

Cognitive fallacies and criminal investigations

Every human mind is subject of cognitive bias. This may or may not have consequences in everyday life, however, it can have a severe impact on criminal investigations. Nevertheless, errors do happen, even when the best efforts are made to avoid them. Some mistakes can be prevented by better training, equipment and ethical standards. Still, it is rather difficult to prevent errors that result from cognitive bias as these are based on unconscious assumptions and thus probably on the functioning of the brain itself.



Fig. 1. Actual crime scene – killing and arson to obscure traces. Accurate, unbiased searching for minute traces, their documentation and preservation, according to the state of science is required.

Crime scene investigation should comply with the highest possible standards. While many other errors in a legal process can be corrected to a certain degree in a later appeal (disregarding personal consequences), it is inherently difficult to correct mistakes that are made at the very first stage of a prosecution – the crime scene. Traces that are initially neglected are often lost forever. For this study, the professional experience of highly experienced, senior crime investigators was evaluated with respect to severity and frequency of cognitive errors. These officers selected from a pre-defined list of cognitive errors those that they regarded as most adverse to criminal investigations.

No rating can be given, but the following (involuntary) misinterpretations were regarded as most significant:

Selective perception, expectation and confirmation bias is the tendency to identify, collect, process and evaluate only such information that support one's previous assumption and overlook or disregard conflicting facts. This is not the same as willing misconduct as occurs subconsciously, however the effect on a criminal investigation is the same as concealing

exculpatory evidence from the jury.

Anchoring to inappropriate information may be the result of a wide range of influences. It includes all kind of distractions, individual prejudices, and even physiological states (like hunger vs. comfort). Consequently, these effects are very difficult to avoid altogether, as nearly everything can divert or modify the attention of judgment of an investigating officer. Shifting the burden of proof from the investigator to the suspect is clearly against the standards of civilized law. However, this tendency is often apparent in highly observed fields of crime like e.g., terrorism, domestic violence or copyright disputes, frequently also connected with the deployment of technical means. Nevertheless, it is the obligation of the prosecutor to prove guiltiness and not of the suspect to prove innocence.

Several other sources of misconceptions were also identified, like the "knowledge bias" (we always do it in that way), "overgeneralization" (thinking in stereotypes) and wrong conceptions of statistical relationships (e.g., causal vs. simultaneous events).

In addition to pointing out these "hotspots" of cognitive bias in prosecution also possible counterstrategies are suggested in this study. Thus, persons working at a crime scene (police, coroners, forensic and medical experts, etc.) should receive a special training to alert them to the effects of cognitive fallacies. Furthermore, problems, experiences and hopefully solutions should be discussed regularly in peer cycles of investigators - thus distributing information "horizontally" instead of reporting only to superiors. In addition, it seems worthwhile to analyze error-prone processes in criminal prosecution on a systematic, organization-wide basis by an evaluation board of experts.

While recognizing that the human mind as such cannot easily be changed and the mechanisms of cognitive bias are probably part of our evolutionary history, it might be possible to limit adverse consequences with the recommended organizational measures.

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