
Criminal Investigative Failures

Avoiding the Pitfalls

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As one of the most commonly depicted characters in novels, films, and television shows, the police detective solves complex criminal investigations through deductive skills, high-tech forensics, specialized computer programs, hard work, and luck. In these fictional accounts, good wins, evil loses, and justice triumphs. But, in the real world,

investigations do not always turn out that way. Sometimes, the case stays open, the criminal remains at large, and justice is denied.

Failures in the criminal investigative process can have serious consequences. Unsolved crimes, unsuccessful prosecutions, unpunished offenders, and wrongful convictions bring the criminal justice system into

disrepute. In addition, with the cost of some major investigations climbing into the hundreds of thousands, even millions, of dollars, wasted efforts can prove extremely expensive.

Most investigators, however, are competent, dedicated professionals who want to solve their cases and arrest the right people. So, what causes a major crime investigation to fail or a

criminal prosecution to focus on an innocent person? The answer lies primarily in the subtle hazards or traps that can make the process go awry. Some of the brightest scientists, judges, and detectives have fallen victim to these pitfalls. No one is immune. Researchers in the fields of cognitive psychology, forensic statistics, intelligence analysis, law, and the philosophy of science, however, have suggested some possible explanations, often grouping them into the three areas of cognitive biases, probability errors, and organizational traps. Like cascading failures in airplane crashes, an unsuccessful investigation often has more than one contributing cause.

To fully examine these pitfalls, the *FBI Law Enforcement*

Bulletin presents this article in two parts. The first covers cognitive biases that can lead to criminal investigative failures and some strategies that can combat their occurrence.

COGNITIVE BIASES

Perception and Memory Limitations

People do not objectively survey their worlds. Rather, their experiences and expectations influence the decoding of sensory input (imperfect at best¹). Individuals view the world through different lenses, a filtering process that creates mind-sets.² Quick to form but resistant to change, mind-sets, while neither good nor bad, serve a purpose that under certain conditions can

become problematic. Because perception is based on both awareness and understanding, humans often perceive what they expect to, thereby making premature conclusions dangerous. Communication becomes doubly subjective as it involves two people. What the speaker means, what that person says, what the listener hears, and how that individual interprets the communication may not be the same. Subjective words, such as *tall*, *young*, *likely*, and *dangerous*, have various meanings depending on the situation and the experiences of the speaker and the listener.

What individuals remember depends upon what they believe.³ The brain does not objectively record data. Instead, memories are subjective interpretations, rarely reinterpreted even when circumstances change. New information becomes assimilated with old, which has more influence on the new than vice versa. Because people tend to remember positives and forget negatives, investigators may become ensnared in belief perseverance wherein they place more weight on evidence that supports their hypothesis than on clues that weaken it.⁴ Remaining impartial and open-minded is the best way to accurately assess new information.

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nine items in their conscious memories at one time.⁵ Information stored in long-term memory can be difficult to recall, and investigators may easily forget details irrelevant to their investigative theory, particularly in a complex case. Even if the information later becomes important, it can remain lost because of a failure to develop the neural pathways necessary for retrieval.⁶

Intuition

Most cognitive functioning occurs outside conscious awareness, including perception, information processing, memory, and some methods of decision making.⁷ Humans employ two types of decision making, the intuitive and the rational.⁸ Intuition falls between the automatic operations of perception and the deliberate processes of reasoning. Often misunderstood, intuition is not a paranormal ability or a form of extrasensory perception. Although it operates at a below-consciousness level, intuition still is based on normal sensory input.⁹

Argentinean race car driver Juan Fangio had an interesting intuitive experience during the 1950 Monaco Grand Prix.¹⁰ Braking as he exited a tunnel instead of maintaining speed for an upcoming straightaway, Fangio, unlike many other drivers, avoided a serious accident that

had occurred around the next corner. Why had he braked? After much thought, Fangio figured out what had happened. Spectators invariably watched the race cars roar out of the tunnel, alerted by the echoing thunder of their engines. On the second lap, however, they were

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looking the other way, watching the accident scene. Fangio had fleetingly observed a change in the color of the area of the stands in his peripheral vision. A normally light section from people's faces had become dark from the hair on the back of their heads. Fangio, concentrating on his driving, only noticed this change at a below-consciousness level. But, at racing speeds, change meant risk, and Fangio automatically braked. Intuition helped him avoid the accident and win the race.

