posttest admissions or confessions.” The message is that at any level of criminal investigation mostly guilty persons are involved and offered polygraph examinations.

According to PR standards, it is proper to answer questions more in accordance with expectation than to scientific correctness. Dan Sosnowski of the American Polygraph Association stated that “Polygraph reveals deceptive answers in more than 90% of cases (Vergano, 2002). It was not appropriate to cite the 1997 APA report that average validity in field studies is 98% and this information also could lead to incorrect conclusions and generalizations that polygraph would have 10% chance of errors in practice.

A scenario of hypothetical examinations was not described in the Ash (1975) or Iacono and Lykken (1997) surveys and also this 2006 survey to evaluate polygraph validity. The accuracy and effectiveness of polygraph is different from the typical criminal case of theft or murder when the purpose is to detect one possible spy between hundreds of innocent subjects in a large organization. The topic of the polygraph examination does not generate more or less errors but differs in effectiveness and may bring more inclusive opinions. In a typical criminal investigation a limited number of suspects are selected for polygraph

examination and evidence collected in the investigation is available to the examiner, resulting in high accuracy rates. Scientific laboratory experiments to establish polygraph validity result in lower rates of validity depending on the scenario.

Discussion – Questions

The rate of error for polygraph based on intuition by many respondents could be understood as 25-50%; however, it seems impossible logically for any profession to have this level of efficiency and validity. Opinions from the polygraph and law enforcement community and from psychologists may be in conflict because of different group interests. This may also be applied to opinions presented by the APA or BPS. In the Ash (1975) survey 60% of prosecuting attorneys, 39% of defense attorneys, 20% of the psychologists and 16% of the sociologists stated that polygraph as an investigative aid was almost always or usually of great value. In 1980, the Director of CIA's Security Committee concluded that the polygraph was the most productive of all background investigation techniques - however this was about utility study not a validity (Committee on Government Operations, 1974). Who is more accurate in the opinion of practical utility of examinations? Is it contradictory for one side to represent the opinion that polygraph has a low value as an investigative aid and a high error rate and the other side to claim the title of forensic science ?

Answers by American lawyers in Ash (1975) survey, 79%-81% median of accuracy, were close to the scientific data available for validity of polygraph examinations. The result of the survey may be misleading and may bring an unintended generalization. The respondents who had little or no experience with polygraph, probably responded intuitively and were unaware of research conducted in the field. If opinion will be narrowed to criminal practice with note that 10-20% examinations have inconclusive results an evaluation of polygraph validity should be much, much higher. The rate of validity in personnel screening can not be generalized in the same way, but the effectiveness of these examinations is also very high. In this matter the task is much more difficult and usually examination results in prevention and sometimes in obtaining critical information during the pretest or posttest interview. In personnel matters like recruitment and screening with all limitations in validity, an error rate could be similar to criminal cases.

With relation to the 2006 survey results there is no explanation offered as to the reasons for incorrect answers in the matter of polygraph validity and only some questions may be asked. The lack of knowledge is unquestionable, but if respondents will be offered supporting information in this matter will they be likely to change their view about the error rate or value of polygraph? To what extent? What do respondents have in their minds while answering the question about validity? Any difference between results of the Ash (1975) survey (median) and 2006 survey (mode) may be also caused by cultural differences and the respondent's own experience with polygraph, because 40%-48% American lawyers had it, as Polish respondents didn't and by different forms of questions. How respondents could answer to a hypothetical question for evaluation of chance error for fingerprint evidence presented in courts as not all of them gave it positive value as scientific evidence in court (only 57%-77% in Girdwoyn 2004 survey)? The information from all analyzed surveys is if chance error (0% or 50%) was not offered in the explanation, the results of the surveys will be questionable. It brings up the suggestion that interpretation of any answers and opinions should be done more in accordance with the psychological process of evaluation.

