# The Psychology of Intelligence Analysis: Where Are We and Where Should We Be?

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Eighteen years have passed since Richards Heuer published "Psychology of Intelligence Analysis".[1] This seminal work inspired many to consider the role of human psychology and cognition in the analytic process. Indeed, there can be few subjects of greater interest to students or practitioners of intelligence than what goes on inside their heads. Unfortunately, the ideas presented by Heuer - specifically those on cognitive biases and other limitations - have become so dominant that other psychology-related issues of equal relevance have not received the attention they deserved.

Psychology is a social science dedicated to the study of the human mind, its functions and processes, and the resulting behaviours of human beings. It is a vast, complex and growing field that has generated multiple sub-disciplines and areas of specialisation. The table below summarises some of these together with the questions they raise for intelligence researchers and professionals alike.

| Area of Specialisation | Description | Sample Questions |
|---|---|---|
| Clinical / Counselling psychology | Includes the assessment and treatment of people with psychological problems, such as grief, anxiety, or stress.[2] | • How should analysts manage or regulate their stress levels?<br>• What causes stress and anxiety among intelligence analysts?<br>• How does one's level of self-esteem impact analytic performance? |
| Developmental psychology | Examines moral, social, emotional, and cognitive development throughout a person's entire life.[3] | • Are the best intelligence analysts born or "made"?<br>• How does analytic capability change as analysts age?<br>• Do mental games and exercises enhance the analytic abilities of intelligence professionals as they age? |
| Experimental psychology | Includes the areas of sensation, perception, learning, human performance, motivation, and emotion.[4] | • How does the performance of intelligence analysts change in response to different forms of motivation?<br>• How does time pressure impact the quality of intelligence analysis?<br>• How does physical activity impact work efficiency among intelligence analysts? |
| Social psychology | Involves the study of social interactions, stereotypes, prejudices, attitudes, conformity, group behaviours, aggression, and attraction.[5] | • What methods of persuasion are most effective for changing attitudes among intelligence customers?<br>• How can intelligence analysts make a good impression on intelligence customers?<br>• How does working in a group affect analysts' capabilities? |
| Biological psychology | Involves research on the physical | • What changes does stress cause to the |

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| | and chemical changes that occur during stress, learning, and emotions, as well as how our genetic makeup, brain, and nervous system interact with our environments and influence our behaviours.[6] | brains of intelligence analysts?<br>• How does a lack of sleep affect analytic capability?<br>• How does nutrition impact analytic capability? |
| Psychometrics | Focuses on the measurement of people's abilities, skills, intelligence, personality, and abnormal behaviours.[7] | • How can we measure creativity?<br>• How can we effectively test analytic ability?<br>• What abilities represent the best career fit for intelligence analysis? |
| Cognitive psychology | Involves how we process, store, and retrieve information and how cognitive processes influence our behaviours.[8] | • What cognitive aspects hinder effective intelligence analysis and how should we address these?<br>• What factors condition creativity and how should we stimulate creativity among analysts?<br>• In what ways do senior analysts think differently than junior analysts? |
| Industrial / Organisational psychology | Examines the relationships of people and their work environments.[9] | • How does hierarchy in intelligence organisations influence the performance of analysts?<br>• How do we increase the productivity of intelligence analysts?<br>• What leadership approaches increase the effectiveness of intelligence units?<br>• How should we best recruit intelligence analysts? |
| Educational psychology | Examines how we learn and teach.[10] | • What is the most effective approach to teaching intelligence analysis?<br>• What is the right balance between theory and practice when it comes to teaching intelligence analysis?<br>• What can prospective analysts do to learn more effectively? |
| Human factors psychology | Studies human performance when working with computers, machines, etc.[11] | • How should we design computer software that doesn't hinder analytic performance?<br>• How should we redesign the analyst's workspace / office to enhance their productivity?<br>• How do analysts interact with mobile devices and how can these interactions be made more effective? |

