

Does our unconscious rule?

Magda Osman refocuses our view on the evidence

Who is 'in control'? How do we achieve more 'agency'? Is any 'freedom to choose' that we have illusory? Such debates run throughout bestsellers, including the Nobel Prize-winning work of Daniel Kahneman. This popular view – that much of what we do is shaped by unconscious thinking that we can't access or reliably control – has impacted on many psychologists across different domains.

The aim of this article is to challenge this view, and to propose an unpopular alternative: We are predominately conscious of, or can recover conscious access to, the intentions behind our actions.

There are many Big Ideas that place a heavy emphasis on shifting the responsibility of control away from the conscious individual to our unconscious selves. These include:

- | Thinking hard is bad; Thinking intuitively is good.
- | Unconscious thinking is bad; Thinking consciously is better.
- | Our brains are controlling us; We don't have conscious control of ourselves.

These Big Ideas have filtered into the public domain through popular science books, such as *Risk* (Gardner, 2008), *Who's in Charge* (Gazzaniga, 2011), *Blink* (Gladwell, 2007), *The Self Illusion* (Hood (2012), *Thinking, Fast and Slow* (Kahneman, 2011), *The Decisive Moment* (Lehrer, 2009) and *Nudge* (Thaler & Sunstein, 2008). Along with the fact that at least two of the ideas are in contradiction, the other problem is that the big ideas are often supported by the same cited evidence from a few key psychological studies. This issue will be the main focus of my critical discussion.

Thinking hard is bad; Thinking intuitively is good

There are many areas of psychology – including judgement and decision making, and reasoning – that have shown that when it comes to complex decisions that require us to pay attention to a lot of information, or pay attention to particular types of information that might be

difficult to describe, we are better off basing our decisions on our gut (i.e. intuition) (Dijksterhuis et al., 2006). The general claim is that we can 'over think' our choices and that this leads to poor decisions, judgements and inferences. This point also extends to highly skilled motor behaviour, such as expert tennis players or golfers that choke as a result of deliberately analysing internal processes rather than just letting their intuitive mind do the work (Bell & Hardy, 2009). This is an example in which thinking a lot is less effective than not thinking at all, and where feeling something right is a better indicator of what to do than knowing why it might be right.

We do indeed have a very sophisticated unconscious mechanism that is able to abstract and integrate across lots of information that is difficult to evaluate consciously. So, if we sat down and tried to calculate the pros and cons deliberately and then try to pick the best option, we would be worse off than if we left it to our unconscious thought.

"What exactly is instinctive decision making? ... There is no good definition"

Dijksterhuis and his colleagues (2006) showed that as you ramp up the amount of information you need to take into account to make your decisions, you're better off not thinking hard, because the more complex the material the harder it is on your memory and attention processes. The advantage of an unconscious system is that it doesn't require much memory or attention, which makes it hyper-efficient. This also means that it can process a lot of information quickly and accurately. So we have evidence for what seems like two different minds, one fast, one slow. One requires a lot from attention and memory processes and the other doesn't (Kahneman, 2011).

The problem is that Dijksterhuis et al.'s (2006) evidence which has been cited in support of the first Big Idea is not terribly reliable. For a start there are many

questions

Where do people most readily accept control and responsibility over their choices?

Do criticisms around evidence for the unconscious have implications for government interventions such as 'nudging'?

Can our biases be brought under control?

resources

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failures to replicate the 'deliberation-without-attention' effect of Dijksterhuis et al. (2006) (for example Aczel et al., 2011; Acker, 2008; Calvillo & Penalosa, 2009; Gonzalez-Vallejo et al., 2008; Mamede et al., 2010; Newell et al., 2009; Payne et al., 2008; Rey et al., 2008; Thorstein & Withrow, 2009; Waroquier et al., 2009, 2010) Moreover, at best, the failed replications show that there is no advantage for unconscious thinking (assuming that this was what was tested) over consciously made decisions. Thus, the message from an overwhelming number of attempts to replicate evidential support for Big Idea 1 is that when it comes to big decisions, or for any decisions at all for that matter, conscious thought fares much better.

