

“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.**



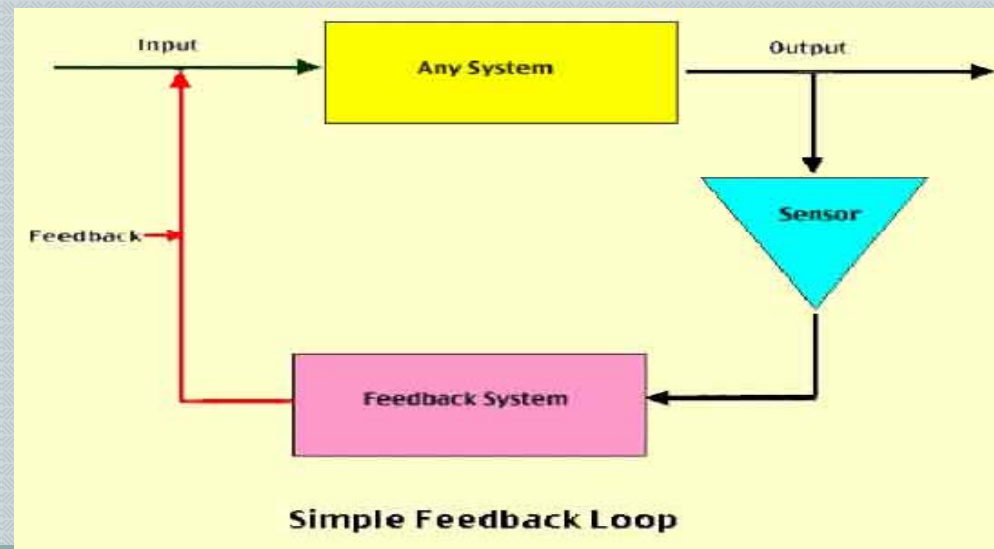
- ACE-V not really a “methodology” because process is under-specified
- Insufficient attention to issues of bias and its effects.
- Insufficient attention to access to extrinsic information and the benefits of masking protocols



- 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**