Until now, researchers working on intelligence have only explored a handful of the disciplines and questions listed above. The studies most worthy of attention adress:

- The impact of cognitive limitations on the reasoning and decision making strategies of intelligence analysts;[12]

- The factors contributing to intelligence failure,[13] a subject that has spawned its own sub-discipline, what Phythian calls the "psychology of intelligence failures". [14]

The cognitive limitations that can impact intelligence analysts have also been the subject of large research projects. These include the EU-funded Reduction of Cognitive Biases in Intelligence Analysis (RECOBIA) Project,[15] and a handful of initiatives driven by the US Intelligence Advanced Research Projects Activity (IARPA), namely: the Sirius program,[16] the Knowledge Representation in Neural Systems (KRNS) program,[17] and the Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS) program.[18]

In addition to the research on cognitive limitations, there is a wide range of studies on reasoning and decision making under conditions of uncertainty.[19] Philip Tetlock's work on forecasting accuracy is perhaps the best-known example of this trend, with the resulting research outputs being captured in a series of papers,[20] as well as a highly acclaimed book.[21] Other intelligence-related disciplines popular among researchers include sensemaking,[22] critical thinking,[23] and collaborative analysis.[24]

Several general studies should also be mentioned. An analysis of the psychological factors that impact the work of criminal intelligence professionals was recently published by the EU-funded VALCRI Project.[25] A detailed overview of subjects such as reasoning, intuition and expertise, collaboration and collaborative analysis can be found in "Intelligence Analysis: Behavioural and Social Scientific Foundations", published by the US-based Committee on Behavioural and Social Science Research to Improve Intelligence Analysis for National Security.[26] Valuable insights on cognitive and behavioural subjects were also gathered in a 2009 workshop report assembled by the Defense R&D Canada, Canada's Privy Council Office, and the US Department of State.[27]

This growing body of literature is a testament to Heuer's influence. An entire generation of analysts has entered the workforce with greater knowledge of the biases, mindsets and other limitations that might impact their work. However, as noted above, psychology's relevance to the discipline of intelligence extends far beyond an individual's capacity for reasoning. Greater effort is needed to scope its relevance and advance the state-of-the-art. To this end, we propose to organise one or more workshops that bring together scholars and practitioners from around the globe interested in improving collaboration and realising the following goals:

1. Mapping psychology's influence on the discipline of intelligence in the broadest possible manner

2. Identifying the gaps in our current knowledge

3. Defining a research agenda that will encourage the efforts of academics, practitioners and others over the coming decade

4. Establishing a framework for systematising and organising the knowledge we have and hope to acquire

5. Developing recommendations for the training and development of intelligence professionals (e.g. through the development of a reference curriculum on intelligence and psychology)

6. Developing “best practice” recommendations to guide the work of intelligence analysts and their managers (e.g. in the form of analytic standards)

This initiative would allow us to network global pockets of expertise and address long-standing issues of concern to intelligence professionals. In so doing, we would significantly enhance the state-of-the-art. Further, we are confident that the outputs of these workshops would be of value not just to intelligence but can be extended to other disciplines in the field of international studies. The methodology developed and implemented to realise the steps above can also be used to explore other scientific disciplines relevant to intelligence.

It is our hope that your committee will look favourably on this proposal and support our efforts. In terms of related workload, we would be happy to organise the workshop(s), identify relevant speakers, assemble the agenda and manage the necessary logistics (travel, workshop venue, etc.).

Word count: 1293

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[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Idem., 19.

[7] Ibid.

[8] Ibid.

[9] Ibid.

[10] Source of description: Coon, D., & Mitterer, J. O. (2013). *Introduction to Psychology: Gateways to Mind and Behavior*. Belmont, CA: Wadsworth Publishing, 619.

