TOOLS FOR DETECTION OF DECEPTION

Lie or deception analysis is a significant challenge for investigators especially in crime cases. Identifying liar from normal human behaviour has higher relevance with external behaviour and cognitive functionality of human brain. Methods such as polygraph, cognitive polygraph, facial electromyography, eye tracking, voice stress analysis and functional magnetic resonance imaging have been already developed for deception analysis. Even these methods has its own merits, all these methods faces a common issue of accuracy in deception detection ratio due to different kind of liars and learned criminals. Thinking is an internal stimulus having relationship with deception. Identifying thinking responses from brain is one of the measures used to detect deception.

4 basic classes are there for tools for detection of deception.

1. First class, considers physiological indicators of autonomic and somatic activity that are not detectable without special sensing equipment.
2. The second class includes techniques involving observations of brain function. This class is attractive on grounds of basic psychophysiology
3. The third class of techniques attempts to achieve detection of deception from demeanor: these techniques usually involve careful observation of specific behaviors of examinees (e.g., voice, facial expression, body movements, choice of words)
4. The fourth class is based on overt, direct investigations and includes employment questionnaires; background checks; and employee surveys, questionnaires, and paper-and-pencil tests.

Types of Tools

1. Non-verbal detection

It includes Several signs of nervousness, such as gaze aversion (avoidance of eye contact) and fidgeting. liars shiver and engage in fidgeting behavior. Utility of observing posture, eye movements, And knee jerks for lie detection purposes.

Cues
Vocal
Hesitations (use of speech fillers, e.g., "ah," "um," "er," "uh," and "hmmm")
Speech errors (grammatical errors, word or sentence repetition, false starts, sentence change, sentence incompletions, slips of the tongue, etc.)
High-pitched voice
Speech rate (number of spoken words in a certain period of time)
Latency period (period of silence between question and answer)
Pauses (silent, filled, or mixed)
Visual
Gaze aversion (looking away from the conversation partner)
Smiles (smiling and laughing)
Facial fidgeting (face touching or rubbing hair)
Self-fidgeting (touching, rubbing, or scratching body or face)
Fidgeting (undifferentiated)
Illustrators (hand and arm movements designed to modify or supplement what is being said verbally)
Leg and foot movements
Posture shifts (movements made to change seating position)
Head movements (head nods and head shakes)
Eye blinks (blinking of the eyes)

2. Statement analysis

Statement Analysis is the most accurate way of determining if a person is lying in a verbal or written statement. A person cannot give a lengthy deceptive statement without revealing that it is a lie. This is because people's words will betray them. There are usually several ways you can phrase a statement. People will always word their statement based on all their knowledge. Therefore, their statement may contain information they did not intend to share. Even though people may want to withhold information, they will give us more information than what they realize.

For statement analysis mainly 2 methods are used;

i)   Word Definitions

The majority of the Statement Analysis techniques are based on word definitions. Every word has a meaning. When you combine this with the fact that people mean exactly what they say, it then becomes possible to determine if people are telling the truth.

For example:

"You know, I am trying to be as honest as possible."

In this one sentence, there are three things which tell us what this person is saying.

The subject starts off saying "you know." The subject expects us to take for granted that he is being honest. The problem is he has not told us he is being honest. He did not state "I am being honest." He states "you know" but we do not know. We cannot believe he is being honest unless he tells us he is honest.

The subject goes on to say, "I am trying." The word "trying" means "attempted," "failed," "didn't do it." The subject is clearly telling us he is not being honest. He is only attempting to be honest.

He ends his statement by saying that he is trying to be as honest "as possible." The words "as possible" mean the subject has a limitation to his honesty. He can be honest up to a certain point. Apparently at this point in the interview he reached his limitation.

ii)   Rules of grammar

Some of the Statement Analysis techniques are based on the rules of grammar. For example, the rules of grammar define how articles are used in a statement. The indefinite articles "a" and "an" are used to identify someone or something that is unknown. Once the person or thing has been introduced, we are then required to use the definite article "the." Consider the following statement from an alleged robbery:

"I was standing at the bus stop when a man approached me and asked me what time it was. The man then pointed the gun at me and told me to give him my wallet."

