

**How is the unconscious in communication critical for
understanding and managing risk?**

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Introduction

The unconscious (the non-conscious processing of information by the brain¹) enables humans to process the 11 million bits of data received by the senses every second - prior to conscious thought². This unconscious processing influences and informs the way people feel, perceive, judge, decide, behave, their memory, creativity and their perception³ of what they hear and see around them – factors critical in making sense of and managing risk.

Drawing on the work of Norretranders, Long⁴, Claxton, Mlodinow⁵ and Gigerenzer⁶ this essay examines the importance of the unconscious in communication with particular reference to semiotics, pitching, framing, anchoring and priming, heuristics, motivation and concepts of self - and how it is critical in understanding and managing risk.

It is argued that recognition of the unconscious in communication requires a willingness to think differently, to the control oriented focus of orthodox risk management, when engaging and influencing others in the management of risk. The trade-off created by strategies that do not recognise the role of the unconscious in decision making and judgement are discussed with reference to a number of case studies. Finally, a learning model (that recognises communication to the unconscious) is put forward as key element of any strategy to better manage the human elements in risk.

¹ Norretranders, T. *The User Illusion – Cutting Consciousness Down to Size* (Penguin Books Ltd, London, 1998), 205.

² Norretranders. *The User*, 215.

³ Claxton G. *The Wayward Mind* (Abacus Press, London, 2005), 192.

⁴ Long R. *Real Risk – Human Discerning and Risk* (Scotoma Press, Canberra, 2014).

⁵ Mlodinow, L. *Subliminal – The New Unconscious and What it Teaches Us* (Allen and Lane, Great Britain, 2012).

⁶ Gigerenzer, G. *Gut Feelings – the Intelligence of the Unconscious* (Allen and Lane, London, 2007)

Methods of communication to the unconscious

Long states that much of what we do is enacted by our unconscious⁷. Most of our mental processes are unconscious⁸ ⁹. The unconscious brain processes much of the 11 million bits of information delivered to our brain by our senses every second and influences our actions and decisions prior to conscious thought¹⁰. In contrast, conscious thought has been demonstrated to process information at 10-40 bits per second. Norretranders argues that information processed unconsciously then discarded (exformation)¹¹ still informs and influences our conscious decision making, even if we are not aware of it. These findings have significant implications for organisations seeking to manage risk – which is further discussed in the next Section. Firstly however, it is important to understand the methods by which the unconscious in communication is made critical in understanding and managing risk.

Semiotics refers to what is signified by signs – which can include signs, symbols, language, words, gestures, music, art, space, colour, text, symbol, place and the use of space. The meaning carried by signs is subject to culturally learnt interpretation. Importantly, the

⁷ Long. *Real Risk*, 115.

⁸ Gigerenzer, G. *Gut Feelings*, 3.

⁹ Norretranders. *The User*, 209.

¹⁰ Norretranders reports on the studies of Libet in the 1970s into the delay (up to 1.5 seconds) between unconscious processing and conscious thought. In Norretranders. *The User*, 215.

¹¹ A process Norretranders describes as exformation to describe the huge amounts of information processed in the unconscious part of the brain that is then discarded prior to reaching conscious thought. In Norretranders. *The User*, 208.

meaning carried is unconsciously processed and can prime¹² the recipients feelings, mood, judgement, perception, behavior and decision making¹³.

Long identifies the influence of visual and verbal semiotics on the unconscious mind as particularly powerful¹⁴. Despite their prevalence in Australian workplace safety programs, phrases such as “zero harm”, “all accidents preventable”, “safety is no mistake” and “safety is a choice” communicate to the unconscious that all injury/incidents must be knowable, have a rational cause and therefore, when they occur, someone must be at fault based on rational decision and actions they took. The trajectory of this message is further analysed in the next section.

Similarly, framing, pitching, priming and anchoring unconsciously affect choice, judgment and decision making. Tversky and Kahneman¹⁵ demonstrated that the framing of a question as a gain or a loss unconsciously influences the recipients response. In a different study the same authors demonstrated the unconscious influence of anchoring¹⁶. The unconscious can be primed verbally as demonstrated experimentally by Higgins,

¹² Long R. *Understanding the Unconscious, Risk and Safety* (Human Dymensions Pty Ltd) – video accessed September 2015. <https://vimeo.com/135536440>

¹³ De Botton notes “if one room can alter how we feel, if our happiness can hang on the colour of the walls or the shape of a door, what will happen to us in most of places we are forced to look at and inhabit”. In De Botton A. *The Architecture of Happiness* (Pantheon Books, 2006), 13.

¹⁴ Long. *Real Risk*, 131.

