Layered Voice Analysis: The Hidden Ace for The Investigator

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ABSTRACT

Layered Voice Analysis is a more recent addition to the different scientific interrogation techniques, i.e. Deception Detection Techniques (DDTs). It is a technique that aims to detect psycho – physiological reactions in the voice modulations of the subject while narrating their version of event or incidents. This technique can be quite helpful in understanding how and where the subject is trying to either manipulate or be deceptive while narrating their version of the events, making it an important aide for investigation in criminal cases where there are discrepancies in the multiple versions of the incident under investigation. In the current article, the authors have tried to establish a theoretical background to the utility of Layered Voice Analysis in criminal investigations and how it can be an incredible tool that would be helpful for forensic psychologists to understand and form a holistic view of the subject under investigation.

Human voice can become an important information source about an individual that is not limited to the age, ethnic background, current emotional state as well as any psychological stress that the individual may be undergoing at that particular moment. Thus, making it a highly specific identification tool that can become.

So a method that reliably deduces the speaker's emotional condition and deception through the changes in their voice modulations while narrating the incident under investigation would be of such practical utility and relevance to a multitude of investigating agencies.

Forensic Psychology has gained leaps and bounds as field of scientific interrogation techniques; especially in the area of deception detection. Thus, it comes as no surprise that in recent years, a new approach/method of voice based "lie – detection" has come forth; developed by an Israeli based company, Nemesysco referred to as Layered Voice Analysis (Harnsberger et al, 2009).

Deceptive behaviour underscores two different types of behaviours, either the individual would try to conceal information regarding the incident in question or the individual would end up fabricating information about the incident in question.

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There is an intricate cognitive process that occurs when an individual recalls a particular event. This cognitive processes works overtime when a person is fabricating details like who, what, why and when about the incident. This happens because the individual has to keep track of all the little details that would make up the fabricated version of the incident.

While both fabrication and concealment of information are deceptive behaviours; they are fundamentally different. There may be times when lying or rather fabrication of facts may be harmless but any concealment of information or deception by omission of facts in an incident that is detrimental to the safety of the society; in other words, either in commission of a crime or after a crime has been committed. This raises the need to understand and find a way to catch this deception, as a way to investigate the crime with the use of such a scientific interrogation techniques.

Deception Detection Techniques (DDTs) in India include Polygraph Examination, Brain Mapping/Fingerprinting and Narco – Analysis, i.e. using mainly the four general ways to detect lying behaviour – measuring physiological responses, brain activity, behavioural observations and lastly analysis of speech patterns (Vrij and Ganis, 2014).

A famous theory of deception, the Four Factor Theory of Deception opines that deception at start involves arousal, anxiety and guilt which is later followed by the cognitive appraisal along with the individual's attempt to appear honest and/or truthful by trying to control both verbal and non – verbal behaviour (Zuckermann, et. al. 1981).

Understanding the various reasons why an individual decides to indulge in deceptive behaviour can thus become a challenging task for the Forensic Psychology Expert, especially in such cases wherein there are multiple versions of multitude witnesses to the some incident.

LVA, as Nemesysco opines that the software functions "upon a voice frequency analysis involving the application of 8000 mathematical algorithms to 129 voice frequencies that are affected by physiological reactions to stress of telling lies (Harnsberger et al, 2009).

In layman terms, Layered Voice Analysis detects and analyses the emotional cues, cognitive processes as well as psychological stress that can be undetectable to human ears through the voice of the subject when narrating their version of the incident under investigation.

This is where the Forensic Psychology's Scientific Interrogation technique of Layered Voice Analysis becomes an important aid in the criminal investigation. LVA is a tool that can not only be used in interrogations but also in one-on-one interviews of suspects, victims, witness and or accused as well as in any group sessions. There are two ways that the LVA can be helpful during investigations, ie. either during real time interview/interrogation sessions, (online analysis) as well as of recorded audio files through offline analysis.

CONCLUSION

LVA, thus as a scientific interrogation tool assesses the physiological, cognitive and emotional variations as well as deviations in the voice modulations of the subject that may or may not be associated with deception.

However in conjunction with the technology tools like LVA, it is combination of a pre-test interview and a detailed in depth post-test interview that the expert comes to the opinion

about the deceptiveness or truthfulness of the subject. All in all, it is the skill of the forensic psychologist expert, who should be able to convince the subject to reveal their deception if any.

There can be various reasons for a subject's deception, be it to protect oneself from criminal prosecution or in other cases, to protect loved ones. LVA as a technology detects psychological and physiological reactions that would tend to deviate from the individuals baseline, which indicates changes or manipulation that could facilitate the investigators to follow new leads and directions in the investigation (Lykken, 1981).

LVA, thus becomes an important aid in investigation, especially in cases where the most important evidence lies in the witness statements regarding the crime under investigation. LVA measures uncontrolled emotional parameters including excitement, aggressiveness, fatigue and stress. Thus, this gives the forensic expert a better understanding by the mental state along with an emotional profile of a subject by analysing the emotional uses detected in their speech.

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