Finding a Needle in a Haystack: Toward a Psychologically Informed Method for Aviation Security Screening

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KNOWLEDGE · INNOVATION · ENTERPRISE

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Who Are We?

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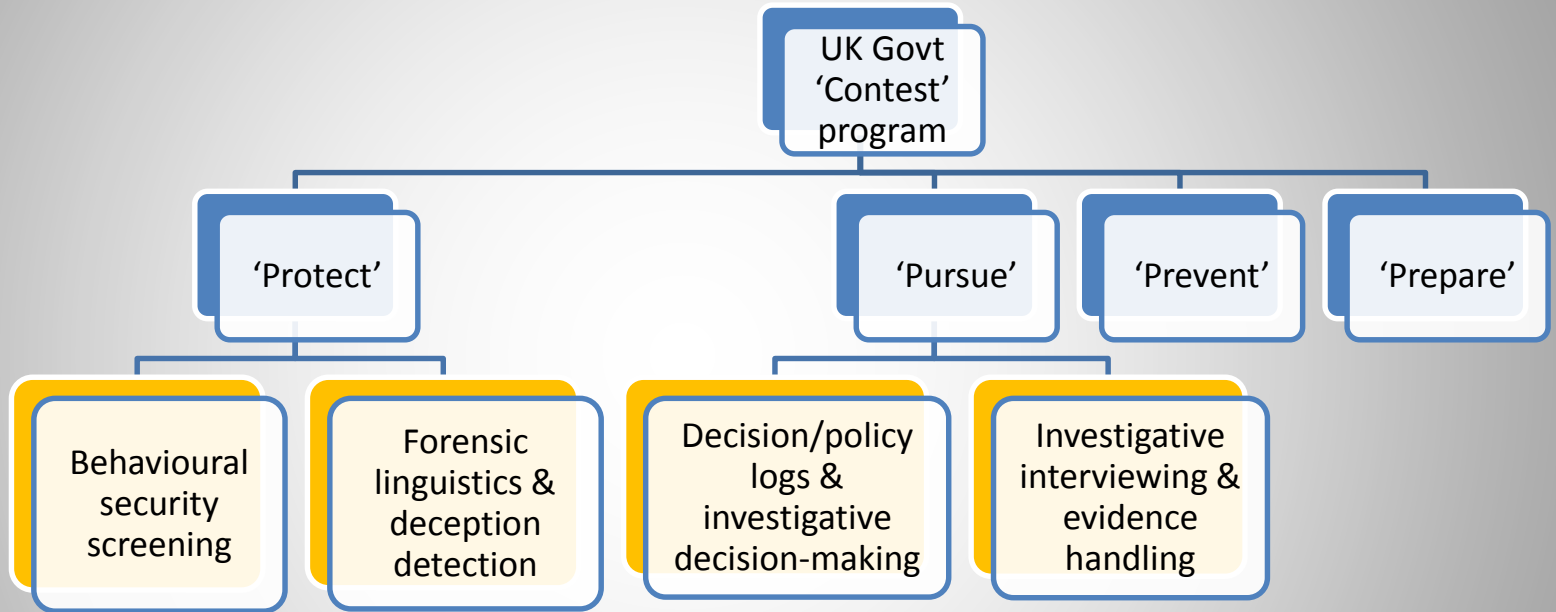Cognition & Thinking
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Products are marketed through
Controlled Cognitive Engagement™ Ltd

What Do We Do?

Why Should TSA be Interested ?

- Post 9-11, behavioral methods for threat detection have been based on Suspicious Signs
  - ASSOP Chapter 11
  - SPOT

- There are concerns but not enough evidence
  - Incidents
  - Forensic psychology evidence

- We show how to enhance threat detection rates
  - Provide an evidence base
  - increase rates from 5% to 70%
  - Integrate with customer service

