

# Taking the mind off pain

*Emotion-laden stimuli can both increase and decrease pain.* **FIONA LYDDY and NEIL MARTIN**

It was once thought that distraction was enough to help people take their mind off pain. Some studies, however, have shown that it is not necessarily distraction that is responsible for reducing pain, rather the emotional quality of the distractor. Positive stimuli, such as humour and laughter, are known to reduce pain perception, but increasing the attention required to complete cognitive tasks (distraction without emotion) does not.

Minet de Wied and Marinus Verbaten (Utrecht University) investigated whether high- and low-arousing neutral, negative or positive emotional stimuli affected people's experience of pain. They presented pictures varying in emotional tone and arousal from the International Affective Picture System to 69 male students. The pain induction task used was the cold-pressor task in which the participant keeps his or her arm in freezing water for as long as possible.

The researchers hypothesised that if stimuli just need to be emotionally distracting to reduce pain, then negative and positive pictures should reduce the

experience of pain in a similar way. In fact, exposure to pleasant pictures was found to be associated with a greater tolerance of pain.

In a second experiment in which unpleasant pictures containing either pain-related or pain-unrelated stimuli were presented, participants who viewed the pictures without pain cues tolerated the pain for longer than did those who viewed the pictures with pain cues.

A finding similar to this was reported, independently, by Mary Meagher, Randolph Arnau and Jamie Rhudy of Texas A&M. Two experiments examined the impact on cold-pain perception of viewing pleasant, unpleasant and neutral photographs of varying arousal rating. In the first experiment participants' emotional state was manipulated by presenting slides associated with fear, disgust or neutral themes. In the second experiment participants saw erotic or neutral slides. Heart rate and skin conductance were measured while viewing the slides.

Ratings of pleasantness, arousal and evoked emotion confirmed that targeted emotional states were elicited.

The fear and disgust slides reduced thresholds for pain intensity and unpleasantness on the cold-pressor task: participants experienced more pain. However, only the fear slides reduced pain tolerance. Erotic slides increased thresholds for pain intensity and unpleasantness in men, while pain tolerance was unaffected. The results suggest that unpleasant states may enhance pain and pleasant states may attenuate it when arousal is high; however, concurrent manipulation of the emotional state and pain infliction may alter this relationship.

de Wied, M., & Verbaten, M.N. (2001). Affective pictures processing, attention and pain tolerance. *Pain*, 90, 163–172.

Meagher, M.W., Arnau, R. C., & Rhudy, J.L. (2001). Pain and emotion: Effects of affective picture modulation. *Psychosomatic Medicine*, 63, 79–90.

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# The more mature learning style

*Science learning undergoes various shifts as students go through university.* **NEIL MARTIN**

THE way in which university course material is studied has enormous consequences for course performance. The type of course studied also often dictates the type of learning style a student adopts. Engineering students, for example, have been found to adopt strategies that encourage deep processing of material (e.g. further reading, discussion and questioning material presented). Science students, on the other hand, have been found to adopt a more superficial approach (e.g. rote learning) and are geared towards achieving high grades.

Psychologists have devised various ways of measuring students' learning styles and investigating whether students on different courses learn in different ways. One measure is the Student Process Questionnaire (SPQ) (Biggs, 1987), a 42-item measure of different approaches to learning – deep approach,

surface approach, and achieving approach (where the student has a strong intention to succeed and obtain high grades). Petrus Zeegers measured how students' learning style changes over time across a chemistry course at Flinders University in Australia.

Two hundred students, both recent school-leavers and older students, began the SPQ in a first-year class and then completed the measure at four months and eight months. The students were followed up after 16 months and 30 months.

The study showed that the deep approach to learning was the one most closely related to good grade outcome, but that the achieving approach was the one most likely to undergo fluctuations across the course. Students expressed less achievement-driven behaviour as the course progressed, suggesting that striving for high grades became less important as their education

went on. The surface approach increased in the first year of study but stabilised thereafter. Older students were significantly more likely to engage in deep learning, and to show high achievement motivation. These students also received higher grades and completed more units on their courses.

The authors conclude: 'Students see university study, and in particular the first year, as a survival course and adopt strategies suited to that task. Older students adopt approaches to study which differ from their younger colleagues and as a consequence they are in general more successful in the tertiary environment.'

Zeegers, P. (2001). Approaches to learning in science: A longitudinal study. *British Journal of Educational Psychology*, 71, 115–132.

## Reference

Biggs, J.B. (1987). *Student approaches to learning and studying*. Melbourne: Australian Council for Educational Research.

# Religion – The antidepressant of the people?

A recent study suggests that it is. **ANTHONY C. EDWARDS**

**E**XTENSIVE research has looked at religion and mental health in the general population – Patricia Murphy and her colleagues at Loyola College in Maryland have looked specifically at religion and mental health in the clinically depressed.

