

# Mind wide open

Christian Jarrett examines the psychology of nonconscious influences

Thirty years ago, a researcher pushed in front of people who were about to use a library photocopier, with the excuse 'Because I have to make copies'. This statement, though nonsensical, boosted cooperation considerably compared with when they attempted to jump the queue without explanation. In fact it was as effective as the more sensible excuse 'Because I'm in a rush'.

Ellen Langer and colleagues at Harvard University, who conducted the research, interpreted their observations as showing that given the right structural cues – the senseless excuse had the same basic 'form' as a meaningful one – we often perform apparently thoughtful actions mindlessly, in this case giving way at the photocopier (Langer et al., 1978).

Since then, a wealth of research

revealing the nonconscious influences on our behaviour has accumulated, supporting and exceeding the conclusions of Langer's team more strongly than they could probably ever have imagined. From the effect of mirrors and the subliminal presentation of happy faces, to the sight of a briefcase and the power of mimicry, the range of factors influencing our behaviour without us realising it is overwhelming. Taken together, the research undermines the notion that our conscious selves are in control, and points instead to a sophisticated nonconscious mind, wide open to outside influences, as the real source of our decision making.

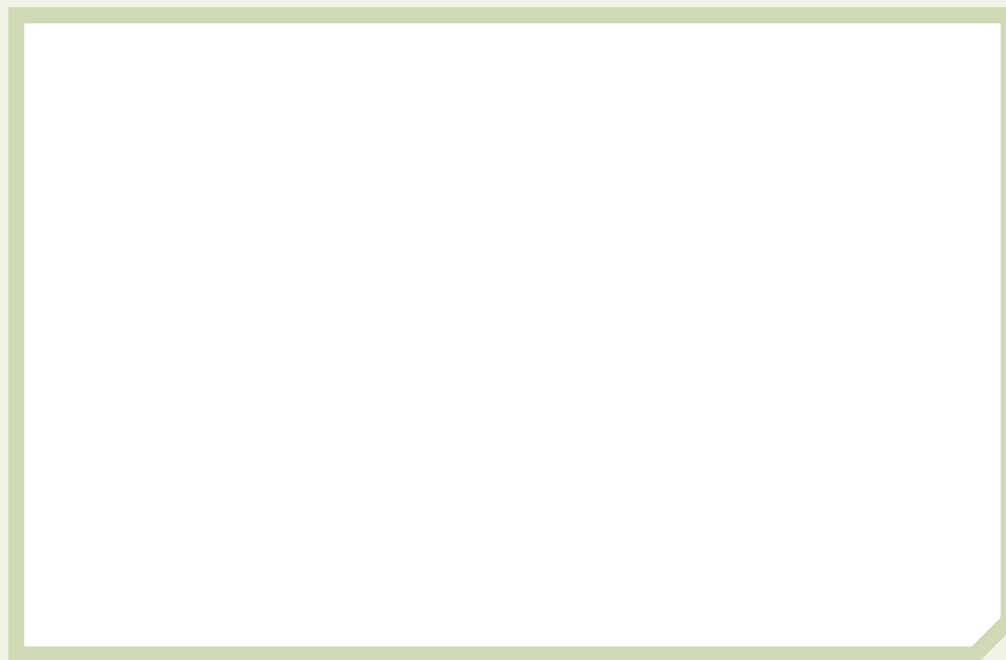
## External influences

It's no surprise that we take cues from the environment – they allow us to make assumptions that can usefully guide our behaviour in an uncertain world. We associate suits with professionalism, an unlit shop is a sign that it is closed, a person's tears betray unhappiness. But cues like these don't just provide us with predictive information, they also directly affect our behaviour in ways that we're not conscious of.

Consider a study by Aaron Kay and colleagues in which people were asked to participate in a brief financial game. Those who sat at a table with a briefcase strategically placed on it played the game far more competitively and selfishly than did participants who sat near a backpack. Yet afterwards, when asked what factors they felt had influenced their playing style, none of the participants mentioned any aspect of the physical environment (Kay et al. 2004).

Or consider an experiment conducted by John Bargh of Yale University and others, in which participants played a computer-based fishing game requiring them to choose how many fish to return to a lake, so preserving stocks for others. Prior to the game, the participants performed a separate task in which they had to

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Those who sat at a table with a briefcase strategically placed on it played far more competitively

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form sentences from randomly arranged words. For half the participants, a fraction of these words pertained to cooperation, and (you guessed it) these participants went on to behave more cooperatively in the fishing game. Once again, post-experimental questioning indicated the participants were unaware of the influence the earlier words had had (Bargh et al., 2001).