Automatic and effortless, intuition also is fast and powerful

and learned slowly.¹¹ Because of its implicit nature, intuition is difficult to control or modify, can be influenced by emotion, and often is error prone. Typically, intuition involves the use of heuristics (cognitive shortcuts). By contrast, reasoning is slow and effortful, vulnerable to interference, and easily disrupted. But, it is flexible and controllable and can overrule intuition.

Different situations require different types of judgment.¹² With unreliable and incomplete data or under chaotic and uncertain conditions, intuitive decision making is preferable. Such situations occur in street policing or on the military battlefield. However, individuals certainly do not intuitively fill out their income tax returns. Therefore, with reliable and adequate data and time for proper analysis, reasoning produces the best results. Complex and rule-bound tasks, such as major investigations or courtroom prosecutions, require careful analysis and sound logic.

Heuristics and Biases

Clear and rational thinking does not come easily. People sometimes exhibit limited rationality in the face of life's complexities because the brain is not wired to deal effectively with uncertainty. Individuals, therefore, employ

heuristics—rules of thumb that substitute simple questions for more complex ones—that typically operate at an intuitive level and work well most of the time.¹³ Under certain conditions, however, heuristics can lead to cognitive biases, mental errors resulting from simplified information processing.¹⁴ Like optical illusions, cognitive biases are consistent and predictable and can result in distorted judgments and faulty analyses. To add to the problem, research has shown a poor correlation between confidence and accuracy. Past a certain point, increased information leads to greater confidence in the analyses but not necessarily greater accuracy.

Psychological researchers have identified many heuristics and biases. Some of these can prove particularly problematic for criminal investigators.

Anchoring

The anchoring heuristic refers to the strong influence of the starting point or first approximation on the final estimate.¹⁵ The prevailing situation and the information available at the time determine the first approximation. Limited or incorrect data will skew the starting point, jeopardizing the path to a correct conclusion. Unfortunately, many murder cases first appear to be something other than what they are.

Tunnel Vision and Satisficing

Tunnel vision (or incrementalism) develops from a narrow focus on a limited range of alternatives. “It results in the [police] officer becoming so focused upon an individual or incident that no other person or incident registers in the officer’s thoughts. Thus, tunnel vision can result in the elimination of other suspects who should be investigated. Equally, events



that could lead to other suspects are eliminated from the officer’s thinking.”¹⁶ Satisficing is the selection of the first alternative that appears good enough. These heuristics might work well for simple errands, such as buying a hammer, but they are ill suited to the task of solving complex investigations.

The murder of an attractive 23-year-old female whose

2-year-old son was the only witness can illustrate these hazards.¹⁷ Detectives received a tip regarding a man who, for the next year, became their investigative focus. After a covert operation to obtain further incriminating information, they finally arrested him. At the trial, the judge quickly threw out most of the prosecution’s evidence, calling the covert operation misconceived. The charges were withdrawn, and the man was released. One detective later commented, “Maybe the team got an *idée fixe*. Maybe they got stuck thinking it had to be [him]. No one dared to challenge that thinking until it got to the judge. But, it’s a terrible mess.”¹⁸ Several years later, enhanced DNA from the victim’s clothing pointed toward a psychopath now detained indefinitely in a secure hospital.¹⁹

Availability

Availability refers to the ease by which previous examples come to mind.²⁰ People make judgments based only on what they remember, not on the totality of their experiences. They can recall recent and vivid events easily but find disagreeable events difficult to remember. Individuals use the availability heuristic for determining how common or likely something is. Limited experience, therefore, can result

in incorrect estimates of likelihood. The availability heuristic proves particularly problematic in investigations of rare crimes, such as child sex homicides.

Framing

The presentation of information influences its interpretation. Called framing, this implies that information always is understood within a context.²¹ An artificial or inappropriate context, however, can distort understanding. Dramatic examples of framing often take place in the courtroom, where opposing legal counsel present and argue variant positions on the particular events in dispute.

