Institution: University of Portsmouth

Unit of Assessment: UoA4 - Psychology, Psychiatry and Neuroscience

Title of case study: Cognitive Credibility Assessment: Changing interrogation and training policy and practice to enhance lie detection in security, military and forensic and settings

Period when the underpinning research was undertaken: 2003 to present

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Aldert Vrij	Professor of Applied Social Psychology	01/07/1994 - date
Sharon Leal	Senior Research Fellow	06/01/2010 - date
Samantha Mann	Senior Research Fellow	01/11/2009 - date
Zarah Vernham	Senior Lecturer	08/06/2015 - date

Period when the claimed impact occurred: Sept 2014 - present

Is this case study continued from a case study submitted in 2014? N

1. Summary of the impact

Cognitive Credibility Assessment (CCA), pioneered by the Vrij team at Portsmouth, has transformed military and intelligence interrogation policy and practice across security and counter-terrorism agencies, including the FBI (US), the [text removed for publication] and the Ministry of Home Affairs (Singapore). CCA is an ethical, information-gathering, lie detection procedure that capitalises on differences in the cognitive processing and strategies that truth tellers and liars use. CCA field trials demonstrate lie detection rates of 90%. As a result, CCA has enhanced security and informed interrogation policy, best practice guidelines and training in the US, UK and Singapore. To date, 18,000+ officers across US, UK and Singapore have been trained in the use of CCA.

2. Underpinning research

Context

Despite advances in adherence to the Human Rights Charter, abusive interrogation techniques are still used in security and counter-terrorism settings (**R1**). A 2014 report from the US Senate Select Committee stated that, in the aftermath of September 11, '*CIA detainees were tortured*' (p.4) and, as a result, '*multiple CIA detainees fabricated information, resulting in faulty intelligence*' (p.2). Yet, according to the US National Academies' National Research Council, existing ethical procedures, such as the polygraph, '*overestimate accuracy in actual practice*' (p.215).

Research informed, funded and enabled by key intelligence agencies in the US, UK and Singapore

Since 2003, **Professor Aldert Vrij** and his team at the University of Portsmouth have conducted a series of research projects aimed at overcoming the limitations of unethical and unreliable lie detection practice. This research has been the result of long-standing collaborations with international intelligence organisations in the US, UK and Singapore:

- The High-Value Detainee Interrogation Group (HIG) - a US multi-agency organisation comprising the FBI, CIA and the Department of Defense - has both informed and supported 21 of **Vrij**'s research projects to a total of USD4,688,183 [GBP2,989,762]. The HIG has more than doubled their investment in **Vrij**'s research over the current REF period (2014-2020): 14 grants (**G1-G5**) USD3,216,685 [GBP2,089,779] cf. 2008-2013: 7 grants USD1,471,498 [GBP899,983], a testament to the value they place on it.
- ESRC funding to **Vrij** and Prof Lorraine Hope (GBP788,348), as part of an inter-disciplinary collaboration between the University of Portsmouth, University of Leicester and the University of Bath (**G6**), has enabled the collaborations with the [text removed for publication]. [text removed for publication] is responsible for UK national security, intelligence coordination and defence strategy.
- The Ministry of Home Affairs in Singapore (MoHA) has been instrumental in enhancing the ecological validity of **Vrij**'s research by enabling the conduct of research projects in natural

settings (i.e. with real passengers in Singapore Changi Airport) and in the speedy translation of research findings into interrogation and training policy.

These research programmes have developed a suite of interrogation techniques - Cognitive Credibility Assessment (CCA) - which focus on three core elements:

1. Increasing interviewees' cognitive load makes lying more difficult

Vrij's research consistently demonstrated that making additional demands on interviewees to increase their 'cognitive load', or reduce their cognitive resources, makes lying more difficult. For example, research projects conducted between 2014 and 2016, in collaboration with the HIG, established that asking interviewees to recall their story in reverse, rather than in chronological order, provided cues to deception and improved lie detection success rates (**R2**).