¹⁵ Tversky, A. and Kahneman D. “Prospect Theory: An Analysis of Decision under Risk”. *Econometrica*, Vol. 47, No.2 (1979), 263-292). Participants were asked whether they preferred radiation treatment or surgery when faced with a serious disease. Group were told told they would have a 68% chance of of being alive a year after surgery, whilst Group B was told that they had a 32% chance of dying. 44% of Group A opted for surgery, however, when negatively framed as dying (Group B), the rate dropped to 18%.

¹⁶ Tversky, A. and Kahneman D. Judgment under Uncertainty: Heuristics and Biases. *Science*, New Series, Vol. 185, No. 4157. (Sep. 27, 1974), pp. 1124-1131. Two groups of participants were asked to determine the product of multiplying all numbers (rapidly – to force estimation) from 1 to 8 in sequence or 8 to 1. The latter group estimated 2250 compared to 512 to the first group anchored to a lower starting point.

Rholes and Jones¹⁷ and Bargh, Chen and Burrows¹⁸ as well as other stimuli such as heat¹⁹, taste, music – any stimuli that triggers memories held in the unconscious.

A range of cognitive biases and heuristics have been demonstrated to unconsciously influence decision making, judgement and behaviour without conscious awareness²⁰.

Gigerenzer argues that the humans cannot optimise all data potentially available to assist with making a decision and must satisfice²¹. Herbert Simon identified that humans are often forced to make decisions based on limited information and the limits of their cognitive functioning, a process he termed bounded rationality. As a result, people make unconscious mental shortcuts (heuristics) in making decisions and judgments without conscious consideration of all risks or objective evidence.

¹⁷ Higgins describes verbal priming as the influence of exposure to a trait-related word on subsequent memory and judgment and reports on the results of an experimental study by Higgins, Rholes, and Jones (1977) where participants were verbally primed with either “persistent” or “stubborn” and then found significantly more likely to use the trait related term in an apparently unrelated activity of describing a person (Donald) represented in a sentence. In Higgins, E. and Eitam B. “Priming...Shmiming: It’s About Knowing *When And Why* Stimulated Memory Representations Become Active”. *Social Cognition*, Vol. 32, Special Issue, 2014, pp. 225–242.

¹⁸ Experiments Bargh, Chen and Burrows demonstrated the affect of priming participants with words reflecting rudeness or politeness finding the former group were quicker to subsequently interrupt a conversation. In Bargh, J., Chen M. and Burrow L. “Automaticity of Social Behavior: Direct Affects of Trait Construct and Stereotype Activation on Action”. *Journal of Personality and Social Psychology*, 1996, Vol. 71, No. 2, 230-244

¹⁹ Williams and Bargh demonstrated that participants who briefly held a cup of hot coffee rated an independent person as having a “warmer” personality than did participants asked to hold an ice drink. In Williams L. and Bargh J. “Experiencing Physical Warmth Promotes Interpersonal Warmth”. *Science* 24 October 2008: Vol. 322 no. 5901 pp. 606-607 DOI: 10.1126/science.1162548

²⁰ A range of heuristics are identified in Gigerenzer. *Gut Feelings*, e.g. gaze (47), recognition (37), take the best (82). Heuristics have also been experimentally demonstrated e.g. availability in Tversky A., and Kahneman, D. Availability: A heuristic for judging frequency and probability. In *Judgment Under Uncertainty: Heuristics and Biases* (Cambridge University Press, Cambridge, 1982) 163-189.

²¹ Gigerenzer describes satisficing as a heuristic, or mental short-cut, people use to make decisions when faced with too much information. In Gigerenzer, G. *Risk Savvy, How to Make Good Decisions* (Penguin Books, United Kingdom, 2015), 275.

Intrinsic motivators of human behaviour have been identified by authors such as Long²² and can be very strong unconscious drivers of behaviour and decision making. The need to belong is a particularly strong driver – and two examples of communication inadvertently reinforcing the need to belong are analysed in the following section. Mlodinow also identifies threats to self esteem and the “above average affect”²³ as contributors to a thought process whereby humans unconsciously take their own beliefs and construct supporting evidence.

Mlodinow identifies experimental evidence that demonstrates how our unconscious brain takes information from our physical state and combines it with cues from our social and emotional context to construct what we are feeling²⁴ and what we think we see²⁵. In the study researchers arranged for an attractive female interviewer to ask male passers-by to fill out a questionnaire and provided contact information for participants to call her if they had any questions. The first group were interviewed on a solid wooden bridge over a small stream less than 10 feet below. The second group were interviewed on a wooden foot bridge with a 450 foot fall to rocks below. 11% of the first group subsequently contacted the interviewer compared to 50% from the second group. Whilst people are not aware of the unconscious influences on their feelings and behaviour, Mlodinow notes

²² Long identifies key motivators of human behaviour including the need for: belonging, understanding, control, communication, self enhancing and trust. In Long. *Real Risk*, 113.

