Cognitive Bias in Forensic Science

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Forensic Science Errors

To Err Is Human

Cognitive bias is **NOT** an ethical, motivational, or competency issue.

Most examiners are not **dishonest**, **careless**, **or incompetent**...
Sources of Bias / Error

Dror (2020)

The mere act of comparing two stimuli can prompt circular reasoning
(Dror et al., 2011)

Sources of Bias / Error

Dror (2020)

Knowledge of extraneous case information prompts confirmation bias
(Kassin et al., 2013)

Three Examples...

Experts reanalyzed the same prints after learning of a confession or alibi.

17% of judgments changed over time
Dror & Charlton (2006)

Trained students tested for presence of opiates with or without extraneous info

Affected tests chosen and tripled error rate
Hammett & Dror (2020)

Pathologists given same medical info—but different non-medical info.

Homicides increased from 13% to 35%
Dror et al. (2021)
... Among Many

- Document examination (e.g., Miller, 1984)
- Fingerprint comparison (e.g., Dror & Charlton, 2006)
- Complex DNA analysis (Dror & Hampikian, 2011)
- Arson investigation (Teffer, 2012)
- Forensic anthropology (e.g., Nakhaeizadeh et al., 2014)
- Crime scene investigation (von den Erlen et al., 2016)
- Blood spatter analysis (e.g., Osborne et al., 2016)
- Forensic pathology (Trev et al., 2015; Silver, 2016)
- Forensic toxicology (Hamnett & Dror, 2020)
- Footwear impression comparison (Sneyd et al., 2020)
- Bullets/cartridge comparison (Mattijssen et al., 2020)

Sources of Bias/Error

Dror (2020)

Past experience can influence future judgments
(Growns & Kukucka, 2021)

Sources of Bias/Error

Dror (2020)

Allegiance and/or stress may affect performance
(Almazrouei et al., 2020; Morris et al., 2013)
Combating Bias

Where can we break this chain?

What Do Examiners Know?

Many evidence submission forms solicit information that is task-irrelevant and potentially biasing. (“Who knew what and when?”)

e.g., Gardner et al. (2019)

What Do Examiners Think?

Examiners show a bias blind spot.

Kukucka et al. (2017)
What Do Examiners Do?

Examiners who misunderstand bias take ineffective (or no) countermeasures. Kukucka et al. (2017)

Do Attorneys Detect Bias?

Defense attorneys largely failed to detect/attack a biased autopsy report. Despodova et al. (2020)

What Do Jurors Think?

Jurors strongly trust forensic science—even when they shouldn’t. Crozier et al. (2020); Koehler (2017); Kaplan et al. (2020)
What Should Attorneys Do?

Lieberman et al. (2008); Thompson & Scurich (2019)

Highlighting subjectivity of the analysis appears more effective than attacking credentials

What Should Examiners Do?

• Blind proficiency testing (e.g., NCFS, 2016)
• Blind verification (e.g., Ballantyne et al., 2017)
• Case manager model (e.g., Thompson, 2011)
• Linear sequential unmasking (Dror et al., 2015)
• Evidence lineups (Kukucka et al., 2020; Wells et al., 2013)

Suggested Readings


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