The British Psychological Society

FREE EVERY FORTNIGHT

# RESEARCH DIGEST 100

## THIS ISSUE:

***Biting on a pen impairs people's emotion recognition***

Have you ever noticed how, when two people are talking, they seem to mimic each other's facial expressions?

Some psychologists say this is simply a case of emotions being contagious. However, others go further, arguing this mimicry plays a functional role; that by copying someone else's facial expression it helps us to better understand how they are feeling.

Now Lindsay Oberman and colleagues have tested the idea that if mimicry really does play a functional role, then disrupting our ability to mimic should interfere with our recognition of other people's facial expressions.

And that's exactly what they found when twelve students were asked to categorise morphed photographs of people's faces showing varying degrees of happiness, sadness, fear or disgust.

To disrupt their ability to mimic, the students clenched a pen between their teeth, an act that exercises many of the muscles needed to perform facial expressions. This significantly impaired the students' ability to correctly identify happiness, and to some extent also their ability to identify disgust. The identification of sadness and fear was unaffected, perhaps because these emotions are expressed less through the facial musculature and more through body posture and tone of voice. By contrast a happy expression is known to involve many facial muscles.

A control condition in which the students held a pen lightly between their lips (no use of face muscles) did not interfere with recognition of facial expression. Neither did chewing gum, which involves the facial muscles only intermittently.

"Our findings are consistent with the proposal that people's ability to understand emotions in others involves simulating their states," the researchers said.

---

Oberman, L.M., Winkielman, P. & Ramachandran, V.S. (2007). Face to face: Blocking facial mimicry can selectively impair recognition of emotional expressions. Social Neuroscience, 2, 167-178.

http://dx.doi.org/10.1080/17470910701391943

Author weblink: http://psy.ucsd.edu/~lshenk/

***How psychological change occurs in therapy – the clients' perspective***

Presumably the goal of psychotherapy is some kind of psychological change for the better, but what is that change and how does it happen? Psychological models refer to such things as 'stages of change' and assimilation, but few researchers have sought the views of clients who have undergone therapy.

Tim Carey and colleagues conducted loosely structured, hour-long interviews with 18 women and 9 men who had completed an average of six sessions of cognitive-based psychotherapy (either Method of Levels or CBT) for conditions like depression, anxiety or addiction.

The 22 participants who said they had changed during therapy were unable to come up with a definition of psychological change, but they described their experience in terms of acceptance, behavioural changes, new beginnings and a return to positive emotional states.

Accounts of when change occurred tended to be paradoxical – the participants talked of a gradual process that occurred at an identifiable moment. "It was gradual but the realisation was sudden,' one client said.

Many of the participants could remember the exact moment they became aware a change had occurred: "I could actually hear it," one participant said; others spoke of their surroundings: "I was in the pool with my husband."

The clients' descriptions of how change occurred fell into six themes: motivation and readiness ("I was desperate to get back to my old self"); tools and strategies ("It's the changes in behaviour that I learned"); learning ("I would take a lot of stuff home to read about assertiveness"); interaction with therapist ("...they don't judge your character or think they know you"); perceived aspects of self ("I am a strong person mentally"); and the relief of talking ("Let me get everything out, let me relieve myself of everything").

The researchers said that while many of these insights are not new – for example they point to factors identified as crucial by psychologists like the importance of the therapeutic alliance and readiness to change – what is new is that "these descriptions have come from the people experiencing the change rather than other sources, and the descriptions were not guided by assumptions about any particular stages of change model."

---

Carey, T.A., Carey, M., Stalker, K., Mullan, R.J., Murray, L.K. & Spratt, M.B. (2007). Psychological change from the inside looking out: A qualitative investigation. Counselling and Psychotherapy Research, 7, 178-187. http://dx.doi.org10.1080/14733140701514613

Author weblink: http://tinyurl.com/2nl466

***How to save***

Instead of saving, we're spending money like there's no tomorrow. In the UK, between 2000-2002, the average amount of household income saved had fallen to 5.9 per cent from an average of 9 per cent between 1990-1999.

Before now psychologists have examined differences between people who plan to save and those who don't. They haven't looked at whether those intending to save actually do. Now Anna Rabinovich and Paul Webley have done just that.

The researchers used data collected over several years as part of the the Dutch DNB Household Survey. This included 1360 people who said they planned to save over the next two years and did, and 89 people who also said they planned to save over that time period, but failed.

The successful savers differed from the failed savers in what the researchers called their 'time horizon' – that is, the time they said was most important to them tended to be further in the future.

The successful savers also used effective techniques to control their spending, such as setting up an automatic transfer of funds into a savings account every month. This and other techniques used by the successful savers all had one thing in common – they made the saving process partly automatic and so less dependent on willpower. By contrast, the failed savers used ineffective techniques like keeping only small amounts of cash on them when they went out.

The researchers also predicted that people who thought saving would be easy, would turn out to be more successful at saving (they assumed their confidence stemmed from having good self-control), but actually, perceived easiness of saving was not related to saving success or failure.

To test the generalisability of their findings to people from a developing country, the researchers also looked at data from 153 people sampled in Belarus, and found broadly similar results.