Opinions have a tendency to be self maintaining when people are collecting information to support them instead of verifying them objectively. All respondents may see polygraph as personal trait or not acceptable on ethical reasons and not separate their opinions from evaluation error rate. But how could lawyers have a totally wrong opinion if they, on a daily basis, decide about freedom, and the wellbeing of other people? Errors in court are very rare in final decisions and sentences but may be more common in many related to it, but also in important matters. An explanation of wrong answers regarding chance errors and validity may not be related to polygraph or methodology of this survey but to the general

psychological process of evaluation. Self-fulfilling prophecy, halo effect, first impression effect, theory and error of attributions, probability assessment and other psychological mechanisms may help to explain why errors could accrue, especially in evaluation of validity testimony or other misjudgments in court hearings. The general tendency toward negative evaluations for unknown things, objects and errors to probability assessment are most applicable in this matter.

Conclusion

Polygraph is well founded in law, but common knowledge about examinations is poor. In three groups of respondents depends on context to the next question law students gave for polygraph evidence low value at different level of answers: 54% (Gridwoyn, 2004), 29% and 22%. The answers of respondents in 2005/6 survey for question about estimation of error rate for polygraphist in criminal case: 20-30%, 50%, 50% and more were: 32.8% for court curators, 43.5% for judges, 31.4%-44,5% for law students. It may by no difference with the level of these unacceptable wrong answers if compared to answers in the Ash (1975) and Iacono and Lykken (1997) surveys. For many respondents, including prosecutors, judges and psychologists (scientists), in all of the analyzed surveys it seems possible to practice a profession (polygraphy) with a 30%-50% error rate and sell its product to courts, employers, police, army and intelligence.

Opinion regarding polygraph validity from the legal profession was probably affected by error from the psychological process of evaluation, lack of knowledge, fear of their integration, and ethical grounds but should be founded on more objective scientific standards and information. Ethical, psychoanalytic and cultural reasons could explain their attitude towards polygraph but they are not giving good arguments in the matter of validity and utility. It is essential for legal professions to successfully separate faith from knowledge, science from art, and emotions from rationality to avoid any mistakes in practice affecting other people. If reports from surveys are lacking in information about validity / chance error (0%-50%), the range of answers and are limited to median or mean. It may lead to contradictory conclusions.

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American Polygraph Association – Model Policy

Model Policy for Post Conviction Sex Offender Testing (Updated. Supersedes version published in issue 36(2) of Polygraph)

Introduction

Post conviction sex offender testing (PCSOT) differs from pre-conviction testing. Historically, pre-conviction polygraph testing has primarily been used in investigation of reported wrongdoing and screening for, or periodic testing of employees. Post conviction sex offender testing involves various applications, some of which are similar to pre-conviction testing and others that are dramatically different.

As a group, convicted sex offenders with their psychological disorders and knowledge of polygraph procedures must be considered high risk when determining who is likely to attempt to defeat the examination process. Because of these and other psychological factors associated with the polygraph testing process, the American Polygraph Association (APA) has developed this "best practices" model policy.

The APA recognizes that the polygraph profession can best serve treatment and supervision missions related to sex offenders by functioning with a Containment Model. Open communication between team members is of paramount importance. Working as a member of a team, the polygraph examiner, the treatment provider, and the supervisory officer can best protect society. The role of the polygraph examiner in the containment approach is to verify or refute information provided by the offender and to serve as a deterrence tool.

The APA does not recommend revocation of an individual under court supervision or termination of treatment based solely on the results of one polygraph examination.

As with any polygraph examination, PCSOT examinations do not take the place of an investigation if information is learned about the offender violating his or her probation. Instead, the polygraph is used to enhance the surveillance process. A thorough investigation should always be conducted in conjunction with the PCSOT polygraph examination if the probation department is considering revoking an offender's probation.

This model policy is based on the latest scientific studies. It is understood that various jurisdictions have restrictions or guidelines that might conflict with the recommendations in this model policy. When the local restrictions conflict with these recommendations, the examiner should comply with local restrictions. It is suggested that examiners in these jurisdictions coordinate with the APA to update their local regulations to the latest scientifically validated procedures.