²³ Mlodinow (198) cites the experimental research of above average affect (Dunning, D et al. Flawed Self Assessment: Implications for Health, Education, and the Workplace” *Psychological Science in the Public Interest* 5, no.3 (2004): 69-106) including a survey asking professional engineers to rate their performance resulting in 30% to 40% rating themselves as in the top 5% and doctors asked to rate their ability to diagnose pneumonia in patients – resulting in 88% believing they could produce an accurate diagnosis, whilst only 20% percent actually did.

²⁴ Mlodinow reports on results of a study: Dutton, D. and Aron, A. “Some Evidence for Heightened Sexual Attraction Under Conditions of High Anxiety”. *Journal of Personality and Social Psychology* 30, no.4 (1974): 510-517. In Mlodinow. *Subliminal*, 186.

²⁵ Mlodinow describes the process by which our unconscious mind takes incomplete data from our vision, hearing and memory and uses “context or other cues to complete the picture, make educated guesses and produce a result that is sometime accurate, sometimes not”. In Mlodinow. *Subliminal*, 152.

that the subliminal mind providing explanation by explain searching “your mental database of cultural norms and picks something plausible”²⁶.

Experimental evidence presented in this section demonstrates that human decision making and judgement is primarily unconscious – a critical finding for the effective management of risk. The following section argues that despite this finding, the role of the unconscious is often overlooked in orthodox risk and safety programs. The trajectory this puts an organisation on is also discussed.

²⁶ Mlodinow. *Subliminal*, 191.

Why recognition of communication to the unconscious is critical in understanding and managing risk

The experimental evidence identified in the previous section, supports Norretranders description of the user illusion - that our choices are controlled, rational and based on conscious decisions²⁷. Communication to the unconscious drives behaviour, action, decision making, judgement and feelings and even perception of risk. In this context, the unconscious is inherent in creating, managing and making sense of risk.

In contrast, orthodox risk programs often lack awareness of the role of the unconscious mind in processing information. Mlodinow cites the example of an advertising campaign aimed at reducing littering in national parks that is designed to appeal to peoples conscious mind. By showing people littering and a native American crossing a garbage strewn river – Mlodinow argues that it also sends a message to our unconscious: “those in our in-group, our fellow park-goers, do litter”²⁸.

Analysis of two anti binge drinking advertisements²⁹ aimed at teenagers shows a similar pattern – reinforcing group norms and in-group behaviour before concluding with the intended message – that the behaviour may result in an undesired consequence. The message to the unconscious (this is what we do) is aimed at a target audience already under pressure to participate in the undesired behaviour (binge drinking) and a strong motivation to belong³⁰. The presentation of the message is also negatively framed (drinking leads to a

²⁷ Norretranders. *The User*, 277.

²⁸ Mlodinow. *Subliminal*, 170.

²⁹ UK National Health Service: <https://www.youtube.com/watch?v=wFXvh9xrBzk> (approximately 2011). Australian Government (approximately 2011): <https://www.youtube.com/watch?v=Bhk4fh6Sld0>.

³⁰ Long. *Real Risk*, 113.

consequence)³¹ – which Tversky and Kahneman demonstrate is unconsciously interpreted as a less desirable choice than the gain framed messages³². Belief systems create an important anchoring point in decision making which can further reinforce in-group thinking³³, whilst cognitive biases such as confirmation bias³⁴ and the availability heuristic³⁵ can reinforce a perception of a low likelihood of incurring the consequence. Ellen³⁶ also identifies a tendency for people to believe they maintain a level of control above what objective estimates of the real frequency of events suggested – which can contribute to a subconscious perception of “it won’t happen to me”.

The recent advertising campaign of the Victorian Transport Accident Commission³⁷ (*working towards a future free of deaths and serious injuries on our roads*) is a further example of the failure of those designing the message to understand how it will be unconsciously interpreted. Moskowitz and Grant identify that goals must be feasible³⁸. The message to the unconscious – that the target is not achievable – immediately invites cynicism and dismissal of the basic proposition put forward by the campaign.

³¹ The presented negative consequence of the Australian Government advertisement – having sex – ignores the internal and external motivations of many teenagers – and may be consciously or unconsciously interpreted as a positive outcome.

³² Prospect Theory reference (in Long).

³³ Referred to as belief congruence. In Long. *Real Risk*, 106.

³⁴ The tendency to play down evidence that does not support beliefs and overestimate the value of information that does.

³⁵ The tendency to overestimate the likelihood of events that are easier to recall and lower the estimate for events that are harder to recall (in this case – if a young person does not know of anyone who has experienced the consequences portrayed in the advert).

³⁶ Langer, E.J. The illusion of control. *Journal of Personality and Social Psychology*, Vol 32(2), Aug 1975, 311-328. <http://dx.doi.org/10.1037/0022-3514.32.2.311>

³⁷ TAC Case Study: <http://www.towardszero.vic.gov.au/>

³⁸ Moskowitz G. and Grant, H. *The Psychology of Goals* (The Guilford Press, New York, 2009), 5.

