

Popular Delusions

In defence of the doom merchants: when hearing isn't listening

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The ways we overestimate the quality of our knowledge have been well documented by psychologists over the decades. But what's becoming clear is that mere awareness that our judgments are biased does little to correct the errors we make. Simple changes to decision-making processes can mitigate such effects. As it happens, freely embracing your inner bear is a good place to start!

■ According to Wikipedia (which was down all day last Wednesday, for 'the full 25 hours' according to its own website) the Sami, Ainu, Nivkhs and pre-Christian Finns [worshipped bears](#) as gods. The Ainu people worshipped many animals as gods, continues Wikipedia, but the bear was the most important deity, the God among gods. Indeed, it has been suggested by some scholars that the practice of arctolatry goes back to the Neanderthals. Time marches on. Fashions, customs and belief systems are left in its wake. But I wonder if those circumpolar religions might not have been onto something?

■ These days bears are denigrated. They're prefixed with adjectives like 'notorious' or 'infamous'. Yet the use of meaningless metrics such as the 'Fed Model' (a two-word combination which should scare any right-thinking person) or the forward PE ratio to perennially argue that stocks are cheap attracts no opprobrium. Why is that?

■ It likely has something to do with the well-known 'optimism bias' most of us are hardwired with. Neil Weinstein famously showed that college students he questioned underestimated their chances of suffering adverse experiences (like road accidents) while simultaneously overstating their chances of enjoying positive ones (having a gifted child). But the problem isn't that we have an optimistic disposition *per se*. It's that we're impervious to evidence telling us we're wrong, and are steadfast in our refusal to incorporate such evidence. When the facts change, we change our prejudices.

■ We're hardwired to *think* we're right more often than we *are* right, and some interesting psychological experiments demonstrate that one of the best ways to mitigate this isn't merely to pay lip service to considering the alternatives, but to *actively engage* them.

Albert Edwards explaining his Ice Age thesis to the Ainu in 1930



Source: Wikipedia

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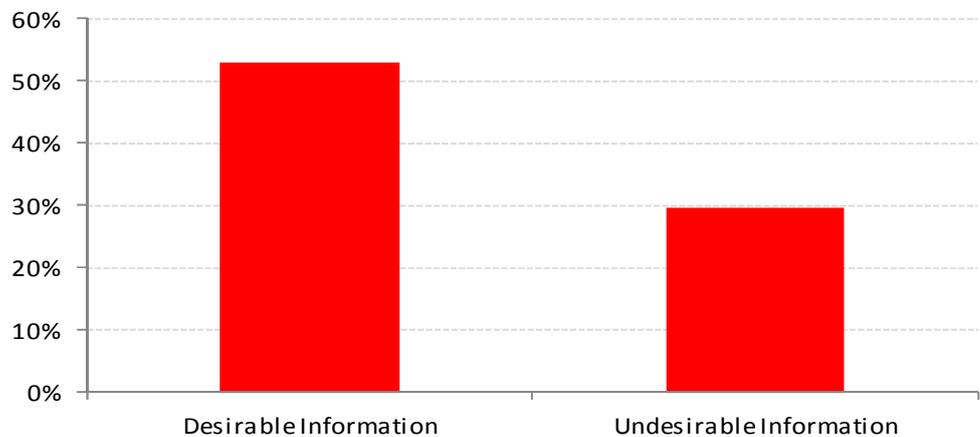
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In a brilliant new paper¹ on the neurology of learning, or ‘belief updating’, subjects went through a three-stage experiment. First, they were asked to estimate the likelihood of falling victim to adverse life events, such as suffering from depression, diabetes, dementia, vandalism, credit card fraud, etc. Then they were shown the average probabilities for each life event for individuals living in their social-cultural environment. Finally, in the key part of the experiment, subjects were asked to give new estimates for their expectation of falling victim to such events in light of this more accurate probability.

How do you think you’d have done? Suppose you rated your probability of being involved in a traffic accident at 30%, only to be told that the true probability of such an occurrence in your social group was 20%. This is ‘favourable’ information. It implies things aren’t as bad as you thought! What would your updated view be? If you were like the average subject in the experiment you’d incorporate a great deal of this information into your new view. You might now put the probability at 22%.

But suppose instead that you’d initially put the odds at only 5%. This new information must be quite unsettling. You’re not as safe as you thought. And if you’re like most of the participants in the experiment you’d respond by taking much less of this information on board, coming up with some reason why this number didn’t fully apply to you and increasing your new estimate of suffering a traffic accident only grudgingly, to say 8%. The following chart shows the proportionate change in view (measured as the proportionate change in assessed probability) depending on whether or not the new evidence was ‘desirable’ or ‘undesirable’.

