

Infant learning illuminated

Infants can reason, as well as imitate. **NEIL MARTIN**

AN infant's mind, it seems, is more than a tabula rasa. Meltzoff's famous study of imitation learning in infants showed that when 14-month-old children watched an adult turn on a light box by touching the top of the box with the top of the head, two thirds of the children attempted to switch on the light in this way a week later. None of the control group attempted to switch the light on in this way. Research since Meltzoff's 1988 study, however, suggests that infants may be capable of going beyond imitation and using greater depth of reasoning when deciding how to achieve behavioural goals.

To test this hypothesis explicitly, Gyorgy Gergely and colleagues from the Hungarian Academy of Sciences, replicated Meltzoff's study but instead of the adult turning the light on with the head with hands free, they had adults either do the same as those in the Meltzoff study or had them occupy their hands. In the experiment, the hands-occupied condition was achieved by having adults wrap their hands in a blanket. Twenty-seven infants viewed either the 'hands-free' or 'hands-occupied' adult switching on the light.

When the adult's hands were free, 69 per cent of infants used their heads to switch on the light; when the adult's hands were occupied, only 21 per cent of infants used their heads. The study suggests that infants may be capable of greater rationality than that implied in Meltzoff's seminal study. 'The early imitation of goal-directed actions', the authors conclude, 'is a selective, inferential process that involves evaluation of the rationality of the means in relation to the constraints of the situation.' In short, infants don't just imitate, they reason.

Gergely, G., Bekkering, H. & Kiraly, I. (2002). Rational imitation in preverbal infants. *Nature*, 415, 755.

Weeding out

Two studies of adolescent cannabis use suggest that the user stereotype is ill

CANNABIS use is often portrayed as a slippery slope to dangerous illicit drug use and antisocial behaviour. While some studies suggest an association (not necessarily causal) between heavy use of cannabis and use of other substances, recent research suggests that cannabis users are by no means a homogeneous group. For the majority of adolescent users, even heavy use of cannabis is not necessarily associated with other illicit substances or with problem behaviours.

Patrick Miller and Martin Plant from the Alcohol and Health Research Centre, City Hospital, Edinburgh, investigated substance use and users' motivations in a sample of 2641 British school children aged 15–16 years. The investigation was part of the 30-country European School Survey Project on Alcohol and Drugs. Variables relating to students' substance use, family relationships, friendships, leisure time, moods and attitudes were examined.

Heavy cannabis users ($N = 201$), defined

as those who had used cannabis 40 times or more, were most obviously distinguished from the main group. This was the most aggressive and delinquent group. When further broken down (by cluster analysis) to reveal possible subgroups, the researchers found that one subgroup (the smallest and with the highest proportion of boys) was characterised by thieving, destruction to property and aggression towards others, though reporting more and stronger friendships than other subgroups. The second largest subgroup (34 per cent of heavy cannabis users) was the least homogeneous and was most extreme on several of the variables. This subgroup had the most difficulty in relationships with family, reporting less warmth, care and mental support from parents. They also reported poorer friendships, lower self-esteem and greater unhappiness. The largest subgroup (41 per cent) believed in the rules of society and in the stability and predictability of their environment. This group had relatively good relationships with family and friends, and members were

Green cross code

A new study challenges evolutionary interpretations of infidelity. **NEIL MARTIN**

EVOLUTINARY psychologists seem to have had all the best tunes in recent years. Interpretations of altruism, sexual attraction, murder, aggression and jealousy have all hinged on their evolutionary significance. Exotic (if rather general) theories have been lavishly constructed to explain how, and in what context, such behaviours occur.

A recently mined arena has been infidelity. For various evolutionary reasons evolutionary psychologists suggest that men and women respond differently to different types of infidelity. Men, for example, are more likely to show jealousy in response to sexual infidelity (his partner having sex with another man), whereas women are more likely to show jealousy in response to emotional infidelity (her partner have a very deep, loving, yet

non-sexual, relationship with another woman).

