“Show me the data”

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NIJ IMPRESSION/PATTERN EVIDENCE SYMPOSIUM

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What’s the problem?

First, and foremost:

INSUFFICIENT ATTENTION TO THE RESEARCH BASIS FOR CLAIMS MADE
Examples from Latent Fingerprint Evidence

- Individualization
  - What’s the claim? What’s the support?

- Probabilistic /statistical assessment of likelihood of common source – both unknown and traditionally prohibited -- BUT see IAI resolution, 2010

- Error rate unknown -- But see Hicklin, et al; Langenburg; other research in progress

- Proficiency tests inadequate

- No formalized metrics for determining quality, difficulty, or sufficiency.
• ACE-V not really a “methodology” because process is under-specified

• Insufficient attention to issues of bias and its effects.

• Insufficient attention to access to extrinsic information and the benefits of masking protocols
• 100 year natural experiment shows its power

• Clearly a large amount of variation in human friction ridges.

• But: There’s too much we still don’t really know. Experience – rather than research – has been the foundation of the field.
Experience as a knowledge basis:
(1) we need to assess carefully what knowledge claims can be supported by experience.

(2) We need to assess carefully whether the experience in question has feedback loops that would be likely to catch erroneous judgment or errors.
So yes, experience counts for something. But it’s not enough. We need significantly more research.

- Research is an ongoing process, not a one-time outcome.

- Primarily needs to be guided by methodologically sophisticated academic researchers. Forensic scientists (and law professors) have a role to play, but increasing academic research interest in forensic science is critical.
• Need to become more data-driven.

• Focus: relationship between the empirical support and the claim that is being made.

• Mantra: show me the data.
So: is Forensic Science “real” science?

- In my opinion, this is the wrong question.
- What IS science?
  - Should we ask Bill Clinton?
- What is SCIENCE?
- No single definition. Very hard to come up with any method, approach, practice that applies to all sciences, from astronomy to physics to biology to geology to botany to . . . .
- In forensic science, the word is wielded as both a shield and as a weapon.
Science vs. non-science: not a fight that has any winners
Better approach:
- Focus on relationship between whatever claims are made and the empirical support for these claims.
  - Task specific inquiry, not a global one.

- What data supports not just this conclusion, but what data supports an examiner’s ability to reach this conclusion in situations like these?
Requires a significant mentality shift
- For practitioners
- Also for the courts.

- Focus on both knowledge and its limits.
- Key: What evidence and forms of validation and testing actually supports the specific claims made by experts in this case?
IN GOD WE TRUST
ALL OTHERS MUST SHOW DATA