2. Asking unanticipated questions or in an unanticipated format counters planned lies

Liars prepare answers when anticipating an interview. Planned lying is only effective if liars correctly anticipate which questions will be asked. **Vrij**'s research demonstrated that 1) asking unanticipated questions (e.g. questions about spatial and temporal information) and 2) asking questions in an unanticipated format (e.g. requesting a drawing) resulted in more cues to deceit and facilitated lie detection (**R3**, **R4**).

3. Providing detailed model statements provides more intelligence and enhances lie detection

Interviewees are often uncertain about the amount of information required of them. Research resulting from a collaborative project with HIG (**G5**) demonstrated that providing a detailed model statement provided useful cues to lie detection. Specifically, truth tellers focussed less on peripheral details and provided richer narratives (i.e. reported more complications) than liars (**R5**). Model statements are particularly popular amongst practitioners because they achieve two important interview aims simultaneously: they elicit more information (**R5**) and facilitate lie detection.

These research findings have been incorporated into an innovative interviewing procedure, the Cognitive Credibility Assessment (CCA), that offers:

- An ethical alternative to abusive interrogation techniques: CCA capitalises on non-threatening interview techniques requiring detainees to simply provide more details, provide information in reverse order or in an unexpected format (**R3**).
- An effective alternative to existing unreliable ethical techniques: A meta-analysis of 14 studies (combined n=1,183) demonstrated the benefits of CCA; lie detection rates in studies using the CCA were significantly higher (71%) than those using traditional questioning techniques (56%, just above chance) (**R2**). Moreover, an evaluation of the effectiveness of the CCA demonstrated that, after receiving just one day's training, the lie detection rates increased from 59% to 74% accuracy (**R6**).

3. References to the research

3.1. Research outputs

R1. **Vrij, A.**, Meissner, C. A., Fisher, R. P., Kassin, S. M., Morgan III, A., & Kleinman, S. (2017). Psychological perspectives on interrogation. *Perspectives on Psychological Science*, *12*(6), 927-955. https://doi.org/10.1177/1745691617706515

R2. **Vrij, A.**, Fisher, R.P., & Blank, H. (2017). A cognitive approach to lie detection: A meta-analysis. *Legal and Criminological Psychology*, *22*(1), 1-21. https://doi.org/10.1111/lcrp.12088

R3. **Vrij, A**., **Leal, S.**, **Mann, S.**, Fisher, R. P., Dalton, G., Jo, E., Shaboltas, A., Khaleeva, M., Granskaya, J., & Houston, K. (2018). Using unexpected questions to elicit information and cues to deceit in interpreter-based interviews. *Applied Cognitive Psychology*, *32*(1), 94-104. https://doi.org/10.1002/acp.3382

R4. **Vrij, A., Leal, S.**, Fisher, R. P., **Mann, S.**, Dalton, G., Jo, E., Shaboltas, A., Khaleeva, M., Granskaya, J., & Houston, K. (2018). Sketching as a technique to elicit information and cues to deceit in interpreter-based interviews. *Journal of Applied Research in Memory and Cognition*, *7*(2), 303-313. https://doi.org/10.1016/j.jarmac.2017.11.001

R5. **Vrij, A.**, **Leal, S.,** & Fisher, R. P. (2018). Verbal Deception and the Model Statement as a Lie Detection Tool. *Frontiers in Psychiatry, section Forensic Psychiatry*, *9*, [492]. https://doi.org/10.3389/fpsyt.2018.00492

R6. **Vrij, A.**, **Leal, S.**, **Mann, S.**, **Vernham, Z.**, & Brankaert, F. (2015). Translating theory into practice: Evaluating a cognitive lie detection training workshop. *Journal of Applied Research in Memory and Cognition*, *4*(2), 110-120. https://doi.org/10.1016/j.jarmac.2015.02.002

3.2. Evidence of the quality of the research

All the outputs, except (R4), are original studies employing robust research designs and have been published in respected peer-reviewed academic journals. Combined, they have been cited 223 times according to Scopus (range 13-100). R2 is returned to REF 2021 with Output ID 11285416.