Even the simple act of holding a cold or hot drink can exert a powerful effect on your reasoning. In an as yet unpublished study by Lawrence Williams and John Bargh, university students were asked to hold a cup of either hot or iced coffee by Williams while they answered a few questions. Next they had a brief chat with another researcher. He left and the participants were asked whether they would recommend him for a job. The participants who several minutes earlier had held the cold drink said they wouldn't hire him, whereas those who'd held the warm drink said they would. The potential practical applications are startling (Williams & Bargh, 2007).

### Yesterday's emotions

The fact that mundane features of the environment or unnoticed words affect our behaviour in ways we're unaware of is unnerving enough. However, there is more to undermine our sense of control. Other research shows how the decisions we make in the present are influenced by emotional hangovers from the past, without us realising it.

Jennifer Lerner at Harvard University and colleagues demonstrated this by

showing student participants one of three film clips chosen to provoke either sadness (*The Champ*), disgust (*Trainspotting*) or a neutral emotion (a *National Geographic* special). Afterwards, the students shown the disgusting clip were willing to pay less for a highlighter set than viewers of the neutral clip, consistent with the idea that disgust triggers a desire to avoid taking in anything new. By contrast, viewers of the sad clip were willing to pay more than the 'neutral participants', probably because sadness triggers a desire for change (Lerner et al., 2004).

In a follow-up study, Lerner and her colleagues tested the idea that sadness has these effects only when it causes us to

become self-focused. The researchers showed that participants who watched a sad film clip were prepared to pay up to 300 per cent more for items like a bottle of water, but only if they also demonstrated increased self-focus, as judged by their use of the terms 'I, me, my, and myself' in an essay. In other words, it is the combination of a sad event and self-reflection that leads to a devaluation of the self, a desire for change and a subsequent willingness to pay more for new material goods, in a desire for self-enhancement. This suggests that if money is tight and you're feeling down, it might be wise to avoid hitting the shops. Crucially, the participants denied that the clips had

## Effects of caffeine

If reading this article is leaving you feeling a little too suggestible for comfort, you might be wise to avoid your daily caffeine hit. A series of experiments by Pearl Martin and colleagues (then at the University of Queensland) showed that drinking coffee leaves people more open to persuasion (Martin, Hamilton et al., 2006; Martin, Laing et al., 2005).

Dozens of students in favour of euthanasia were given an orange juice drink, which for half of them was laced with about the same amount of caffeine as you'd get from two cups of espresso. After reading arguments against euthanasia, the students given caffeine appeared to have shifted their attitudes (on both euthanasia and the related pro-life topic of abortion) far more than the students given straight orange juice.

Several factors suggested caffeine was exerting its effects by causing the students to process the anti-euthanasia messages more deeply, rather than through some vague influence on their mood. The students given caffeine recalled the messages more accurately than the placebo students, and a weaker version of the anti-euthanasia message had less of an effect. Furthermore, students given caffeine but distracted from the anti-euthanasia message were no more persuaded than the control students.

! From The Psychologist archive: [www.bps.org.uk/xh4w](http://www.bps.org.uk/xh4w) and [www.bps.org.uk/9ddg](http://www.bps.org.uk/9ddg)

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influenced their decision making (Cryder et al., in press).

The students in Lerner's experiments knew they'd watched video clips. But other research goes further, revealing that unnoticed external influences can change our emotions, and thus our behaviour, without us actually feeling any different at all. In one study with shades of the subliminal advertising claims of James Vicary in the 1950s, Piotr Winkielman and Kent Berridge (2004) flashed happy or angry faces at participants for just 16ms at a time – far too briefly for them to notice. Afterwards, the subliminal faces didn't have any effect on the participants' self-reported emotions, and yet the participants exposed to happy faces drank more from a mysterious beverage and said they'd be willing to pay more for it, than did the participants exposed to the angry faces.

A twist to the findings was that the effects of the faces were far more powerful among the participants who were thirsty. 'Emotion and motivation used to be seen as separate things, with motivation just considered to be about effort in order to get something,' Winkielman says. 'But really they are very closely related: it's hard to be influenced by something that's not motivationally relevant to you. In this case, being motivationally ready, being thirsty, means your brain becomes particularly sensitive to relevant cues – the happy face tells you *This is a good safe environment*, whereas the angry face says *This is a bad environment*.'