Representativeness

People often estimate the likelihood of an event by recalling a comparable incident and assuming the likelihood of the two are similar. This representativeness heuristic is partly prompted by the urge to categorize everything. Similarity in one aspect, however, does not imply similarity in others. For many years, Ted Bundy and his crimes drove the public's image of the typical serial killer case—sexual murders of women committed by an intelligent and mobile white male. But, not all serial murders are sex driven, and not all victims are female. Many serial murderers are nonwhite and below

average in intelligence, and most commit their crimes within their home metropolitan area.²²

Cause and Effect Biases

Perceptions of cause and effect are susceptible to several mental biases. Crime linkage could be undermined if an investigator fails to differentiate internal (psychological) from

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external (situational) causes of behavior when examining offender modus operandi. The level of force used by a rapist, for example, may be contingent on the degree of victim resistance.

The identity fallacy holds that big events must have big causes. Conspiracy theories often are rooted in this belief. Many have found it difficult to accept that a loner like Lee Harvey Oswald, using a \$21.45 rifle (\$12.78 for the rifle plus

the cost of the scope), could assassinate John F. Kennedy, the president of the most powerful nation in the world. Instead, it remains more psychologically comfortable to believe in complicated conspiracy theories.

Illusory correlations can prove misleading on several levels. Events may appear correlated when, in fact, they are not. And, even if they are connected, correlation does not always equal causation. The relationship may be spurious or caused by an intervening event. For instance, in a series of burglary rapes on the south side of a city, police theorized that the offender stalked his victims from a local superstore where all of the women had shopped. However, this superstore, the only one in the city, was so large that most people living in the area had gone there. Living on the south side, therefore, influenced both shopping and victimization patterns. There was no direct connection between the two, and their relationship was strictly spurious. As it turned out, the offender found his victims by prowling residential neighborhoods at night, looking through windows for women living alone.

Biases in Evaluation of Evidence

Problems with physical evidence usually result from misinterpretation, not from the

actual analysis. A police shooting in Alexandria, Egypt, after the First World War provides an intriguing example that also illustrates the risk of ignoring context.²³ During a foot pursuit, a police officer shot a robber who refused to halt (permissible under the law at the time). The criminal escaped but was later found dead. The officer stated he had fired only once. During the postmortem examination, however, the local doctor discovered two bullet wounds, one entering the front of the robber's left thigh and still lodged in the leg muscle, and the other entering the back and exiting the abdomen. The doctor concluded, "He was shot twice.... First from the front at

rather long range, secondly in the back—probably after he had fallen on his face."²⁴ Based on these findings, the officer was arrested and charged with murder. Fortunately, Sir Sydney Smith, the famous professor of forensic medicine, examined the robber's clothing and considered context—the influence of body position and posture. The officer had told the truth. The single shot had entered the robber's back, penetrated his torso, exited his abdomen, and entered his front thigh, which was lifted high while he was running. Smith tested his theory by reconstructing the shooting using a dummy and the robber's clothing and later confirmed it by exhuming the subject's body.

This represents a classic case of interpretation error involving physical evidence.

Confirmation (or verification) bias constitutes a type of selective thinking whereby individuals notice or search for evidence that confirms their theory while ignoring or refusing to look for contradicting information.²⁵ Efforts to only verify and not falsify a hypothesis often fail. After all, a single item of refuting data (e.g., DNA exclusion) can outweigh a mass of evidence against a suspect. The components of confirmation bias include failure to seek evidence (e.g., a suspect's alibi) that would disprove the theory, failure to use such information if found, failure to consider alternative hypotheses, and failure to evaluate evidence diagnosticity.

Sometimes, data that appears to support one theory (or suspect) actually has little diagnostic value because it also equally applies to other theories (or suspects). For example, during the trial of a man accused of murdering a 9-year-old neighbor, the prosecutor suggested that his failure to attend the child's funeral was evidence of consciousness of guilt.²⁶ Defense counsel argued that his attendance could just as easily be adduced as *indicative* of guilt because detectives typically try to identify those who attend a murder victim's

Strategies to Help Avoid Investigative Failures

- Ensure managerial awareness of these problems through case study-based training.³²
- Encourage an atmosphere of open inquiry, ensuring investigative managers remain impartial and neutral.
- If possible, defer reaching conclusions until sufficient data has been collected.
- Consider different perspectives and encourage cross-fertilization of ideas, thereby avoiding tunnel vision.
- Organize brainstorming sessions and seek creativity, rather than consensus.
- Ensure that investigative managers willingly accept objections, doubts, and criticisms from team members.

funeral in the hope that the killer shows up.²⁷ The man was convicted but later exonerated through DNA testing. A public inquiry found that the man's "failure to attend the funeral or funeral home was worthless evidence and ought not be have been admitted.... The leading of this evidence demonstrated that the prosecution sought to squeeze every drop out of the information available to them, to support their case."²⁸ In other words, the evidence had no diagnosticity.