3.3. Related grants

G1. **Vrij, A.** *The Effect of Using Interpreters on Rapport, Eliciting Information and Cues to Deceit, Year 3.* Funded by the US FBI (High-Value Detainee Interrogation Group), September 2014 - September 2015 (USD253,199; GBP152,941)

G2. **Vrij, A.** *The Effect of Interpreters on Eliciting Information and Cues to Deceit, Years 1-3***.** Funded by the US FBI (High-Value Detainee Interrogation Group), September 2015 - August 2018 (USD849,991; GBP551,800)

G3. **Vrij, A.** *The Development of a Memory-Based Lie Detection Tool, Years 1-3***.** Funded by the US FBI (High-Value Detainee Interrogation Group), September 2015 - August 2018 (USD479,410; GBP310,829)

G4. **Vrij, A.** *The Effect of Countermeasures on Eliciting Information and Cues to Deceit in an Interpreter Context, Years 1-3.* Funded by the US FBI (High-Value Detainee Interrogation Group), September 2018 - August 2021 (USD914,225; GBP640,166)

G5. **Vrij, A.** *Interviewing to Detect Deception when Interviewing a Source Multiple Times, Years 1-3.* Funded by the US FBI (High-Value Detainee Interrogation Group), September 2018 - August 2021 (USD619,860; GBP434,043)

G6. Tyler, P. (PI), Ashenden, D., Francis, M. D., Iganski, P., Hope, L., Joinson, A., Knott, K., Lawrence, D., **Leal, S. M.**, Lloyd, M. S., Milne, B., Moore, C., Piwek, L., Rashid, A., Ryder, N. J., **Vrij, A.** *Centre for Research and Evidence on Security Threats (Understanding, countering and mitigating security threats hub*). Funded by the Economic and Social Research Council, October 2015 - September 2021 (GBP7, 568, 841 [UoP GBP788,389]).

4. Details of the impact

The comprehensive implementation of the CCA into interrogation policy, training and practice has been expedited by two factors. First, the research programmes have been designed and conducted in collaboration with key intelligence government organisations in the US (HIG collaboration since 2010), UK [text removed for publication] and Singapore (MoHA collaboration since 1999). As such, the research has directly reflected, and responded to, beneficiary needs. Second, all these three organisations are responsible for centralised interrogation policy, training and best practice guidelines across all intelligence and law enforcement agencies in their respective countries.

Collaborations with US, UK and Singapore key government organisations have been possible thanks to the value they place on CCA's '*ethical interviewing approach to detecting deception'* (Senior Assistant Director, MoHA, Singapore, **S1**), and the fact that it is '*informed by strong research evidence*' (**S1**). The methods employed by this body of research have also played a crucial role in the sustainability of the collaborations: '*Adapting research into real-life settings is often a challenge. However, Prof. Vrij's and colleagues' research is typically conducted in relatively naturalistic settings*' (Research Unit Chief, HIG, **S2**). More importantly, '*his* [Prof Vrij] *openness to assisting the HIG in translating research into practice has been exceptional*' (**S2**)

Changes to interrogation policy and best practice guidelines based on CCA since 2014

In the **US**, the HIG Interrogation Best Practices Guidelines, commissioned by the US Congress and implemented in August 2016, recommend the use of a combination of CCA interviewing techniques (i.e. asking unanticipated questions, drawing a sketch) as best practice to elicit additional information and detect deception in settings (**S3**). These Guidelines are based on the FBI Science Report, 2016, citing over 40 of Vrij's research articles and concluding that '*the science points to a cognitive-based (as opposed to an anxiety) approach as the most effective strategy for lie deception'* (**S4**).

