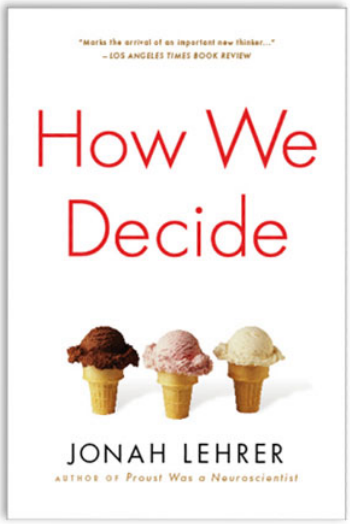
How We Decide by Jonah Lehrer



Content = ***** Readability = *** Clarity & Structure = ***

IN A NUTSHELL

This book explores the science of how we make good and bad decisions. It challenges our cultural focus on rational decision-making (through use of anecdotes and experimental evidence), suggesting instead that good decision-making is made through both the emotion and rational parts of the brain working together.

KEY PRINCIPLES

Rational decision-making – We live in a culture that rewards rational decision-making (first espoused by the philosophers Plato and Descartes). It forms the basis of modern economics. But this is wrong. Decision-making also involves the emotional part of the brain.

The brain has two areas - the 'emotional' (limbic) brain and the 'logical' (neo-cortex) brain. Both areas of the brain have their strengths and weaknesses. The best decision-making involves the use of both.

Paul Arnold Consulting
STRATEGY – FACILITATION – TRAINING – RESEARCH
paul_arnold@me.com
07768 775988

1) The 'emotional' (limbic) brain

-Decision-making is linked to the emotional part of the brain
cf the patient Elliot had a small tumour cut out from the frontal lobe of his brain. After the operation he was devoid of emotion & incapable of making any decisions.

-The emotional brain is brilliant for dealing with lots of complex information and making fast, unconscious decisions
Our brains are super-computers taking-in subconsciously millions of bytes of information so they can respond almost instantaneously (cf split second decisions made in sport).

Story: Lieutenant Commander Riley in the Iraq-Kuwait war in 1991 who intuitively could tell the difference between a radar blip for an A-6 bomber and an enemy missile. This was communicated by the way he 'felt' rather than by some conscious process.

-The dopamine feedback system – This unconscious ability to make split second decisions (based on lots of complex information) is due to the dopamine feedback system. We are sense-making, pattern-making creatures (which is 'steered' by changes in dopamine).

Trial and error is our greatest way of learning. Every time we fail, we learn chemically.

-Experiment: The Iowa Gambling Task by Demasio and Bechara – where people unconsciously pick up the patterns long before they can consciously articulate what is going on.

-Mirror neurons cause us to empathise – We are emotionally connected to the outcomes of our decisions – thus influencing our decisions.

-Experiment: Paul Slovic, (Oregon). Showed a poster with one malnourished child versus another poster with lots of 'rational' facts.

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The average donation was double for the one with the picture of a child.

-Experiment: The Ultimatum game and Dictator game demonstrate that our 'morality' over sharing equally becomes reduced when we never see the other person.

The flaws of the emotional brain

-The brain has immense storage capacity (10 to the power of 10 to the power of 11 neural connections), but still makes a number of mistakes:

1) The emotional brain cannot deal with randomness - The brain wants to find order and patterns. Wolfram Schultz has shown that unexpected, random delivery of rewards are typically 3-4x as exciting, making the dopamine neurons fire much more rapidly.

2) The brain is programmed to avoid loss - 'Wins' triggers dopamine, whilst losses activate the amygdale (the part of the brain that is responsible for creating emotions such as fear and anxiety). This loss-aversion strategy is the key reason for the most common investor mistake. People hold onto their underperforming shares (in the hope of recovering the loss) and instead sell their good shares.

3) The emotional brain favours short-term rewards vs. long-term costs. Short-term benefits trumps due to the power of dopamine.

Experiment: Jonathan Cohen, (Princeton) put his subjects into an fMRI machine, and asked them to make a decision between having a small Amazon certificate now versus a larger certificate in 2-4 weeks time. The two choices triggered different parts of the brain. The immediate reward fired up the emotional brain with dopamine but the longer-term offer triggered the rational part of the brain. Under such circumstances the shorter-term offer won through.