A sample of 271 psychiatric in-patients and outpatients provided measures of religion in three distinct senses. The authors assessed religious belief using a 10-item scale derived from a longer measure of spiritual well-being. Frequency of attendance at formal religious services gave an indication of public religious behaviour, and frequency of practices such as personal prayer outside formal religious settings was taken as the measure of private religious behaviour.

Of these three variables, religious belief was found to be significantly associated with lower depression (assessed by the Beck Depression Inventory) and lower hopelessness (assessed by the Beck

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Hopelessness Scale). These relationships existed independently of demographic variables such as age, gender, race and occupational or marital status. The religious behaviours, however, did not appear to be associated with reduced scores on these measures.

In the case of private religious practices an interesting possibility, considered by the authors of the study, is that private prayer may be frequent both in highly depressed patients (who may increasingly turn to

prayer to cope with their intense depression) and in depressed patients who are, relatively speaking, low in depression (who may be deriving a sense of enhanced well-being from personal prayer). Murphy *et al.* speculated that these two types of relationship may have cancelled each other out, with the effect that frequency of private religious practice and level of depression were not significantly correlated.

Religion may not be the opium of the people, but the relationships between beliefs and both depression and hopelessness suggest it may make a credible antidepressant.

Murphy, P.E., Ciarrochi, J.W., Piedmont, R.L., Cheston, S., Peyrot, M., & Fitchett, G. (2000). The relation of religious belief and practices, depression and hopelessness in persons with clinical depression. *Journal of Consulting and Clinical Psychology, 68*, 1102–1106.

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## We're more extravert – Official

Is extraversion constant across historical periods? **NEL MARTIN**

**H**OW does history affect the development of personality? Does the culture or spirit of the time – the zeitgeist – affect people's self-reported assessment of their personality? Some psychologists argue that it might. Longitudinal studies of personality, for example, show remarkable stability in personality factors (especially extraversion). Cross-sectional studies, however, show less stability. Not surprisingly, perhaps, because cross-sectional studies compare people who differ in age (and, therefore, share different cultural influences).

To examine the relationship between the period of personality assessment and the stability of personality, Jean Twenge (Case Western Reserve University in Cleveland, Ohio) meta-analysed American studies of undergraduates' personalities in the years between 1966 and 1993. She specifically investigated the relationship

between year of study and extraversion, predicting that such correlations would increase over time, due to cultural changes in North America, such as an increase in the public's exposure through the media, the rise of organised protest via the media, and so on.

Correlations between year of study and extraversion were positive and strong: extraversion seemed to increase as the years went by. The increase in extraversion was large and explained between 14 and 19 per cent of the variance in personality over this time.

Does this mean that extraversion increased across the years? The author cautions that this may not necessarily be true: it is possible that people had simply become more willing to describe themselves as extraverts, because this had become a more acceptable personality trait over the years.

Twenge, J.M. (2001). Birth cohort changes in extraversion: A cross-temporal meta-analysis, 1966–1993. *Personality and Individual Differences, 30*, 735–748.

# How the mask slips

Can the behaviour of a lying murderer expose the deception? **KAREN LANDER**

**C**AN you tell when someone is lying? Laboratory-based studies have suggested that successful lie-detection rates typically range from only 45 to 60 per cent (50 per cent is expected by chance alone). But in such studies people only lied for the sake of the experiment. The consequences of lying can be much more severe in real-life settings, such as during a police interview.

Aldert Vrij and Samantha Mann from

the University of Portsmouth investigated the behaviour of an actual suspect while he was interviewed by the police in a murder case. Although the man initially denied knowing and killing the victim, later substantial evidence obtained by the police suggested that he was lying. On the basis of this evidence the suspect confessed to killing the victim and was convicted for murder.

In the first study the behaviour displayed by the murderer was analysed. Six fragments from the police interview were selected, two fragments prior to his confession (one lie, one truth) and four fragments during his confession (two lies, two truths). Observers coded the behaviour of the murderer on a number of nonverbal parameters, blind to when he was lying and when he was telling the truth. Results indicated that while lying, the murderer

showed longer pauses, spoke more slowly and made more speech disturbances than when he was telling the truth.

In a second study 65 police officers were shown the six fragments of interview and were asked to decide whether the man was lying or not. Police officers were better at detecting truths (70 per cent accuracy) than lies (57 per cent accuracy), although there were a number of individual differences among observers. Those holding popular stereotypical views on deceptive behaviour, such as 'liars look away' and 'liars fidget', performed least effectively as lie detectors.

Vrij, A., & Mann, S. (2001). Telling and detecting lies in a high-stake situation: The case of a convicted murderer. *Applied Cognitive Psychology, 15*, 187–203.

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