Although interrogation policy in the **UK** already adhered strictly to international ethical guidelines, the emphasis *'on making the research more applicable to the intelligence landscape*', and the fact that '*CCA research is highly relevant to, and has been applied in, the work of* [text removed for publication] *and the broader national security community*' ([text removed for publication] **S5**), has enabled the seamless implementation of CCA techniques into changes to Border and Aviation interrogation policy in the UK. Additionally, '*the use of CCA is recommended* [text removed for publication] *as best interrogation practice*' (**S5**). As in the UK, **Singapore's** Ministry of Home Affairs has incorporated CCA into interview protocols at airports. Specifically, the Immigration Checkpoint Authority introduced a revised interview protocol in 2020 that '*is closely aligned to the CCA techniques developed by Prof Vrij'* (**S1***).* They estimate that all Singapore's immigration officers will be trained in this protocol in the next 2 years (**S1**).

Incorporation of CCA techniques into training programmes since 2014

To ensure that best practice guidelines and interrogation policy translate into comprehensive changes in interrogation practice, all three government organisations (HIG, [text removed for publication] and Singapore's MoHA) have introduced CCA training across their intelligence agencies.

In the **US**, CCA training has been included as a compulsory element in two of the HIG's interrogation training courses (**S2**). Vrij delivered annual training courses for the HIG between 2014 and 2019 (cancelled in 2020 due to COVID-19) to over 1,000 law enforcement and intelligence officers (**S2**). CCA training is also compulsory in three of the courses delivered by the US Federal Law Enforcement Training Center (FLETC). FLETC is a Congressionally-mandated organisation responsible for providing training to all 91 US Federal law enforcement agencies. Since 2014, over 17,000 law enforcement and intelligence officers have been trained on the use of CCA as part of their professional training programmes (**S6**).

In **Singapore**, officer training across all security and law enforcement agencies is undertaken by the Home Team Academy (HTA), the training arm of Singapore's Ministry of Home Affairs. The HTA have also revised their: '*interviewing training programmes to incorporate […] the CCA approach. Since 2014, Vrij has trained over 140 of staff across different agencies, including the police and investigators working in the area of corruption investigations and military security*' (Chief Psychologist, Home Team Academy, Singapore's MoHA, **S7**).

Enhanced intelligence and security in the US, UK and South Asia

Building on the changes in interrogation policy and large-scale training, CCA has resulted in enhanced intelligence gathering in a range of security contexts (e.g. terrorism, airports and police). An independent evaluation conducted by a security agency (name withheld) reports that, in the field, the use of CCA techniques led to a 90% lie detection rate in over 60 cases where the veracity of the information could be established (**S8**). CCA '*enhances our ability to accurately elicit information and assess credibility*' [text removed for publication], '*provides high-quality information relating to possible criminal activities by passengers*' (Senior Assistant Director, Singapore's MoHA, **S1**) and it is '*widely used across our security forces and that its use has had a significant positive impact on operational activities*' (Chief Psychologist, Home Team Academy, Singapore's MoHA, **S7**).

5. Sources to corroborate the impact

In considering the evidence, please note that the majority of our intelligence service contacts are not permitted to allude to and/or discuss highly sensitive security activities, even to a confidential REF panel, and some contacts cannot reveal their identity.

S1. Statement from the Principal Psychologist at the Behavioural Science Centre (Ministry of Home Affairs, Singapore) confirming the effectiveness of CCA in gathering high-quality intelligence and its adoption as interviewing policy by the Immigration Checkpoint Authority, September 2020.

S2. Statement from the Research Unit Chief, US High-Value Detainee Group confirming the incorporation and value of the CCA techniques in HIG training programme, August 2020.

S3. HIG Interrogation Best Practices Guidelines including specific recommendations for CCA techniques (pp. 5-6), August 2016.

S4. FBI Interrogation Science Report confirming the effectiveness of a cognitive-based approach for lie detection, September 2016.

S5. Confidential statement from [text removed for publication] confirming policy and training change, November 2020.

S6. Statement by the Chief of the Behavioral Science (US Federal Law Enforcement Training Center) confirming the incorporation since 2014 of CCA into training for law enforcement and intelligence officers, October 2020.

S7. Statement from Chief Psychologist, Singapore's Ministry of Home Affairs confirming the inclusion of CCA in Interrogation programmes delivered to staff in Singapore and the wider region, September 2020.

S8. A confidential statement to confirm the CCA's 90% lie detection rate in field security settings [text removed for publication].