Aviation Screening Study (2008)
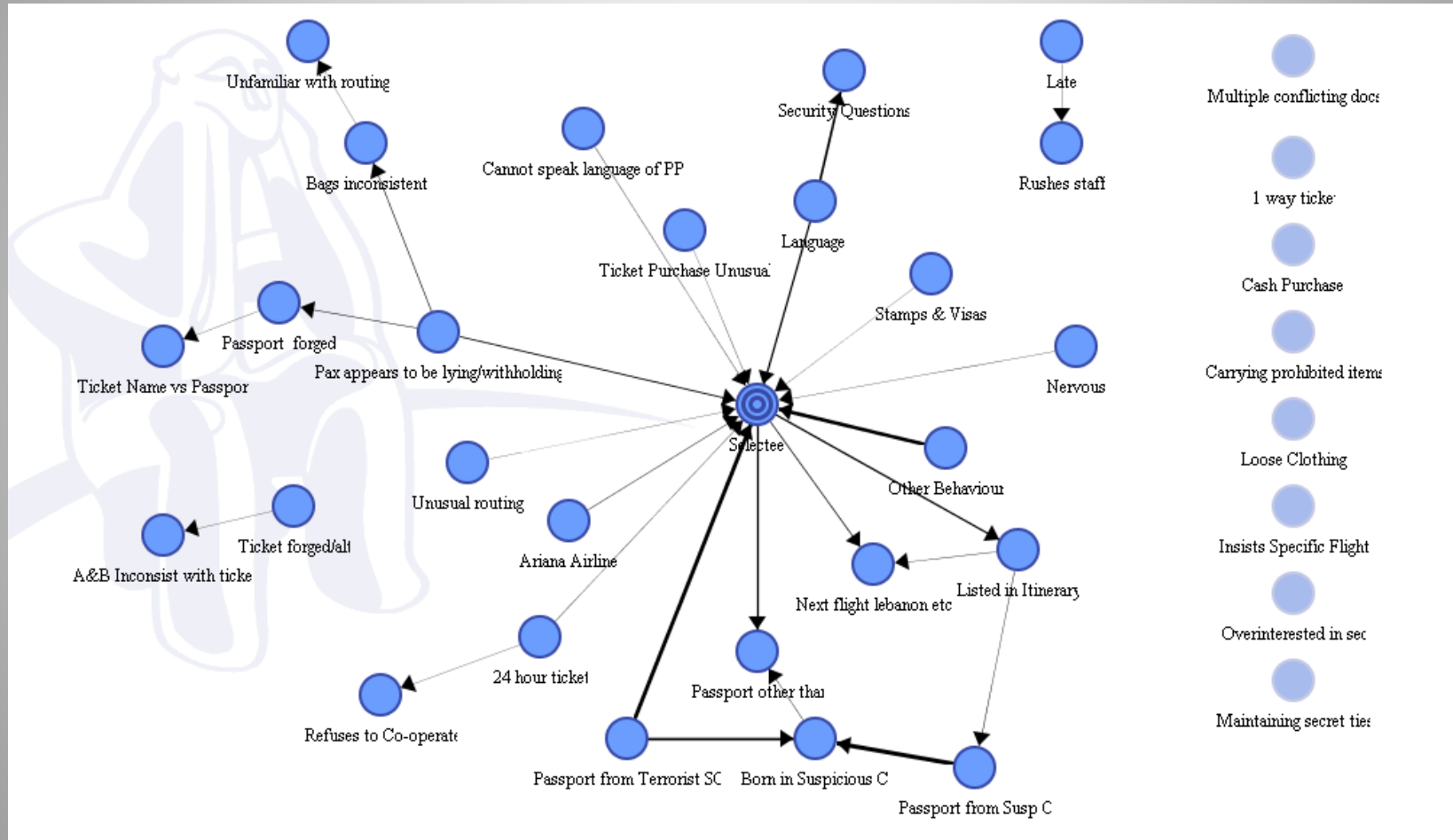
- RL10 47-48 No check

Security agent stops an IC5 (late teens- 20s)
hasn't heard any of the conversation
Why is he here? He is stud
university. Who sp
The pax sa
Ag around,
w much longer will
pped him as he thought he could be
interest in nuclear counter-proliferation.
ctually PRC but the same colour passport.

The pax is subsequently spotted in the departure lounge, he runs off on recognizing the security agent After a search he is found with a different passport, different clothes and a package of money

Specifying a New Approach

- The aviation study tells us:
  - Avoid 'over-resolving' suspicions
  - Make veracity testing an explicit goal

- Forensic literature tells us:
  - Allow the interviewer to listen and watch
  - Unpredictability – interfere with the 'lie script'
  - Make the sender 'work' – Cognitive load

- The current process:

Controlled Cognitive Engagement (CCE) ™

- **Controlled**
  - Screener controls the conversation
  - Incremental phased questioning
  - Clear exit points
- **Cognitive**
  - Screener decision-making skills
  - Asymmetric cognitive loading
  - Unpredictable
- **Engagement**
  - Enhanced customer service
  - Reducing stereotype biases
  - Timeline to observe behaviour change.

→"Confidence to fly in three minutes"

paa346000004 fotosearch.com

Stages of CCE

- Stage 1: Baselining
  - Build rapport and open a dialogue
  - Establish a behavioural baseline

- Stage 2: Information gathering
  - Gather information using open unpredictable questions
  - Commit passenger to version of truth

- Stage 3: Veracity testing
  - Test the truth of the account using probe questioning
  - Observe behaviour change

- After 3 cycles, agent makes safe/selectee decision

Evaluation: Detection testing

- $500k field trial
  - Major EU hub airports
  - Two major international carriers
- Aim
  - To compare detection rates for CCE and suspicious signs method
  - To test method under pressure
- Method
  - CCE training
    - 10 accredited CCE trainers & 80 accredited CCE screeners
  - Double-blind randomised-control trial
  - 200 participants per method
  - Diverse participant sample (non-stereotyped)
  - Participant-generated deceptions
  - Incentivised performance

Results: Detection Rate

	January 2012	June 2012
CCE	63.4%	74.1%
Current method	2.7%	0%

◆ 3,000,000+ passengers CCE-screened to date
◆ Paedophile ring disrupted!