1. General Provisions

1.1 All polygraph examiners that are members of the APA shall comply with all APA Standards and Practices unless in conflict with the law, in which case the law shall prevail.

1.2 PSCOT examiners are required to satisfy the provisions set forth in the Standards of Practice for investigative examinations.

1.3 It is recommended that individuals who are under the age of 12 not be subject to PCSOT examinations.

2. Examiner Requirements

2.1 To ensure competency in the area of PCSOT, polygraph examiners must have successfully completed a minimum of forty (40) hours of specialized post conviction sex offender training that adheres to the standards established by the APA. This specialized course must be approved by both the General Chairs of the PCSOT and Continuing Education Committees.

2.2 An instructor who teaches a PCSOT course shall possess a primary instructor certificate issued by the APA.

2.3 Polygraph examiners shall successfully complete a minimum of thirty (30) continuing education hours every two (2) years. Sixteen of those hours should be of specialized sex offender polygraph training.

2.4 A polygraph examiner shall, where applicable, be licensed (or certified) by the regulatory organization in all testing jurisdictions.

2.5 Because of the unique roles of polygraph examiners and therapist/treatment providers, and to avoid conflicts of interest, PCSOT examiners who are therapists/treatment providers shall not conduct polygraph examinations on an individual that they directly or indirectly treat or supervise.

2.6 Because of the unique roles of polygraph examiners and parole or probation officers, and to avoid conflicts of interest, PCSOT examiners who are probation or parole officers shall not conduct a polygraph examination on any individual that they directly or indirectly supervise.

2.7 Examiners should complete a minimum of 25 examinations in accordance with APA standards prior to undertaking PCSOT examinations. Examiners who have conducted fewer than 25 such exams should conduct PCSOT exams under the supervision of an APA recognized PCSOT examiner until 25 exams have been completed in accordance with APA standards.

3. Environment

3.1 All examinations shall be administered in an environment that is free from distractions that would interfere with the examinee's ability to adequately focus on the issues being addressed.

4. Equipment

4.1 Examiners shall use an instrument that is properly functioning in accordance with the manufacturer's specifications.

4.2 The instrument shall record continuously during the tests: thoracic and abdominal movement associated with respiratory activity by using two pneumograph components; electrodermal activity reflecting relative changes in the conductance or resistance of current by the epidermal tissue, and; cardiovascular activity to record relative changes in pulse rate and blood pressure. The instrument should include a separate data channel specifically designed to record covert body movements. A channel that detects vasomotor responses and other validated data channels may also be recorded.

5. Scheduling

5.1 Polygraph examinations should be scheduled at least 90 minutes apart. To avoid a reduction in examiner performance due to fatigue, the scheduled work day should not exceed ten (10) hours in any twenty-four (24) hour period.

5.2 To safeguard against the possibility of client habituation and familiarization between the examiner and the client, the polygraph examiner should not conduct more than four separate examinations per year on the same client. This restriction does not include a retest due to a lack of resolution during an initial examination. A continuation of a previously started examination is not considered a separate examination.

5.3 An examiner should not plan to or conduct an examination of less than 90 minutes in duration from the start of the pretest interview through the end of the post test interview, unless circumstances arise beyond the control of the examiner. These circumstances could include: an examinee who is not willing or suitable to continue the exam; an examinee making pretest admissions of such an extreme magnitude as to cause the examiner to question if psychological set may be in jeopardy, thereby rendering the sexual history document incomplete; an examinee not cooperating during the in-test phase of the examination, or; court order where a complete post test interview is not permitted.

5.4 Because the time requirements to competently complete sexual history disclosure examinations, an examiner should

not conduct more than three (3) sexual history disclosure examinations in the same day.

5.5 Notwithstanding rare and exceptional circumstances, an examiner should not conduct more that a total of five (5) polygraph examinations in the same day.

6. Preparation

6.1 Examiners should ensure they use professionally recognized polygraph equipment that is functioning in accordance with the specifications of the manufacturer.