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[12] See, for example: Cook, M. B. & Stallman, H. S. (2008). “Human Factors of the Confirmation Bias in Intelligence Analysis: Decision Support From Graphical Evidence Landscapes”. *Human Factors*, 50(5), 745-754; Hensley, P. D. (2016). “Shades of Gray: Releasing the Cognitive Binds that Blind Us”. Master Thesis. Monterey, CA: Naval Postgraduate School; Heuer, R. J., Jr. (1978). “Cognitive Biases in the Evaluation of Intelligence Estimates.” Paper delivered at the Annual Meeting of the American Institute for Decision Sciences, St. Louis; Hoffman, R., et al. (2011). “Reasoning Difficulty in Analytical Activity”. *Theoretical Issues in Ergonomics Science*, 12(3), 225-240; Jones, L. (2005). “Patterns of Error: Perceptual and Cognitive Bias in intelligence Analysis and Decision-Making”. Master Thesis. Monterey, CA: Naval Postgraduate School; Mandel, R. (1987). “Distortions in the Intelligence Decision-Making Process”. In Stephen J. Cimbala, ed., *Intelligence and Intelligence Policy in a Democratic Society*. New York: Transnational, 69-83; Ng Zhaohong, J. (2015). “Illuminating Human Biases in the Intelligence Cycle”. *Pointer, Journal of the Singapore Armed Forces*, 41(2), 19-31; Paik, J. et al. (2012). “Cognitive Biases in a Geospatial Intelligence Analysis Task: An ACT-R Model”. Speech presented at The Annual Meeting of the Cognitive Science Society; Rebuggio, A. B. (2013). “Bias and Perception: How it Affects Our Judgment in Decision Making and Analysis”, *Small Wars Journal*. Available online: http://smallwarsjournal.com/print/14238; Rodgers, S. R. (2006). “Improving Analysis: Dealing with Information Processing Errors”. *International Journal of Intelligence and CounterIntelligence*, 19, 622-641; Wastell, C. A. (2010), “Cognitive Predispositions and Intelligence Analyst Reasoning”, *International Journal of Intelligence and CounterIntelligence*, 23(3), 449-460; Wastell, C. A., et al. (2013). “The Impact of Closed-mindedness on the Assessment of Threat: An Empirical Study”. *The Open Psychology Journa*l, 6, 10-19.

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[15] For more information, see: https://www.recobia.eu/

[16] For more information, see: https://www.iarpa.gov/index.php/research-programs/sirius

[17] For more information, see: https://www.iarpa.gov/index.php/research-programs/krns

[18] For more information, see: https://www.iarpa.gov/index.php/research-programs/icarus

[19] See, for example: Barnes, A. (2015). "Making Intelligence Analysis More Intelligent: Using Numeric Probabilities". Intelligence and National Security, 31(3), 327-244; Dhami, M. K. (2013). "Understanding and Communicating Uncertainty in Intelligence Analysis". Report prepared for Her Majesty's Government, United Kingdom. London, United Kingdom; Friedman, J. A. & Zeckhauser, R. (2012). "Assessing Uncertainty in Intelligence". Intelligence and National Security, 27, 824–847; Ho, E., Budescu, D., Dhami, M. K., & Mandel, D. R. (2015). "Improving the Communication of Uncertainty in Climate Science and Intelligence Analysis". Behavioral Science & Policy, 1(2); Mandel, D. R. (2015). "Instruction in Information Structuring Improves Bayesian Judgment in Intelligence Analysts". Frontiers in Psychology, 6, Article 387; Mandel, D. R. & Barnes, A. (2014). "Accuracy of Forecasts in Strategic Intelligence". Proceedings of the National Academy of Sciences, USA, 111, 10984–10989; Mandel, D. R., Barnes, A., & Richards, K. (2014). "A Quantitative Assessment of the Quality of Strategic Intelligence Forecasts". Technical Report No. 2013-036. Toronto, Ontario: Defence Research and Development Canada; Rieber, S. (2004). "Intelligence Analysis and Judgmental Calibration". International Journal of Intelligence and CounterIntelligence, 17, 97–112.

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