Of course, many will say that even if the experimental lab work is problematic there are many examples of decision making in the real world in which instinct appears to be the guiding factor in expertise. This has been discussed at length by the journalist Gladwell (2007), and the psychologist Gary Klein (see Kahneman & Klein, 2009). But there are problems here too. What exactly is instinctive decision making, and what is it about the process that is instinctive? There is no good definition. Beyond that problem, what we don't know is the frequency with which apparently instinctive (let's say speedy) decisions are made by experts (e.g. fire-fighters, doctors, pilots, nuclear power plant operators) in high-stake situations that lead to good outcomes. While they can make good decisions quickly, seemingly without thinking, they can also make

instinctive but disastrous decisions that claim lives (Johnson, 2003). So thinking instinctively is not to be relied on.

In addition, the far less sensational and more intuitive claim that has been gaining steady support in psychology since the 1960s is that the more mental practice people commit to complex tasks, the more they improve their performance (Richardson, 1967). The findings show that mental practice (rehearsing plans of actions: Hegarty, 2004) and mental simulation (preparing through imagining various alternatives, the consequences of



We don't know the frequency with which apparently instinctive decisions are made by experts in high-stake situations that lead to good outcomes

different outcomes from actions and decisions: Taylor et al., 1998) improves physical activities (e.g. basketball, football, gymnastics, tennis, weight lifting) and mental activities (e.g. performing surgical procedures, landing planes, making clinical assessments) (Baumeister et al., 2011; Coffman, 1990; Driskell et al., 1994; Sevдалис et al., 2013).

Far from relying on so-called unconscious processes, to date, the most reliable evidence shows that in order to make better decisions in complex situations we should commit conscious thought to the issue at hand.

Conscious thought 1, Unconscious thought 0?

Unconscious thinking is bad; Thinking consciously is better

When it comes to decision making, there are three types of evidence that tantalise psychologists, neuroscientists and others into treating the unconscious as the dominant system, which all leads us in the wrong direction. The first is that very speedy decisions often lead to error. Decision-making researchers sometimes call these types of decisions automatic or unconscious, but unfortunately precision is lacking in defining exactly what is automatic or unconscious (Osman, 2013). The second is that there are common speedy decisions made in error under pressure (i.e. when time to respond is limited and attention is overloaded). The third is that the rationale behind speedy decisions is hard to articulate. Essentially Big Idea 2 is founded on claims that we often make speedy decisions based on a tiny fraction of relevant information at any one time, because we are time-limited, and often this makes us choose options that are bad for us (i.e. unhealthy, sub-optimal, short-sighted, dangerous, risky).

The main problem with Big Idea 2, as with Big Idea 1, is that we don't have evidence of the frequency with which bad decisions are made as the result of what might be deemed as unconscious, and so the reasons for errors in decision making from those made speedily could be multifaceted, and not simply because they were the result of the unconscious. Some speculate that there are situational factors and psychological

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unconscious thought

factors that bring about error prone unconscious decision-making, which I will now consider.

Situational factors

Does familiarity breed contempt? Being very familiar with a situation means that we can identify critical details that can be used to evaluate a situation, and this can also remind us of past similar situations that we've been in before. As a result, if we can assess without much evaluation the details of a situation in order to base our decisions, then we don't need to bother inspecting to any great degree the decisions, actions and plans we implement in that situation. Essentially, the errors in decision making often come when we overlook vital information, or we chose to focus on incorrect or irrelevant information, or we make many more assumptions about the situation than are warranted.

So, yes, familiarity can breed contempt, at least in terms of the outcomes of speedy decisions. But, familiarity is the hallmark of learning, and there are many more good speedy decisions made as a result of being in a familiar situation. Given the variety of decision contexts we are in every day, and the many thousands of speedy decisions we make (Osman, 2014), along with the many underlying differences in the information processing systems that enable speedy decision making, we are simply not advanced enough in our research to say conclusively that just because the situation is familiar (or even unfamiliar) we can predict more bad speedy decision making.

Psychological factors: Hot and cold thinking

The link between speedy decisions and emotions has often been made. There is no clear evidence to suggest outright that basing decisions on emotional states is conclusively bad, or conclusively good, any more than saying making speedy decisions in general is good or bad. Again, there is no real agreement about

the key underlying basis for speedy decisions with little deliberation without emotional involvement (cold decisions) and with the involvement of emotional states (hot decisions). This is because there are different factors that prompt speedy decisions for some situations (deciding whether to splash out on a nice meal, or save the money for a rainy day), and different factors that invoke speedy decisions for other situations (e.g. talking to two friends and figuring out how to calm an argument that has just started between them).