6.2 An examiner's preparation to conduct each examination should include:

6.2.1 Reviewing the written sexual history documentation if one has been collected by the therapist or referring agency before conducting a sexual history disclosure examination.

6.2.2 Reviewing all pertinent documentation concerning the instant offense prior to conducting an instant offense examination so to enable to examiner to identify testable issues and to develop relevant and other technical questions.

6.2.3 Identifying appropriate relevant issues, possible relevant questions and other technical questions based on communication(s) with the applicable supervisory officer, treatment provider, or both, prior to the conduct of a maintenance or monitoring examination.

6.2.4 Becoming knowledgeable of the conditions relevant to the offender being in the community as well as rules and directives of the treatment provider for each offender to be tested.

7. The Examination Process

7.1 The polygraph examiner should respect the rights and dignity of all persons to whom he or she administers polygraph examinations.

7.2 The polygraph examination should routinely consist of a pretest phase, in-test phase, test data analysis phase and the post-test phase.

7.3 The pretest phase should be appropriate for the technique utilized.

7.4 The examinee shall consent in writing or recording to the administration of the examination and release of information disclosed, to include the professional opinion of the examiner, to those specified on a consent document, and others as required by law.

7.5 Sufficient time shall be spent to ensure the examinee has a reasonable understanding of the polygraph process and the requirement for cooperation.

7.6 A comprehensive discussion of issues to be tested shall take place with the examinee, including an opportunity for the examinee to fully explain his or her answers.

7.7 An appropriate review of all test questions shall take place with the examinee, allowing sufficient time to ensure the examinee recognized and understands each question.

7.8 The administration of polygraph testing shall conform to professional standards for the conduct of the utilized polygraph technique.

7.9 An acquaintance test shall be administered during the first examination of each examinee by each examiner unless precluded by the protocol of a validated polygraph technique.

7.10 The examiner should discuss the examination results with the examinee, unless precluded by law, to afford the examinee a reasonable opportunity to explain reactions noted during testing.

7.11 When appropriate, additional testing should be arranged and ultimately conducted. This testing which would be due to a lack of resolution during the initial examination shall be considered a continuation of a previously administered examination.

8. Polygraph Testing Principles

8.1 Examinations should follow established professional practice guidelines as approved by the APA.

8.2 Examinations should follow established professional practice guidelines regarding crossing the time barrier.

8.3 Examinations should follow established professional practice guidelines regarding crossing the frame of reference.

8.4 The offender should complete his or her sexual history form prior to the conduct of a sexual history disclosure polygraph examination.

8.5 The sexual history documentation should be reviewed in the treatment setting prior to the conduct of the sexual history disclosure examination. The examiner would not need to approve this paperwork prior to administering the examination.

8.6 The examiner should document all admissions and clarification of relevant information during the pretest phase of the examination.

8.7 The examiner may conduct the in-test phase of the examination if the examinee discloses new victims that had previously been hidden by the offender during the treatment process as long as the examiner believes that they can establish the proper psychological set.

9. Question Formulation

9.1 The polygraph examiner is responsible for ensuring all polygraph test questions are properly constructed and appropriate for the technique utilized.

9.2 There should not be more than four (4) relevant questions per test series.

10. Test Evaluation

10.1 Polygraph examiners should not render a conclusive diagnosis when the physiological data lacks sufficient quality and clarity.

10.2 Polygraph examiners should employ quantitative or numerical scoring for polygraph examinations.

10.3 Polygraph examiners should evaluate and report the results based on the test physiological data recorded. Examination results of single-issue tests should be reported as Deception Indicated (DI), No Deception Indicated (NDI) or Inconclusive (INC) / No Opinion (NO). Examination results of multiple-issue tests should be reported as Significant Response (SR), No Significant Response (NSR) or No Opinion.

10.4 To reduce the rate of incorrect test results on the multiple-issue test the examiner should not conclude that an offender has Significant Response to one or more test question(s) and have No Significant Response to (an)other test question(s) within the same test series.