How we hear what we want to hear: changes in views in light of new evidence depending on



Source: Sharot et al (2011)
* Change in judged probability relative to population probability

Indeed, the authors found that the parts of the brain’s learning regions ultimately activated by new evidence **depended on whether or not the new evidence was ‘favourable’ or ‘unfavourable’**. **Brain activity varied according to the desirability of the information, increased when processing ‘good’ information and decreased when processing ‘bad.’**

In his book *‘The Upside of Irrationality’* Dan Ariely runs some incredible experiments on the psychology of belief. Essentially, he shows that the well documented ‘endowment effect’ (in which we value goods and services more highly once our property right to them has been

¹ ‘How unrealistic optimism is maintained in the face of reality’ by Sharot, Korn and Dolan, Nature Neuroscience, Nov 2011

established) holds true for beliefs as well. We own them, have an emotional attachment to them and prefer our own. Relinquishing them is therefore difficult. Evidence which contradicts our beliefs will fall into the 'undesirable' category and be treated as seen above by the brain.

Of course, this 'tuning out' of undesirable information and the optimism bias it creates is only there because it is evolutionarily optimal for it to be there. Those viewing the world as more benign than it really is, their own attributes as more favourable, and their goals and desires as more realistic than they really are will be more likely to succeed (only the 'irrational' win the lottery because rational people don't play in the first place). Those who see instead pointlessness and futility everywhere and in everything (and can't see the funny side) are destined to fall short.

But just because a strategy makes 'evolutionary' sense doesn't mean that strategy should be universally applied in every context. It's also evolutionarily rational to find greasy, fatty and sugary foods tasty. But a diet which is over-indulgent in such foods will damage your health. Similarly, it might be 'evolutionarily rational' to reject things which are unfamiliar, embracing familiarity instead. Yet, believing things which are said frequently and often simply *because* they are said frequently and often has darkened the history of our civilisation with misperception and ignorance from the very beginning.

In his wonderful new book *'Thinking, Fast and Slow'*, Daniel Kahneman calls over-confidence the 'engine of capitalism', and we all know what he means. But it has also been the engine for the financialisation of our society these past decades, and its recent collapse.

What can be done? It's tempting to think that if only we could be made more aware of our biases we could overcome them. But the very over-optimism bias we're trying to correct works to undermine such an endeavour at a fundamental level. By definition, most of us will think the bias doesn't apply to us as much as it does to everyone else. And most of you reading this will think you're better at impartially evaluating conflicting evidence than anyone else ('most' of you can't be). So being implored to 'try harder' to make reasonable and unbiased judgments doesn't make any difference because we *already* think that we are being reasonable and unbiased!

But all is not lost. The bias towards thinking we're more correct than we are isn't driven by an *inability* to fully assimilate 'undesirable' information but an *unwillingness* to do so. Therefore, the first step in removing the bias is to adopt procedures that foster a more honest acceptance of logical conclusions. Logic has no emotional content *per se*. There is no such thing as 'good' or 'bad' information; information is only true or false. But because of our hardwiring, we only want *certain* information to be true. In particular, we want the information that *confirms* our prior beliefs and validates our belief systems to be true – about ourselves, about others, about the world. Thus, debiasing ourselves must involve an honest assessment of what we want: do we want to be 'right' about everything, or do we want to know what's true?

Most people want to be 'right' and most people get what they want. The Lord (1979)² study is the classic one on this. It asked a group of subjects (selected so that there were an equal number of opponents and proponents) to read two purported studies on capital punishment, one confirming its usefulness as a deterrent, the other disconfirming it. When asked to rate the soundness of each study (on a scale of one to seven), proponents of capital punishment rated

² 'Biased assimilation and attitude polarization: the effects of prior theories on subsequently considered evidence.' by Lord, Ross and Lepper. *Journal of Personality and Social Psychology* (1979)

the confirming study more highly, while opponents of capital punishment rated the disconfirming study more highly.

This will be familiar to anyone who's listened to politicians bickering over whose fault it is that the world isn't perfect, economists lamenting over other economists who 'don't get it', or football fans arguing about whose team plays the most attractive football. Despite their protestations to the contrary, neither side is really interested in honestly uncovering what's true. Such 'debates' soon descend into a farce worthy of Monty Python's [argument clinic](#).