In a soon-to-be-published brain imaging study further demonstrating the link between emotional influences and motivation (Knutson et al. in press) Winkielman and his co-researchers found that presenting male participants with erotic pictures of couples led them to choose the riskier, though potentially more lucrative, option from among a choice of gambles. 'The nude pictures jacked up the participants' reward systems via the ventral striatum,' Winkielman explains. 'So, the participants are getting

ready for a reward signal and then when they're offered a more risky gamble, they respond to it more strongly. It's parallel to the earlier finding in the sense that it's also about juicing up the system – the participants are motivationally primed.'

### Are you copying me?

So far we've seen how objects, words and left-over emotions can affect our behaviour in ways we're blissfully unaware of. But of course we are social animals, and so it should come as no surprise to learn that one of the strongest sources of nonconscious influence on our behaviour is other people.

Take the example of mimicry. In a study published this March, researchers invited business students to play the roles of either an employer or a job candidate and to negotiate with each other in pairs. The students who were instructed to mimic their partner's body language and mannerisms didn't just make more gains for themselves, mimicking also helped their employer-candidate dyad reach more mutually beneficial arrangements. Ratings taken after the experiments showed that students who mimicked were rated as more trustworthy than non-mimickers, which led the researchers to suggest trust could be the key to mimicry's effects (Maddux et al., 2008)

However, a Dutch study has suggested that the effects of mimicry go far beyond the way the mimicker is perceived (van Baaren et al., 2004). The researchers mimicked student participants who thought they had been recruited to judge the quality of a series of adverts. Compared with students who weren't mimicked, the mimicked students subsequently showed more helpful behaviour towards others – for example, picking up more pens dropped by an

Social norms can reduce the laundry (see 'Practical applications' box opposite)

experimenter and agreeing to donate more money to charity.

Rick van Baaren says these effects have something to do with the fact that being mimicked is rewarding. 'Being mimicked is a fluent experience,' he says. 'What you perceive is the same as what you do. It's easier for the brain to process, it takes less energy and leads to positive affect, and when you have positive affect, you're in a good mood and you're more likely to do prosocial things.'

In fact, a not-yet-published brain imaging study by van Baaren suggests that not being mimicked is the unnatural situation. 'We found that not being mimicked is a negative experience,' he says. 'When someone isn't mimicked, the negative areas in their brain light up – areas involved with negative affect and even disgust' (personal communication, 18 January 2008). However, it's important to realise that mimicry only has positive effects when it goes unnoticed by our conscious selves. Once we're aware we're being copied, van Baaren says, the effect flips over, 'it's mockery, it's annoying, it's what a two-year-old does to you.'

### Absent influences

If all these influences on your behaviour are already leaving you feeling rather like a wind-tossed paper bag blown this way and that, you might be consoling yourself with the thought that what isn't there can't affect you. Bad news – the significant people in your life can influence your behaviour, without you realising it, even when they're not there. James Shah at Duke University found that subliminally priming a participant with a significant other – for example, their mother – who they felt wished for them to work hard, subsequently led them to try harder at an anagram task (Shah, 2003).

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Don't worry though. Your nonconscious self can rebel. In a study published last year in the *Journal of Experimental Social Psychology* by Tanya Chartrand and colleagues, also at Duke University, students who were subliminally primed by the name of a significant other who they felt had certain goals for them, but who they also judged to be controlling, actually led them to rebel against that goal in a subsequent task. For example, if a participant felt their mother was overbearing and wanted them to work hard, then subliminal presentation of her name led them to try less hard at an anagram task – an effect the researchers dubbed 'nonconscious reactance' (Chartrand et al., 2007).

### Whatever happened to free will?

Perhaps the most compelling strand of evidence showcasing the primacy of our nonconscious minds is that which reveals what happens when goals we didn't even know we had are foiled. In an unpublished experiment (Chartrand, 2005), Tanya Chartrand primed people with achievement-related words in a scrambled word task, and then gave them an easy or difficult anagram task. Participants primed to achieve but who subsequently failed went on to report being in a particularly bad mood, without even knowing why. Experiments like this, and the others we've heard about, are certainly intriguing, but where exactly do they leave our sense of free will? And what is the point of having consciousness if our nonconscious minds are so adept on their own?

