

Letter to Editor

Prologue - Science and Policing Make for Better Justice

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DEAR EDITOR,

I am impassioned by the search of truth in criminal justice. I suppose a 30 plus year long career in law enforcement promotes these ideals. From the police academy, young police officers often graduate holding idealised sets of beliefs about the justice system, but they gradually realise that the truth gets forgotten or cast aside at times in meandering judicial procedures and legalistic arguments. After all, without exactness of fact how can there be justice?

The research for my Master's degree originated from a discussion I had with a senior police manager in charge of the anti-organised crime unit while I was about to complete my second undergraduate degree. I wanted to select a team of interviewers for the planned arrest of leaders and members of a large and powerful criminal organization. He claimed that any investigator could be an effective interviewer. I believed otherwise, and I set myself on a course to prove it. I lost the argument and out of two dozen arrests, none materialized in confessions or admissions of any sort. Fortunately, all were convicted primarily because of wiretap evidence and the testimony of a human source turned state-agent.

This lamentable experience in police effectiveness to interview suspects prompted research for a Master's degree into the profile of interrogators among Canadian police officers. My research was unique in that it investigated certain characteristics, namely personality, interviewing competency, and communicative suspiciousness, of serious crime interviewers across Canada in relation to interrogation outcome. The findings from logistical regressions showed that approximately a quarter of the variability in the outcome of an interrogation was accounted by certain personality traits, competency characteristics, and degrees of communicative suspiciousness. These conclusions were then published in the scientific journal *Investigative Interviewing: Research and Practice*.

Naturally, much more research needs to be done. A distant objective for this line of investigation is the creation of a profile matrix. Police investigative squads could utilise this scientific instrument to match the personality of offenders with that of an interviewer. The goal is to obtain the best possible investigative

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outcome at obtaining a credible and truthful statement, with rapport building being at the core of this approach. Let's call it 'investigative speed dating'.

Lie detection became another line of inquiry that piqued my curiosity. As I attended a course on interrogation, I was particularly disconcerted by a braggart instructor who was extolling the efficacy and virtues of the much-criticized Reid interrogation technique to detect deception. This experience led me to search for alternative methods of eliciting the truth from law breakers. I then found out about a memory detection technique, the Concealed Information Test (CIT), an idea borne out of the mind of American scientist David Lykken in 1959. The application of sound neurophysiological theories (e.g., Orienting Response) to the CIT makes this technique well-grounded in science.

The field of brainwave analysis to detect memorable events of a criminal nature stored in memory was occupied by two principal investigators, Dr. Lawrence Farwell from Brain Fingerprinting Laboratories Inc., and the late Dr. Peter Rosenfeld from Northwestern University. As part of a credit-based practicum, I chose to attend Dr. Rosenfeld's laboratory in 2015, to learn about his EEG-based memory detection technique called the Complex Trial Protocol (CTP). The CTP became the focus of my PhD research.

The following findings emerged from a series of laboratory experiments. A first study successfully replicated and validated Rosenfeld's CTP with autobiographical data (i.e., participant's surname), and extended the research to demonstrate that the CTP was resistant to a cognitively demanding countermeasure. A second experiment showed that depth of memory processing (shallow vs deep) at the time of stimuli encoding is crucial in the application of the CTP. Using a mock theft scenario and verbal stimuli (e.g., the word "watch") for crime pertinent information (called probes) and neutral alternatives (called irrelevant), results indicated excellent specificity but poor sensitivity in both levels of processing, meaning that the depth of stimuli encoding is a serious limitation for the CTP to detect memorial traces. A third enquiry tested the CTP in a similar fashion as the second one, but this time presented pictorial referents (e.g., image of a watch).

The data was positive for both processing levels demonstrating that the CTP's performance improves when using pictorial stimuli. Finally, a fourth investigation revealed that the aggregate score of multiple pictorial stimuli, in this case a mock terrorism scenario, can significantly segregate guilty participants from innocent ones, and that a memory inhibition countermeasure has the reverse effect of elevating P300 probe amplitude values.

To date findings point towards the CTP enjoying a much higher degree of specificity than sensitivity, but far from 100% in prediction accuracy. Group differences are apparent, but the individual predictive ability of the CTP needs to be improved. Contrary to claims that the CTP is ready for operational field usage by police and presentation of CTP results in court, the CTP requires to be explored much further beforehand. Additional countermeasure techniques need to be assessed as well as submitting the CTP to field testing in more realistic settings. With more research this type of low-cost investigative instrument could provide law enforcement and national security agencies with credible evidence in their investigations, and capable to withstand court scrutiny.

Two other areas of academia round up my research interests,

psychopathy, and violent extremism. The first is an enigmatic field where research is infinite. However, a current question has captured my attention. Is the classification model of successful and unsuccessful psychopathy based on arrest records informative? In my opinion, it is not. In brief, my central argument is that the justice system is a poor metric in identifying that a psychopathic individual is deemed 'successful' or 'unsuccessful' simply because he has evaded authorities, or he has been arrested. Justice systems in the Western world are ill equipped to serve as a model to classify psychopaths along these lines of success.

Violent extremism recently came to the forefront in my academic endeavours. Several risk assessment tools, namely the Violent Extremism Risk Assessment (VERA-2), the Terrorist Radicalization Assessment Protocol (TRAP-18) and the Identifying Vulnerable People (IVP) guidance, currently in practice by several police agencies worldwide, need to be critically assessed. A serious problem emerges when authorities, under immense pressure to ward off potential terrorist attacks, are willing to use tools that have not been properly validated and accepted as reliable. A whole new avenue of research is opening for me, that of testing or improving such instruments or developing new ones.