10.5 If an offender has Significant Responses to one or more of the relevant questions in the same test series, he or she is to be deemed to have Significant Responses to the test. The polygraph examiner should not report the results of the polygraph examination as No Significant Responses or render an opinion of truthfulness unless all relevant questions on the test series are scored as No Significant Responses.

10.6 Polygraph examiners should seek peer review regularly, but for at least two examinations per year. The peer review could also be utilized at the request of the treatment provider or supervisory officer.

11. Documenting and Reporting Examinations

11.1 It is recommended that all PCSOT examinations be electronically recorded in their entirety unless prohibited by state statute, government regulation or contractual obligations. Audio/video is preferred, but audio-only is acceptable. If an examination is going to be submitted for a quality peer review, the test in its entirety must be videotaped.

11.2 Reports should be factual, comprehensive, and free of any opinions or recommendations about court supervision, incarceration or treatment.

11.3 Reported examiner conclusions concerning the veracity of the examinee should be limited to those based on analysis of the recorded physiological data resulting

from the complete and proper administration of a standardized validated technique which utilize a comparison question technique consistent with the APA Standards of Practice.

11.4 Written, audio and audiovisual documentation developed during and while reporting on an administered PCSOT examination should be maintained for at least one year.

Correction by Author

James A. Matte

This correction is in reference to the article "Psychological Structure and Theoretical Concept of the Backster ZCT and the Quadri-Track ZCT" published in issue 36(2) of *Polygraph*.

The Order of Review of test questions for both the Backster ZCT and the Quadri-Track ZCT are incorrect as published in the article. The last question, as now reflected in the article in both tests, to wit: 14J Neutral/Irrelevant Question, should be reviewed after question number 48 in the Backster ZCT and after question 24 in the Quadri-Track ZCT. In other words, the two Symptomatic Questions in both test formats are reviewed last.

Errata

In a tremendous oversight, the name of the fourth author (Nezhdanov) of the lead article of issue 36(2) of *Polygraph* was not included among the authors, but instead was listed among the contact information. Thus the accurate reference for the article should appear:

Ioffe, S., Yesin, S., Afanasjev, B., & Nezhdanov, I. K. (2007). Psychosemantic diagnosis of alcoholic dependencies tested at the subconscious level in military personnel with posttraumatic stress disorder. *Polygraph*, 36(2), 57-69.

In addition, the following article by Mr. Cleve Backster, published in issue 36(1) contained a paragraph that was corrupted/jumbled in the publication process. Due to its brevity, this article will be reprinted in full.

My sincerest apologies go out to the authors whose works have been affected by my editorial errors.

Dr. Stuart M. Senter

History of the Backster Zone Comparison Technique

Cleve Backster

The recent article published in the 2006 volume 35, no. 3 issue of the journal, *Polygraph*, titled "Validated Polygraph Techniques," authored by Donald Krapohl, concluded that the Utah Zone Comparison Technique and the Federal Zone Comparison Technique indicate the highest accuracy (without inconclusives) of the various techniques evaluated. Conspicuous by its absence was any mention (not even a reference or footnote) of The Backster Zone Comparison Technique. This oversight has prompted me to outline an accurate history of my technique, which, minus the Backster name, constitutes the major components of the two techniques rated highest in the Krapohl article.

Regarding the Utah Zone Comparison Technique, it should be noted that one of the involved examiners, David Raskin, received his basic polygraph examiner resident training from a Backster School of Lie Detection course conducted from September 10th to October 20th, 1973. David Raskin was awarded his final certificate of overall course completion in November 1974. The other involved polygraph examiner, Charles Honts, received his basic polygraph examiner resident training from a Backster School of Lie Detection course conducted from September 13th to October 23rd, 1976. Charles Honts was issued his final certificate of overall course completion in January 1978. Although the Backster name has been eliminated, the more important aspects of the original Backster Zone Comparison Technique continue to remain intact.