Writing in *Are We Free? The Psychology of Free Will*, published this year, John Bargh says the impact of unnoticed influences is far less surprising when one considers that consciousness is a relatively late evolutionary add-on to our minds, and so for much of our early existence as a species, we had to rely on the decision making of our nonconscious minds. Indeed, he argues the evolved nonconscious mind is actually highly intelligent and adaptive, its goals reflecting a mixture of evolutionary forces (as genes act on our motivations) combined with the influence of our own individual life experiences (Bargh, 2008).

In the same way that babies are primed by what is going on in their physical and social environments to imitate and to attend to what is most important in their current surroundings, our adult nonconscious minds remain a shrewd behavioural guidance system, constantly generating functional and appropriate mental processes and outward behaviours. 'These default behavioural

## Practical applications

The kind of effects reported in this article are already being used by marketers. For example, staff at the American superstore Wal-mart have huge smiley faces emblazoned on their uniforms. Based on Piotr Winkielman's findings, this simple strategy could have large effects on customers' buying habits. Meanwhile mimicry is already an established tool in sales training manuals. 'If you read books like *How to Make Friends and Influence People*, mimicry is mentioned in there and that was written in 1930,' says Rick van Baaren. But what about influencing people for the public good – for example, to encourage them to behave in more environmentally friendly ways? 'You should have more attractive people, not Al Gore, talking about climate change. Make it sexy, so to speak,' says Winkielman. 'Seriously, that's what a lot of advertising is all about – they're trying to pair biological cues like smiles and attractiveness or nice smells, to push products, so perhaps the more socially conscious side should use such methods too.'

Other studies on nonconscious influences have obvious practical applications:

- I A photograph of a pair of eyes is enough to increase people's honesty. Researchers found that people put nearly three times as much money in a coffee-room honesty box when a nearby poster displayed a pair of staring eyes as compared with a bunch of flowers (Bateson et al., 2006). Inspired by the research, West Midlands Police subsequently launched Operation Momentum, featuring posters with eyes and the catch-line 'We've got our eyes on criminals'.
- I We've all seen those notices in hotel rooms that ask us to re-use our towels in the interests of the environment. Recent research has shown that changing the wording of these notices can harness the power of social norms. Guests who were told that the majority of other guests who'd stayed in their room had re-used their towels were 26 per cent more likely to recycle their own towels than were guests exposed to the typical environmental protection message (Goldstein et al, in press).
- I Seeing our own reflection could make us behave more honestly. Researchers watched from a hidden position as trick-or-treaters entered 18 houses. Inside, the owners told the children they could take one sweet, before leaving the entrance hall to carry on with what they were doing. Left alone, 33.7 per cent of the kids took more than the one sweet they were allowed, yet when a mirror was placed next to the sweets, this dropped dramatically to 3.9 per cent (Beaman et al., 1979).

guidance systems are especially important when the conscious mind is time travelling, as when remembering past events or planning for the future,' Bargh says. And, as he writes in a recent issue of *Perspectives on Psychological Science* devoted to big ideas in psychology: 'It is nice to know that the unconscious is minding the store when the owner is absent' (Bargh & Morsella, 2008).

### Not so dumb after all?

A curious thing about this view of the nonconscious mind is just how far removed it is from the conclusions drawn by a special issue of *American Psychologist* published in 1992. There, Elizabeth Loftus and other cognitive psychology luminaries came to the consensus that the subconscious is 'dumb' (or at least not 'as smart as previously believed'): incapable of anything beyond the most routine activities.

What can explain these contrasting views? According to Bargh, the earlier 'dumb' view of the nonconscious is hardly

surprising when you consider that research into the nonconscious tended to be dominated back then by cognitive psychologists using subliminal stimuli. It is no wonder that the nonconscious was found to be limited in its abilities if it was only ever tested using stimuli that the conscious mind can't even detect. By contrast, the stimuli used in many of the social psychological studies featured in this article, aren't subliminal, rather it is their influence that goes unnoticed, leading to behavioural responses that in many cases are unintended.

But perhaps a reassuring final word should go to Piotr Winkielman, who says we shouldn't see these studies as usurping the role of consciousness. 'We are a combination of impulses, drives and desires,' he says, 'yet we also have more rational thoughts. When faced with a serious decision, you're going to put rational thought into it and you're going to double-check your behaviour.'

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