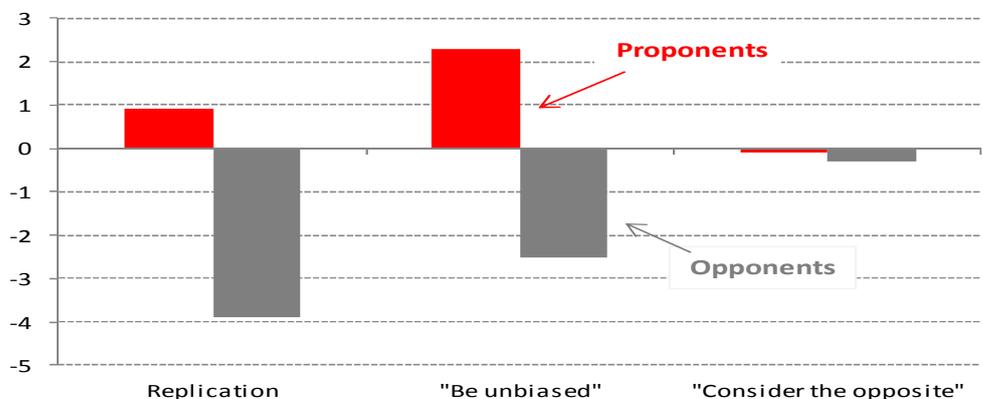
A technique which can prevent this might be to induce yourself into properly considering the opposite position. Building on their 1979 work, Lord and his team reran³ the initial experiment on capital punishment with some additional steps. This time they took three groups (again, each group containing an equal number of proponents and opponents of capital punishment). The first were told to evaluate the soundness of studies for and against, just as those in the experiment mentioned above had done. This was the replication group.

The second group was given the same two studies, but they were told to be as objective and unbiased as possible, and that *"You might consider yourself to be in the same role as a judge or juror asked to weigh all of the evidence in a fair and impartial manner."* This was the 'be unbiased' group.

Participants in the third group were taught about the process by which people evaluate evidence (and in particular how they prefer confirming evidence). They were instructed to ask themselves while making their evaluations whether they *"would have made the same high or low evaluation had exactly the same study produced results on the other side of the issue."* This was the 'consider the opposite' group.

The following chart shows what happened to the evaluations of each of the three groups during the experiment. As can be seen, the 'replication group' evaluation of the two studies strengthened subjects' initial positions, replicating the findings of Lord's original experiment. Both those in favour of capital punishment (red bars) and those against (grey bars) were more trenchant in their thinking after reading the studies.

Belief change among proponents and opponents of capital punishment for three groups



Source: Lord et al (1980)

³ 'Considering the Opposite: A Corrective Strategy for Social Judgement' by Lord, Preston and Lepper. Journal of Personality and Social Psychology (1980)

It's likely that in reading the 'case for' the subject's prior position, they picked up a few new snippets of confirming information they weren't previously familiar with and built them into their evaluation. But when reading the 'case against' they ignored it because, as we saw earlier, that's what the brain does with 'undesirable' information. The combined effect was to strengthen each side's prior conviction and polarise the group.

What I find fascinating is that when explicitly told to '*be unbiased*' the polarising effect was even greater. Presumably, subjects in this group tried even harder to rationally evaluate the evidence (a debriefing interview conducted with the subjects after the experiment suggest this to be true). But since the mental process used was faulty (assimilate confirming evidence; ignore disconfirming evidence), a more enthusiastic application of it created even greater error and so produced even greater polarisation.

This is an important lesson for those seeking to correct behavioural biases through urging us to 'try harder'. If flawed thinking is applied more enthusiastically the result will be just be an even bigger mistake. Something that worries me is that regulators, politicians and central bankers are doing exactly this, more rigorously applying mental processes which recent history suggests are flawed. The result will be what Duke University's Richard Larrick calls the *lost pilot effect* ("I don't know where we're going, but we're making good time!")

The good news is that those told to 'consider the opposite' by assuming the study they liked had concluded in favour of the opposing side – in other words, those forced to adopt the *substance* rather than just the *form* of exploring an opposing idea – didn't show the ideological polarisation seen in the other two groups. Indeed, the process of being required to seriously consider the alternative saw some proponents change their position.