The following historical facts may be of interest regarding the Backster Zone Comparison Technique. It should be noted that I have been continuously active in the polygraph profession for the past 58 years. I initiated the Central Intelligence Agency Polygraph Program in 1948. During the period of 1958 to 1965, I was reappointed Chairman of the Research and Instrumentation Committee of the Academy for Scientific Interrogation, which was then the largest professional polygraph organization. This was prior to a 1966 consolidation with smaller groups, establishing the American Polygraph Association.

During 1960 and 1961, I completed the consolidation, refinement and expansion of the then existing polygraph techniques and created the term *zone comparison.* I titled the technique The Backster Zone Comparison Technique. A series of standardized polygraph examiner notepacks were published. These were designed to guide the polygraph examiner in the use of the technique. The first two notepacks were spirit duplication editions. The first widely distributed four-color notepack edition was commercially printed in 1963. A revised four-color edition was printed in 1969. As a historical note, this notepack was reproduced in color in a 1970 textbook entitled *Investigation and Preparation of Criminal Cases—Federal and State*, authored by F. Lee Bailey and Henry Rothblatt. Sample case entries, based on an actual case, were made on the notepack by the late Robert Henson. Black and white editions of this notepack have been in active use during the past 27 years.

Regarding the history of the Federal Zone Comparison technique, the article entitled *Fort Gordon Lie Detector Course Updated*; originally appeared in *The Military Police Journal* early in 1963 and was reprinted in December 1963 in The Academy for Scientific Interrogation Polygraph and Interrogation section of *Law and Order* magazine[1]. A quote directly from this article states the following: "Recognizing

[1] The full text of the 1963 article entitled "Fort Gordon Lie Detector Course Updated" and additional information relating to other referenced sources, are posted on the Backster School of Lie Detection website (www.backster.net).

that this advanced technique (Backster Zone Comparison Technique) greatly reduces inconclusive test results and increases examiner proficiency, the commandant, U.S. Army Military Police School, established the Lie Detection Transition Course (19-N-F-15). The purpose of this course is to provide examiners with post graduate training in methods such as the BZC, developed since their graduation from the Lie Detection Course."

The publication entitled *The Accuracy and Utility of Polygraph Testing*, was published by the Department of Defense in 1984. On page 31 the origin of what was later called the Federal Zone Comparison Technique is clearly established. When the U.S. Army Military Police Polygraph School was elevated to Department of Defense status in 1986, the Backster name was deleted from the technique designation.

Page one of a 1990 DoDPI ten page lesson plan summary sheet titled FSC 501 Control Question Techniques - Zone Comparison Test - clearly identifies the source of the DoDPI Zone Comparison Test, stating it "has changed little from the original Backster testing technique of 1961."

My use of field reports concerning the success of the Backster Zone Comparison Technique, rather than laboratory studies, is illustrated by an article authored by the then Superintendent of the Virginia State Police. This was published in the American Polygraph Association July-August 1998 Newsletter.

In 2006 the American Polygraph Association Board of Directors established the Cleve Backster Award, which is to be presented annually honoring an individual, or group, that advances the polygraph profession through tireless dedication to standardization of polygraph principles and practices. The 2006 recipient of this award was the American Association of Police Polygraphists.

In addition to Donald Krapohl's omission of the Backster Zone Comparison Test as a validated polygraph technique, a more recent item of concern has surfaced in the form of a 67 page document, titled Test Data Analysis: DoDPI Numerical Evaluation Scoring System (dated August 2006). The entire document includes numerous aspects primarily associated with the Backster Zone Comparison Technique, yet the Backster name has been systematically omitted throughout, even in the document glossary and reference sections.

As Director of an APA accredited school, having just completed its 171st basic polygraph examiner course, the Krapohl article would seem to indicate that I have been teaching a technique for more than forty- five years that lacks validation. It is hopeful that my article's more realistic assessment of the history of the Zone Comparison Technique will provide some needed clarification.