

Emotional attachment

A 'strange situation' was the beginning of a massive programme of experimental research into the importance of the infant's emotional relationships for psychological development. **KEITH OATLEY** with our centenary 'Research in brief'

STUDIES of the cognitive development of children have proceeded rapidly since the work of Piaget has become well known. But from them something has been omitted: the emotional foundation of development. The Bowlby–Ainsworth theory of attachment is such a foundation. It proposes just as young mammals depend physiologically on mother's milk, so they depend psychologically on a relationship of attachment to a mother who protects them from a potentially hostile world, and who serves as a secure base for exploration.

Bowlby, being a psychoanalyst, has not demurred to speak of the growth of love. Psychologists are more coy; we prefer an operationalised approach. This is what Mary Ainsworth has given us. She has brought attachment within the grasp of two of psychology's most trusted modes: the laboratory and the study of individual differences.

Ainsworth and colleagues developed a test of infants' responses to a situation that was strange to them: the aptly named

'strange situation'. A one-year-old enters a room with his or her mother. Some minutes later a stranger enters too. A few minutes later yet, the mother departs unobtrusively, leaving the infant alone with the stranger. The mother then returns and the stranger leaves.

Using this strange situation, the authors



Fathers are now seen as important as well

recognised three distinct styles of attachment. In one, 'securely attached', the infant reacted positively to the stranger when the mother was present, but was visibly fearful and cried when the mother left. When the mother returned, the infant went to her and was quickly comforted. 'Anxious/avoidant' infants were somewhat

indifferent to their mother when she was in the room, and they may or may not have cried when she left. When she returned, they made no move to interact with her. Infants with a third style, 'anxious/resistant', were very upset when the mother left. When she returned they wanted to be near her, but resisted all her efforts to comfort them. They struggled if picked up, and showed a great deal of angry behaviour.

Each attachment style is based on a specific pattern of emotionality. This research marks the beginning of a new theory of personality, based not just on the individual, but on empirically based recognition of the emotions of social relationships. We look forward to understanding how these different patterns affect later life.

Ainsworth, M. D. S., Blehar, M. C., Walters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum.

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Too much too young

Students need to sort the wheat from the chaff if they want academic success. **NEIL MARTIN**

FOR many years, psychologists have tried to identify the factors that can contribute to academic success (or the lack of it). Personality, motivation and the style of learning that students adopt are some of the variables which mediate academic performance.

Vittorio Busato and researchers from the Universities of Leiden and Amsterdam investigated whether these factors correlated with academic performance in a group of 409 Dutch first-year psychology undergraduates. They considered learning styles to be of four basic types: undirected learning style, where students have difficulty in discriminating between the relevant and irrelevant and are swamped by too much information; reproduction-directed learning style, where students' behaviour concentrates on reproducing



Successful students avoid being swamped by too much information

what is learned for their exams; application-directed learning style, where students apply what they have learned to actual real-life situations; and meaning-directed learning style, where students try and make sense of their course material, interrelate

what they have learned and approach their material critically.

Intellectual achievement and the motivation to do well were, as expected, positively related to academic performance. Only the undirected learning style was linked to performance, with those adopting this approach doing significantly worse than students who adopted other styles. The personality variable most closely related to academic success was conscientiousness. Interestingly, performance in the first exam at university was the most important predictor of academic success.

Busato, V.V., Prins, F.J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*, 29, 1057–1068.

Oestrogen can get memory working

HRT could have cognitive benefits for menopausal women. **NEIL MARTIN**

WHEN the menopause strikes in women, ovulation halts and the production of ovarian hormones such as oestrogen slows. Some women report short-term memory difficulties, so balancing the hormonal system by adding the lost hormones could have direct consequences for memory performance.

This line of thinking underpinned a study by Sarah Duff and Elizabeth Hampson (University of Western Ontario) of the effects of hormone replacement therapy (HRT) on memory. Early clinical studies showed an improvement in memory following HRT, but some studies limited the improvement to verbal memory.