So the moral of the story so far is that we shouldn't merely go through the motions when listening to an opposing view, ticking the box and claiming that we've done our intellectual due diligence. *Hearing* opposing views isn't enough. We must try to *listen* to them too. For many, that might mean taking what 'bears' say seriously from time to time. For me it's a reason to include trying to take certain prominent economists more seriously (no-one said it would be easy!). Yet one of the most common replies we get to our thinking is '*yeah, but that's not going to happen*'. And of course, I've found myself responding like that to things I didn't agree with in the past too. But is that an honest attempt to consider the opposite, or merely a dismissal of it?

Something which might make it easier to give real *substance* to the process of exploring contrary views (rather than merely *form*) is the act of trying to come up with contrary views and listing them. One experiment⁴ gave two groups of subjects a general knowledge quiz where each question came with two possible answers. In the first group, the control group, subjects were asked to choose the answer they thought was correct and state the probability they attached to being correct.

Exercises like this are revealing because they test not what we know, but what we know about what we *don't* know: how sure are we that what we think is true actually is true? Typically, they show participants to be overconfident in the quality of their knowledge. For example, when given ten questions to answer and told to give a range in which you'd be 80% confident the correct answer would be, a perfectly calibrated individual would get eight out of ten

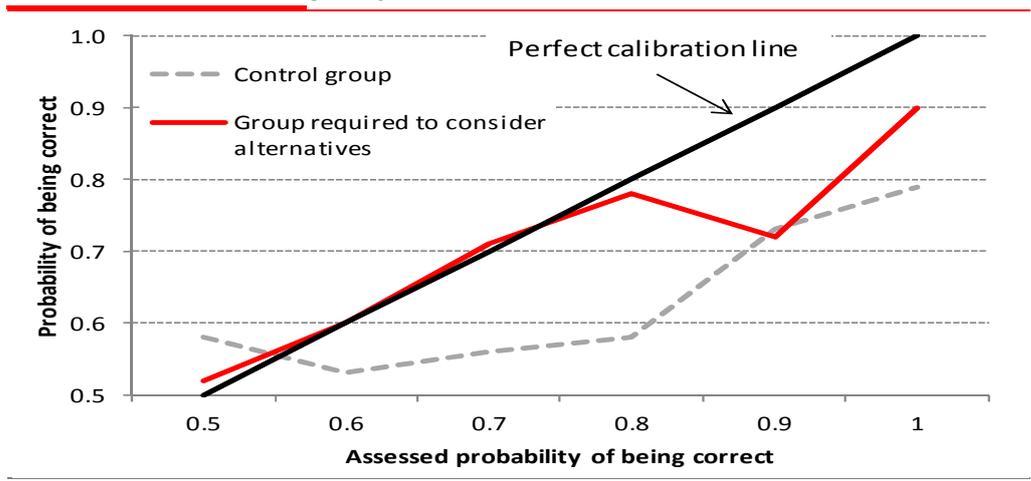
⁴ 'Reasons for Confidence' by Koriat, Lichtenstein and Fischhoff. Journal of Experimental Psychology: Human Learning and Memory (1980)

questions with answers within their given range. Yet respondents asked to perform this task generally get three to four answers in the range.

But the second group was required to do more. Subjects in this group were asked to write down all the possible reasons for *each* answer that they could think of, as well as the strength of their feeling for each reason. In other words, they were asked to brainstorm with themselves. Note that the process of writing down what they thought before giving an answer effectively required subjects in this group to *genuinely* consider each alternative. The results are shown in the chart below.

The black 45° line corresponds to perfectly calibrated confidence in your knowledge: when you attach a probability of 70% to being correct, you're correct 70% of the time. Readings above the line imply diffidence, readings below it imply overconfidence. The dotted grey line shows the responses for the control group, asked only to give an answer plus a probable confidence in it. As can be seen, it displays our well documented over-confidence in the quality of what we think we know. But the solid red line shows the results of the group forced to 'self-brainstorm'. It suggests the process leads to a drastic improvement.

The benefits of brainstorming with yourself



Source: Koriat, Lichtenstein and Fischhoff (1980)

During one meeting Albert and I did a while ago, the client smiled and listened politely as we droned on about how we saw the world. Then with about ten minutes left of the meeting he said, "Don't get me wrong, what you're saying is all very interesting, but it's really just a scenario to me". And before the meeting had ended, he used that expression "just a scenario" I think three or four times. I'm pretty sure he came out of that meeting feeling more certain of his prior conviction having dutifully considered the 'bear' case. But so did the group told to "be unbiased" in the Lord experiment above. The mind plays tricks on us in so many ways, but perhaps the most insidious is in the way it gives form to the illusion of substance.

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