Studies have shown vivid information has more influence than abstract data.²⁹ Personal accounts carry more weight than statistical information, even though the latter is compiled from many personal accounts. The vividness of eyewitness descriptions often overwhelms other information. For instance, authorities have pursued major investigations based on graphic allegations from "victims" of organized satanic cults and "eyewitnesses" seeking attention.

Investigators often fail to account for the absence of evidence, something that can prove quite important under certain circumstances. In Sir Arthur Conan Doyle's *Silver Blaze*, Inspector Gregory asks Sherlock Holmes, "Is there any point to which you would wish to draw my attention?" Holmes replies, "To the curious incident of the

dog in the nighttime." Gregory says, "The dog did nothing in the nighttime." Holmes responds, "That was the curious incident." Holmes meant that the dog would have barked at a stranger. Because he did not, the culprit was likely a member of the household.

Finally, impressions remain even after the initial evidence they were based on is discounted.³⁰ Often termed the "curse of knowledge," this can lead to contrived theories that

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people cling to in the face of no evidence to support them. Such convoluted ideas violate Occam's razor, also known as the "Principle of Parsimony." It states that when more than one possible explanation exists for an event, it is best to choose the simplest (i.e., the one with the fewest assumptions) and to avoid making the situation more complicated than necessary. Investigators should adopt Occam's razor, an important guiding principle in science, to their profession. Complex

theories make for interesting mystery novels but have limited value in the real world.

CONCLUSION

"I'm not sure I agree with you 100 percent on your police work, there, Lou."³¹ Perhaps, real investigators can learn from fictional ones who rarely jump to conclusions. While often a plot device to help heighten suspense, the identity of the offender becomes known only at the end of the story. This offers the important lesson of keeping all options open. After all, the wrong mind-set and a limited organizational approach undermines the potential benefits of advanced forensic techniques, comprehensive criminal databases, and highly skilled police personnel. By recognizing cognitive biases and employing strategies to counter their influence, law enforcement agencies can take steps to avoid investigative failures.

Part two of this article will focus on probability errors and organizational traps. It also will offer recommendations and additional strategies for avoiding these hazards. ♦

Endnotes

¹ For interesting examples of change blindness in visual perception, see J.K. O'Regan and A. Noë, *Experience Is Not Something We Feel but Something We Do: A Principled Way of Explaining Sensory Phenomenology, with Change Blindness and Other Empirical Consequences*,

paper presented at the Association for the Scientific Study of Consciousness meeting, Brussels, Belgium, June 2000; retrieved on December 30, 2001, from <http://nivea.psycho.univ-paris5.fr/ASShtml/Pacherie4.html>.

² R.J. Heuer, Central Intelligence Agency, Center for the Study of Intelligence, *Psychology of Intelligence Analysis* (Washington, DC, 1999).

³ S. Begley, "People Believe a 'Fact' That Fits Their Views Even if It's Clearly False," *Science Journal*, February 4, 2005, sec. B, p. 1.

⁴ Supra note 2; and D.L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* (Boston, MA: Houghton Mifflin, 2001).

⁵ Supra note 4 (Schacter); and G.A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *The Psychological Review* 63 (1956): 81-97.

⁶ Lateral thinking ("thinking outside the box") is one way to help prevent the mental "rust" that can limit a person's mental abilities.

⁷ Supra note 2.

⁸ D. Kahneman, "A Perspective on Judgment and Choice: Mapping Bounded Rationality," *American Psychologist* 58 (2003): 697-720.

⁹ D. Myers, *Intuition: Its Powers and Perils* (New Haven, CT: Yale University Press, 2002).