Experiment: Prelec and Simester, (MIT) organized a real life, sealed-bid auction for tickets to a game. They told half the people they were only accepting cash, and the other half they were only accepting

cards. The average credit card bid was twice as high as the average cash bid. That's because credit cards divorce the 'pain' of payment from the immediate gratification.

2) The 'logical' (neo-cortex) brain

·Creative thinking is a rational process – The prefrontal cortex is extremely flexible and can see a problem from a number of different angles. However, too much emotion can cloud an issue**.** The way creativity works is first by removing all data unrelated to the problem. Then the brain starts looking for associations.

Story: Wag Dodge (1949, Montana) a fire-fighter who survived a wall of fire by controlling his emotions (and thus was able to think clearly and creatively).

Story: United Airlines Flight 232 in 1989 where all hydraulics failed, but they used rational thought to fly the plane via the thrusters (saving 184 people).

-The prefrontal cortex has some control over the emotional brain – depending on the relative amounts of positive vs. negative chemicals (hence emotions). When we see something we like, this stimulates the release of dopamine. The prefrontal cortex, the rational part of our brain may then have some opposite viewpoints (e.g. It'll put on weight or I can't afford it), which triggers the insula. In extremis, the amygdale is also triggered (e.g. fear of financial embarrassment etc) creating a wash of counter emotions. As long as the prefrontal cortex (which triggers the negative emotions from the insula and amygdale) does not counter the dopamine level, the purchase is made. This chemical 'weighing up process' can take as little as 2.5 seconds to decide on a purchase.

Experiment: George Loewenstein and Brian Knutson. A group of students were given money and offered the chance to buy a wide range of different products. Whilst this was happening the studied their brain activity. When the students were looking at the items, their nucleus accumbens (NAcc) was switched on (a critical path of the dopamine reward pathway). But when the price was shown, this triggered a

different part of the brain – the insula (produces negative, aversive feelings).

The flaws of the rational brain

1) The conscious mind can only deal with small chunks of data at any one time (cf George Miller's paper 'The magical number seven, plus or minus two') The thinking mind is ideal at working with a small amount of data, but add too much and it then tries to grossly simplify and thus makes sub-optimal decisions. When the conscious mind tries to take control of very complex behaviours (such as in many sports), then we 'choke' and become 'consciously incompetent' versus 'unconsciously competent'.

-More information does not necessarily improve the quality of decision-making – It just makes people (over) confident. Experiments have shown that people still make decisions on a small amount of the data but then seek support for their conclusions from the remaining data.

2) The brain can't ignore irrelevant information and therefore are very open to suggestion

Experiment: Dan Ariley, (MIT) ran an auction at his business school. Before they wrote down their winning bid, he asked them all to write down the last two numbers of their social security number. He found that students with high social security numbers (80-99) made an average bid for a keyboard of $56, whilst the lower social security numbers (1-20) made an average bid of just $16 i.e. a 300% difference based on irrelevant, random data.

Experiment: Baba Shiv (Stanford) supplied a group of people with an energy drink (caffeine and sugar) which was suggested to them would improve their performance. He then charged half price to some and sold it full price to the others, and then made them do a series of word puzzles. Shiv found that those who had paid a discounted price underperformed the full paying students by 30%. Shiv concluded that because they paid less, they assumed the product would be less effective.

3) The rational brain can easily get tired (and then gives-in to the emotional brain)

Experiment: Roy Baumeister (Florida State University) had a group of students 'tire' out their conscious mind. Then he gave half of them lemonade (with sugar) and the other half diet lemonade (i.e. no sugar). Baumeister than gave the students another mentally challenging task. He noticed those given the sugar used their frontal cortex (i.e. their rational part of the brain) to help make their decision, whilst those with 'exhausted' frontal cortex, made purely emotional choices.

4) The rational brain can make illogical decisions – e.g. financial decisions are contextualized.

Experiment: Richard Thaler (University of Chicago) asked people if they would drive 20 minutes to save $5 on a $15 calculator – 68% said they would. But when asked if they would drive 20 minutes to save $5 off a $125 jacket, only 29% said they would. That's because the logical brain puts the $5 into context of the object being bought – irrespective of the fact that $5 is still $5.

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contact Paul Arnold at
paul_arnold@me.com
or 07768 775988