The researchers administered a series of memory tasks to three groups of postmenopausal women: one group took

oestrogen; one took oestrogen and progesterin; the third received no HRT.

The women on HRT performed significantly better on working memory tasks with spatial and verbal components. Simple passive recall was not affected by HRT. The authors link these findings to the workings of the prefrontal cortex, an area they report being rich in oestrogen: some studies show levels twice as high as in other parts of the cortex. 'Our finding of a positive effect of estrogen on working memory is novel,' the authors conclude, 'and...suggests that the scope of estrogen effects on brain and behaviour includes the frontal lobes and functions dependent on this region.'

Duff, S. J., & Hampson, E. (2000). A beneficial effect of estrogen on working memory in postmenopausal women taking HRT. *Hormones and Behaviour*, 38, 262–276.

Effect of marriage on cancer mortality

Tying the knot could protect you from cancer. **NEIL MARTIN**

MARRIAGE seems to get a bad press, and people are deserting or delaying it in increasing numbers in favour of the single life. Psychologists, however, have often found that those who are happily married tend to be healthier – mentally and physically – than the divorced or single.

Research from the University of Oslo reports that marriage can even be beneficial to cancer survival. Oystein Kravdal looked at the survival from 12 types of cancer in Norwegian men and women. The extensive survey used the Norwegian census (1960–1991) and the Norwegian Cancer Registry.

Marital status had an impact on almost all the cancers studied, apart from uterus cancer and leukaemia. Mortality among women was significantly higher in the never-married than in the married or divorced for stomach, breast and ovarian cancer. Never-married or divorced women were significantly more likely to die from pancreatic, lung and cervical cancer than were married women. The same pattern was seen for men suffering from stomach, lung, colonic and pancreatic cancer: those who were never-married fared worse.

The author admits that the reason for the finding is elusive and could include differences in medical treatment, health at the time of diagnosis and behaviour

expressed after diagnosis, and support from family and friends.

Kravdal, O. (2001). The impact of marital status on cancer survival. *Social Science and Medicine*, 52, 357–368

A GOOD LEADER?

Colin Silverthorne (University of San Francisco) investigated the link between leadership qualities and personality by asking top executives to identify employees who were effective or ineffective as mid-level managers, and getting self-ratings on the 'Big Five' personality dimensions.

Effective leaders were those who were emotionally stable, more extraverted, more open to experience, more agreeable and more conscientious. There were exceptions, but the pattern with neuroticism was uniform: all good leaders had low neuroticism scores and every ineffective leader had high scores.

The authors suggest monitoring personality prior to employment in order to see whether leadership success could be predicted by personality variables.

Silverthorne, C. (2000). Leadership effectiveness and personality: A cross-cultural evaluation. *Personality and Individual Differences*, 30, 303–309.

Cupid and the cortex

When you're in love, does the brain respond differently? **NEIL MARTIN**

VALentine's Day has come and gone, but if you're in love, your brain will give you away.

Andreas Bartels and Semir Zeki (Wellcome Department of Cognitive Neurology, London) recruited 17 healthy participants who were 'truly, deeply and madly in love' to have their brain activity monitored under different conditions.

Using functional magnetic resonance imaging, they aimed to see whether distinctive patterns of brain activity would be

produced by watching pictures of a loved one. To this end, participants viewed pictures of partners and of three friends whom they had known for a comparable period.

They found a mixed pattern of brain changes, with both activation and deactivation found when participants viewed their lovers. Activity was significantly high in the insula, a part of the brain involved in the visual interpretation of emotional information, and in the caudate nucleus and putamen, subcortical structures which, among other things, become active during positive and negative emotion. Deactivation was seen in the right prefrontal, parietal and middle temporal cortices, a finding similar to that in studies of expressed happiness.

The authors conclude that 'underlying one of the richest experiences of mankind is a functionally specialised system of the brain'.

Bartels, A., & Zeki, S. (2000). The neural basis of romantic love. *Neuroreport*, 11, 3829–3834.



Mind-altering?

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Further submission details are on p.167