---

Rabinovich, A. & Webley, P. (2007). Filling the gap between planning and doing: Psychological factors involved in the successful implementation of saving intention. Journal of Economic Psychology, 28, 444-461. http://dx.doi.org/10.1016/j.joep.2006.09.002

Author weblink:http://www.soas.ac.uk/departments/index.cfm?navid=2203

http://www.uvt.nl/centerdata/dhs/

***Investigating the role of genes in boys' and girls' science ability***

Former Harvard president Larry Summers caused a storm in 2005 when he suggested part of the reason women are under-represented in science is because of innate, biological differences between the sexes.

Now, for the first time, researchers in London have looked at the amount of genetic and environmental influence on girls' and boys' science ability. Their finding: nine-year-old girls are just as good at science as nine-year-old boys, and genes and environment affect the science ability of both sexes in just the same way, and to just the same extent.

Claire Haworth and colleagues looked at the science ability (as assessed by teachers) of a sample of 2,602 pairs of 9-year-old twins. Some of the twins were identical, meaning they shared all the same genes; the other twins were non-identical, meaning they shared 50 per cent of their genes, on average, just like non-twin siblings.

The bigger the role played by genes in nine-year-olds' science ability, the more similar (to each other) pairs of identical twins should be in science ability, relative to non-identical twins. And if genes are more important to the science ability of girls than boys, then this difference between identical and non-identical twins, in terms of similarity of science ability, should be greater among female twins than among male twins.

In fact, the researchers found the boys and girls were equally good at science on average, and that genes accounted for about 60 per cent of variation in science ability in both sexes. The remaining variation in science ability was explained, for both sexes, by non-shared features of the environment. These are experiences that have uniquely affected one twin but not the other, even though both siblings have mostly been raised and taught together.

The researchers said their findings "may be useful at a practical level for teachers to recognise that differences among children in their science performance are not just due to differences in effort - genetic sources of differences are also important."

Moreover, the researchers said that, in the future, specific genes that account for the heritability of science ability may be discovered, thus allowing scientifically weaker children to be helped before problems occur.

---

Haworth, C.M.A., Dale, P.S. & Plomin, R. (In Press). A twin study into the genetic and environmental influences on academic performance in science in nine-year-old boys and girls. International Journal of Science Education. http://www.informaworld.com/smpp/title~content=t713737283

Author weblink:http://www.iop.kcl.ac.uk/staff/profile/default.aspx?go=11089

***Children with autism aren't affected by contagious yawning***

Have you ever noticed that yawning is so contagious it can spread round a room like a Mexican wave? Scientists still aren't in agreement as to why this happens but one idea is that the phenomenon depends on our capacity for empathy. This finds support in a new study showing for the first time that children with Autistic Spectrum Disorder, in whom empathy is believed to be impaired, are immune to the contagious effects of yawning.

Twenty-four children diagnosed with autism spectrum disorder - mostly boys aged between 7 and 15 years - and twenty-five age-matched non-autistic children, watched a series of 7-second videos showing people yawning. Control videos showed people opening their mouths but not yawning. Between each video, one-minute long silent cartoons kept the children's attention.

Footage of the children taken while they were watching the videos showed, as expected, that the non-autistic children yawned more during and after seeing a video of a person yawning, than after watching a control video. By contrast, the children with autism yawned no more after seeing a yawn video than after a control video – they appeared to be immune to the contagious effects of yawning. This remained true even after the researchers controlled for the effects of age and intelligence.

Past research has found that seeing the eye region of someone yawn is key to the yawn's contagious effects. So perhaps the fact that people with autism are known to focus more on the mouth region of people's faces, rather than the eyes, could partly explain the current findings.

Atsushi Senju and colleagues said their results "support the claim that contagious yawning and the capacity of empathy share common neural and cognitive mechanisms." They added it would be interesting for future research to look at whether contagious yawning is impaired in other conditions in which empathy is compromised, such as psychopathy or frontal-temporal dementia.

---

Senju, A., Maeda, M., Kikuchi, Y., Hasegawa, T., Tojo, Y. & Osanai, H. (In Press). Absence of contagious yawning in children with autistic spectrum disorder. Biological Letters. http://dx.doi.org/10.1098/rsbl.2007.0337

Author weblink: http://www.cbcd.bbk.ac.uk/people/scientificstaff/atsushi

***Woman hears speech-impaired voices***

The case of a woman who started hearing speech-impaired voices after a bike accident, has lent support to the idea that auditory hallucinations can be caused by people misidentifying their own inner voice as not belonging to them.

The 63-year-old woman was unconscious for a week and was only able to communicate in short phrases after coming around, probably because of the extensive damage she suffered to the left-hand side of her brain (a condition known as aphasia).

A few months later she developed signs of epilepsy and started hearing voices that weren't there – at first the voices sounded like her own but from the outside, then she heard the voices of hospital staff. In both cases, these hallucinatory voices spoke in very simple and short sentences mirroring her own real-life speech deficit. When her seizures were controlled with drugs, her auditory hallucinations stopped, suggesting epilepsy was the underlying physiological cause of her hearing voices.

The fact the woman heard voices that shared her speech impairment provides unique support for the popular hypothesis that people with psychosis who hear voices do so because they are misidentifying their own inner speech as coming from outside the self.

---

Hubl, D., Hauf, M., van Swam, C., Muri, R., Dierks, T. & Strik, W. (2007). Hearing dysphasic voices. The Lancet, 370, 538.
http://dx.doi.org/10.1016/S0140-6736(07)61237-9

Author weblink (last author): http://www.puk.unibe.ch/