If we assume that experience allows us to make quick decisions, which sometimes lead to error as well as success, and that experience is gained through training and deliberation, then training ourselves via mental simulation and mental practice can also help us overcome errors we face, just as it can help us improve decision making (Osman, 2014).

Conscious thought 2, Unconscious thought 0?

Our brains are controlling us

The work of Benjamin Libet (1985) has had one of the most significant impacts on the debate on free will and control. His work revealed that instead of our intentions causing our actions, our non-conscious brain processes initiate the actions before we even intended to act. Put simply, our brains are making the choices for us, and only later do we consciously catch up with what we did. Through a series of elegant experiments, Libet was able to show this. One of the most famous involved EEG (electroencephalogram) electrodes attached to people's scalps. These measured neural activity in the cortex



An arbitrary choice?

and an oscilloscope timer was used that converts electrical signals so that they can be displayed on a screen. The task for the person was simple. All they had to do was watch a rotating spot on a clock, and lift their finger when they felt like it. In addition, after the spot stopped at a random point, they have to say where the spot was on the clock when they had the intention to lift their finger. Libet showed that the 'free' conscious intention to lift the finger occurs approximately 200 milliseconds before the actual act of moving the finger. But the killer point is that there is neural activity in the motor cortex 500 milliseconds before the actual act of moving the finger. That is, the preparation for moving the finger in other regions of the brain occurs even earlier than when we have the conscious experience that we intend to move our finger.

From this very simple demonstration Libet was able to argue that consciousness is a late process because it takes time to generate the necessary neural activity to enable it to occur, and so the brain prepares for actions far earlier than our

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intentions and decisions to act. The only real use for consciousness is a veto: to prevent actions. So consciousness really is a 'free won't' rather than free will.

It is worth bearing in mind that there are some demonstrations that show that changing the format of the Libet's experiment can reveal that the timings of intention and action actually correspond perfectly well (Miller et al., 2011). That is to say, our intentions are the factors that cause our actions. However, there is an even more profound problem with Libet's set up, and that is that there is no actual incentive or motivation behind the 'free' action to move one's finger.

There are also no consequences for the action that is taken. It doesn't affect anything, there is no intrinsic reward and there is no real reason for lifting one's finger or not. So, the conditions of the experiment, and in turn the findings themselves, don't have much of a bearing on almost all of the situations which we experience in the real world. Typically our actions: (a) do have consequences, (b) have rewards or punishments attached to them, and (c) are goal-directed. Arbitrary action is not really free will in what we would usually like it to mean, which is freedom to choose between options that matter to us.

An arbitrary choice would be 'Do I put a sock on my right foot first or my left foot?'. There is no attribution of responsibility and no consequences to my actions, other than one foot may be slightly colder than the other for a brief amount of time. Even if Libet type experiments might show that my motor cortex did indeed make the decision for such an arbitrary action (e.g. put the right sock on first), then so be it. At best, if the findings were actually sound, all they are suggesting is that for actions without consequence a random

fluctuation of neural activities build up in such a way as to bring about one action over another, in the same way as flipping a coin. But if my motor cortex is going to decide 300 milliseconds, or even 10 seconds, before an action or decision that involves future consequences, such as which location to buy a house in or which school the kids go to, then I'm worried.

For now, as has been argued by many notable neuroscientists, psychologists and philosophers, as remarkable as Libet's finding is, it does not undermine our agency or our control. Conscious thought 3, Unconscious thought 0?

Parting comment

We may not want to hear this, because we are always looking for short cuts. But the message from a substantial body of research is that conscious processing has the primary role in supporting our decision making and the actions we plan on taking when we want to achieve a goal. The most effective way of making choices is to think through the consequences of our actions, and evaluate the information from the situation, as well as evaluating our own motivations. When it comes to controlling external situations as well as exerting self-control, we should accept the view that our conscious mind is at the forefront rather than in the background. When we accept this, we can have more control as a result.

I leave you with a final thought: why would such an effortful system as our conscious mind still be around to enable us to make decisions and plan actions, if evolution didn't select it in as an effective and necessary part of cognition?



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