In the first sentence, the victim properly refers to the attacker as "a man." Having identified the attacker, he then correctly refers to him as "the man" in the second sentence. A problem arises when he refers to the weapon as "the gun." Since this is the first time he mentions the gun, he should have called it "a gun." Using the definite article "the" tells us the victim definitely recognized the gun or he is making up the story which was the case in this situation. Because he is thinking about placing a gun into his deceptive story, in his mind he has already made the introduction. Therefore, he uses an article that seems right to him but violates the rules of grammar.

3. Interviews

Deception detection in intelligence interviews differs in several ways from Deception detection in traditional police – suspect interviews. For example, in police – suspect interviews Investigators typically focus on a suspect's past activities, but in intelligence settings Investigators are often interested in someone's future activities (e.g., intentions). Another difference is that in intelligence settings investigators, and particularly those who are working in an undercover capacity, sometimes have good reason not to tell the interviewees that the 'chat' they have with them is in fact an interview. A third difference is that terrorist acts are often planned and executed by groups rather than individuals. A fourth difference is that police suspect interviews are typically focused on solving crimes through obtaining admissions or confessions from suspects, whereas intelligence interviews are more about gathering information.

A consistent finding In deception literature is that liars prepare themselves for possible interviews by thinking of answers to questions they expect to be asked. The strategy of preparing answers to possible questions makes sense. Planning makes lying easier, and planned lies typically contain fewer cues to deceit than do spontaneous lies. However, the positive effects of planning will only emerge if liars correctly anticipate which questions will be asked. Investigators can exploit this limitation by asking questions that liars do not anticipate. Though liars can refuse to answer unanticipated questions, such "I don't know" or "I can't remember" responses will create suspicion and should therefore be avoided if the questions are about central aspects of the target event. A liar, therefore, has little option other than to fabricate a plausible answer on the spot, which is cognitively demanding.

Liars (guilty suspects) and truth tellers (innocent suspects) generally enter interviews with different counter-interrogation strategies. Liars are inclined to use avoidance strategies (e.g., avoiding mentioning where they were at a certain time) or denial strategies (e.g., denying having been at a certain place at a certain time when asked directly). In contrast, truth tellers are generally more forthcoming and "tell the truth like it happened". When investigators possess critical and possibly incriminating background information (evidence), they can exploit these differential truth tellers' and liars' strategies by introducing the available evidence during the interview in a strategic

manner (the Strategic Use of Evidence technique). When questions are asked about the evidence, guilty suspects tend to use more avoidance strategies, whereas innocent suspects use more forthcoming strategies.

In intelligence settings it may be useful to conduct interviews without the suspect actually knowing they are being interviewed. This is called undercover interviewing. Undercover interviewing may fit particularly well in terms of determining the veracity of an individual's intentions. At the intentions stage, no crime has yet been committed, and a formal interview may therefore be inappropriate. In addition, in some investigative contexts, law enforcement and security personnel may have good reason to extract information from a suspect without them actually being aware that they are under investigation

4. Hypnosis

Hypnosis, also called hypnotherapy, is a state of deep relaxation and focused concentration. It's a type of mind-body medicine. A trained and certified hypnotist or hypnotherapist guides you into this deep state of focus and relaxation with verbal cues, repetition and imagery. When you're under hypnosis, this intense level of concentration and focus allows you to ignore ordinary distractions and be more open to guided suggestions or questions.

<u>Stages of Hypnosis</u>

1. Induction
   During this stage, you begin to relax, focus your attention and ignore distractions. Your hypnotherapist will guide you through this stage with specific techniques such as controlled breathing (breathing in over a count of seven, then breathing out over a count of 11), or progressive muscle relaxation (tensing muscles as you breathe in and relaxing muscles as you breathe out, then repeating in a certain order of muscle groups throughout your body) or focusing on a visual image.

2. Deepener
   This stage continues the first stage, taking your relaxation and focus to a deeper level. This step often involves counting down or using similar descending imagery such as walking down stairs or slowly sinking deeper and deeper into a comfortable bed. These first two stages are aimed at easing your openness to questions.

3. Suggestions/ questions
   This is the stage for actual change in experience, behavior or perception. Your hypnotherapist will use imagery and carefully chosen language/ questions.

4. Emergence

During this stage, you come out of hypnosis.