¹⁰ K. Ludvigsen, *Juan Manuel Fangio: Motor Racing's Grand Master* (Sparkford, England: Haynes Publishing, 1999).

¹¹ Supra note 8.

¹² T.A. Stewart, "How to Think with Your Gut," *Business 2.0*, November 2002.

¹³ D. Kahneman, P. Slovic, and A. Tversky, eds., *Judgment Under Uncertainty: Heuristics and Biases* (Cambridge, MA: Cambridge University Press, 1982).

¹⁴ A particular heuristic does not actually have to be right most of the time because if it promotes survival, it will be passed on through natural selection; see D.M. Risinger and J.L. Loop, "Three Card Monte, Monty Hall, Modus Operandi and 'Offender Profiling': Some Lessons of

Modern Cognitive Science for the Law of Evidence," *Cardozo Law Review* 24 (2002): 193-285. While a street officer's intuition sometimes may be wrong, it still is unwise to ignore; see A.J. Pinizzotto, E.F. Davis, and C.E. Miller III, "Officers' Perceptual Shorthand: What Messages Are Offenders Sending to Law Enforcement Officers?" *FBI Law Enforcement Bulletin*, July 2000, 1-6; and "Intuitive Policing: Emotional/Rational Decision Making in Law Enforcement," *FBI Law Enforcement Bulletin*, February 2004, 1-6.

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¹⁵ Small deviations in the starting position can become large ones over time. In Poe's *The Gold Bug*, a code written on a scrap of parchment contains directions to a buried chest. To find it, the searchers must shoot a bullet through the left eye of a skull nailed to a tree limb, then measure 50 feet out along a line from the trunk through the point where the shot hit. They initially dig in the wrong place because they drop a gold beetle (substituted for the bullet) through the skull's right eye; this error causes them to miss the chest by several yards. The distance between the left and right eye sockets is less than 3 inches, but this short offset is magnified more than 10 times when measured out 50 feet; see E.A. Poe, *The Complete Tales and Poems of Edgar Allan Poe* (New York, NY: Vintage Books, 1975), 66-67.

¹⁶ P. de C. Cory, *The Inquiry Regarding Thomas Sophonow* (Winnipeg, MB: Queen's Printer, 2001), 37.

¹⁷ P. Britton, *The Jigsaw Man* (London, England: Bantam Press, 1997).

¹⁸ J. Sweeney, "Why the Police Hunters Took Aim at Stagg," *The Observer*, September 18, 1994, p. 21.

¹⁹ R. Cowan, "DNA Points to Sex Killer in 1992 Murder," *The Guardian*, November 10, 2004.

²⁰ A. Tversky and D. Kahneman, "Availability: A Heuristic for Judging Frequency and Probability," *Cognitive Psychology* 5 (1973): 207-232.

²¹ A. Tversky and D. Kahneman, "The Framing of Decisions and the Psychology of Choice," *Science* 211 (1981): 453-458.

²² D.K. Rossmo, *Geographic Profiling* (Boca Raton, FL: CRC Press, 2000).

²³ S. Smith, *Mostly Murder* (New York, NY: Dorset Press, 1959).

²⁴ *Ibid.*, 62.

²⁵ P. Stelfox and K. Pease, "Cognition and Detection: Reluctant Bedfellows?" in *Crime Science: New Approaches to Preventing and Detecting Crime*, eds. M.J. Smith and N. Tilley (Cullompton, England: Willan Publishing, 2005), 191-207.

²⁶ K. Makin, *Redrum the Innocent* (Toronto, ON: Viking, 1992).

²⁷ F. Kaufman, Ontario Ministry of the Attorney General, *The Commission on Proceedings Involving Guy Paul Morin: Report* (Toronto, ON, 1998).

²⁸ *Ibid.*, 34.

²⁹ Supra note 2.

³⁰ Supra note 2.

³¹ Chief of Police Marge Gunderson in the 1996 film *Fargo*.

³² Supra note 16.

Over the course of his 21-year policing career, the author worked assignments in organized crime intelligence, emergency response, patrol, and crime prevention. His interest in the subject of criminal investigative failures originates from various unsolved major crime cases for which he has consulted. Currently, he is working on a book on the topic. He thanks those detectives who willingly discussed what went wrong in their investigations and dedicates this article to them.