Passenger Experience Survey

- How <u>enjoyable</u> did you find the security screening process?

- How happy were you to <u>share information</u> with the security staff?

- Was the <u>time taken</u> during the procedure too long/short:

- How <u>acceptable</u> did you find the security screening procedure?

- Based solely on the security procedure... how likely is it that you would <u>recommend</u> travelling with this airline to someone else?

Passenger experience survey (red = CCE; Blue = suspicious signs)
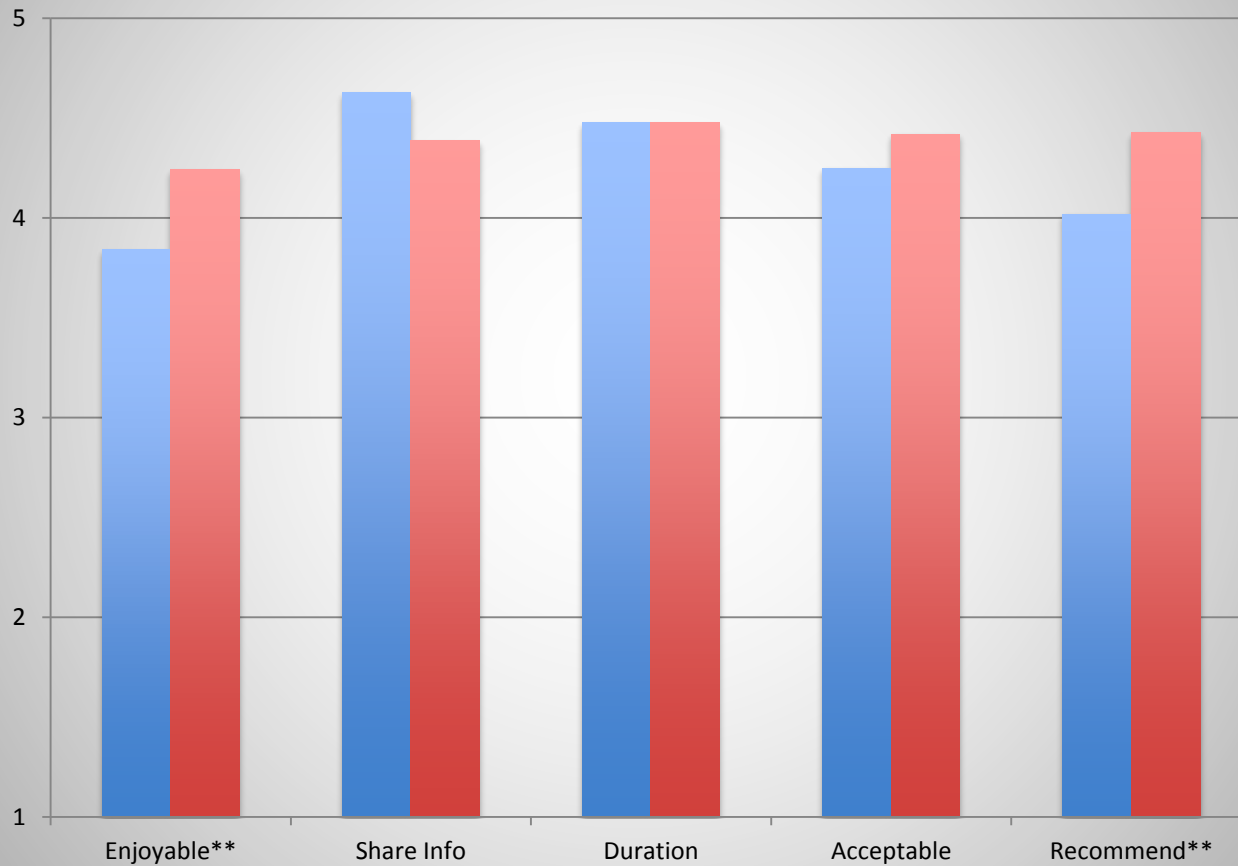
Conclusions

- CCE is:
  - Effective, Efficient, Equal, and (often) Enjoyable

- CCE principles can be applied to:
  - Monitoring offenders, Vetting, Immigration, IRS.
  - Event/infrastructure protection

- CCE is based upon:
  - Theoretical principles
  - Field experience
  - Controlled empirical evaluation

Can Machines Do the Job?

- On the one hand:
  - Computer-based face & document processing is better than human performance
  - Potential for remote covert detection
  - Potential to de-bias procedures
- On the other hand:
  - Machines give false confidence, create new vulnerabilities, and de-skill → 'irony of automation'
  - There are no reliable standalone signs of deception
  - Current technologies cannot detect behavior *change*
  - Deceit is embedded in truth – targets must be verbally challenged

How much happier would life be if a liar's pants really did catch on fire!