Long identifies the semiotic influence of visual and verbal signs on the unconscious mind as particularly powerful³⁹. Despite their prevalence in Australian workplace safety programs, phrases such as “zero harm”, “all accidents preventable”, “safety is no mistake”, “safety is a choice”, processed unconsciously, they create a trajectory that all injury/incidents must be knowable, have a rational cause and therefore, when they occur, someone must be at fault based on their rational decision, choice and actions. This creates a culture necessitating power and control over others, apportioning of blame and punitive punishment. Additional procedural and operational controls, designed to communicate to the conscious mind are used to reinforce control. The unconscious response of the workforce is predictable and counter productive to the intended goal – staff reverting to implicit knowledge⁴⁰, satisficing⁴¹, under reporting⁴², cynicism, avoidance and a tick and flick approach to facilitate an appearance of compliance.

The structure of current BP safety objectives is a further example of the failure to understand the influence of the unconscious in communication – specifically the impact of key performance indicators being used to “determine remuneration” of management⁴³. Deci argues that whilst being able to motivate performance, reward based schemes “encourage short-cuts and undermine intrinsic motivation”⁴⁴. Similarly, rewards for reduction in lost time injury rates create an unconscious extrinsic motivation

³⁹ Long. *Real Risk*, 131.

⁴⁰ Gigerenzer describes implicit (or gut feeling) as a form of unconscious intelligence that quickly generates a judgement in conscious thought. In Gigerenzer, G. *Risk Savvy*, 269.

⁴¹ Gigerenzer describes satisficing as a heuristic, or mental short-cut, people use to make decisions when faced with too much information. In Gigerenzer, G. *Risk Savvy*, 275.

⁴² Personal observation.

⁴³ <http://www.bp.com/en/global/corporate/about-bp/our-strategy/key-performance-indicators.html#eleven> - refer to KPIs for Lost Time Injury and Process Safety.

⁴⁴ Deci, E. *Why We Do What We Do, Understanding Self Motivation* (Penguin Books, New York, 1995), 55.

to under-report⁴⁵. The Commission of Inquiry in to Queensland Hospitals Report provides an informative example – with management of the Bundaberg Base Hospital suppressing complaints⁴⁶ and ignoring assessments of defective surgery skills⁴⁷ in relation to Doctor Jayant Patel, in part due to his ability to quickly process patients – which in-turn was linked to hospital funding.

A learning model as a strategy for change

If decisions relating to risk are not made consciously – how can we influence others in the management of risk? Evidence presented in previous sections reinforces that control oriented approaches cause, often unconsciously, cynicism and subversion.

Robinson argues a starting point is “to adopt a new metaphor for human organisations to replace the outdated idea of employees being mechanized cogs in the wheel of the business machine”⁴⁸. Mechanistic metaphors inherently require control of people (forcing subversion of risk as above) and ignore values, feelings, perceptions and motivations that people hold.

Robinson identifies the importance of creativity, imagination and innovation as methods to enable an organization to explore risk from different angles, develop a range of

⁴⁵ For example – personal communication from Site Manager of Logistics Business to author: “The boys won’t be happy with the driver who looses our record” (referring to Lost Time Injury free days).

⁴⁶ With over 20 complaints received in relation to Dr Patel in 24 months. Davies, G. *Queensland Public Hospitals Commission of Inquiry Report* (Queensland Government, November 2005), 4.

⁴⁷ Davies, G. *Queensland Public Hospitals Commission of Inquiry Report* (Queensland Government, November 2005), 3.

⁴⁸ Robinson, K. *Out of Our Minds – Learning to be Creative*. (Capstone Publishing Limited, United Kingdom, 2011) 221.

different possible solutions⁴⁹ and learn by trial and error by giving people the freedom to take risk⁵⁰.

Robinson reviews Pixar as an example of an organisation that encourages creativity and learning, including developing an internal “Pixar University”. Randy Nelson, the Dean of the University is quoted as saying “It’s the heart of our model; giving people the opportunity to fail together and to recover from mistakes together”⁵¹. Unfortunately, learning is often missing from the risk discourse in many organisations.

Conclusion

Understanding of the unconscious in communication facilitates the need to think differently when engaging and influencing others in the management of risk. Much of the communication and tools in traditional risk are designed for the conscious rational mind, which is not how the humans think, make decisions and judgements. Facilitation of a learning environment that fosters trial and error and innovative approaches to risk is a step in the right direction in reducing the inevitable trade-off of control focussed approaches.

⁴⁹ Robinson. *Out of*, 233.

⁵⁰ Robinson. *Out of*, 228.

⁵¹ Randy Nelson quoted in Robinson. *Out of*, 230.

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