To test this hypothesis Todd Shackelford, from Florida Atlantic University, and his American colleagues explored how likely it would be that male and female undergraduates would forgive the two types of infidelity in their partner. The results conformed to the expected pattern – men were less likely to forgive sexual than emotional infidelity, whereas women showed the opposite pattern. Men were also more likely to terminate a relationship if their partner committed sexual infidelity.

The picture, however, is not this clear. In an article published in *Psychological Science* Christine Harris from the University of California at San Diego challenged such conclusions. For example,

the differences

informed. **FIONA LYDDY** and **NEIL MARTIN**

distinctly less likely to be heavy users of other substances.

Consideration of the differing motivations and contexts for cannabis use may help identify those at greatest risk of deviant behaviours and involvement with other drugs. It is clear, from the data in this study, that the majority of adolescent cannabis users are relatively well balanced: they have comparatively stable family

relationships and peer friendships and are not likely to take other illicit drugs.

A similar epidemiological pattern of results was found in an Australian study of adolescent cannabis use. Joseph Rey and his team (Universities of New South Wales and Adelaide) determined cannabis use and took measures of health risk in a group of 1261 adolescents aged between 13 and 17 years. They found that a quarter of the

she criticises evolutionary studies of infidelity for presenting forced-choice scenarios to participants rather than focusing on their responses to actual examples of infidelity. She also points out that most studies use undergraduates in their early twenties as participants; this limits interpretations of findings to this group. More importantly, she cites studies showing that even the majority of men regard emotional infidelity as being significantly more important a relationship transgression than is sexual infidelity.

Taking these criticisms on board, Harris examined men's and women's responses to infidelity by giving them a scenario to respond to. As in most other studies, participants were asked whether they would be more upset if they found out that their partner was trying different sexual positions with another or if their partner was falling in love with another. The 196 participants, with a mean age of 37, were recruited via newspaper advertisements and flyers. Harris was also interested in whether responses would be similar in homosexual

and heterosexual men and women, and recruited roughly equal numbers of each. In addition to responding to the forced-choice question, participants were asked if they had been 'cheated' on, whether they focused on the emotional or sexual consequences of the cheating and whether the relationship ended as a result.

As predicted by evolutionary psychology, heterosexual men were more likely to find sexual infidelity more upsetting than they would emotional infidelity when responding to the forced-choice question (the reverse was found for women). When participants recalled actual examples of infidelity, however, no sex differences were found. Regardless of sexual orientation, both men and women were more likely to focus more on a partner's emotional than sexual infidelity. No correlation was found between response to hypothetical and actual infidelity.

'Steadily accumulating evidence suggests that both men and women are bothered by emotional and sexuality infidelity,' the author concludes. 'If

sample reported having used cannabis and that this use increased with age. Children with sole parents were more likely to report cannabis use than those in two-parent families. Cannabis users also reported greater symptoms of depression, conduct problems and higher consumption of alcohol and cigarettes. 'The association between cannabis use, depression, conduct problems, tobacco smoking, excessive drinking', the authors conclude, 'shows a malignant pattern of co-morbidity that may lead ultimately to further negative outcomes.' The findings of the British study, however, suggest that such a generalisation may be unwarranted.

Miller, P. & Plant, M. (2002). Heavy cannabis use among UK teenagers: An exploration. *Drug and Alcohol Dependence*, 65, 235–242.

Rey, J.M., Sawyer, M.G., Raphael, B., Patton, G.C. & Lynskey, M. (2002). Mental health of teenagers who use cannabis. *British Journal of Psychiatry*, 150, 216–221.

■ *Dr Fiona Lyddy is at the National University of Ireland, Maynooth; Dr G. Neil Martin is at Middlesex University.*

emotional jealousy was selected for because it helps women prevent loss of a mate's resources, then how did men come by such a mechanism? The farther one moves away from asking college students the forced-choice question regarding hypothetical infidelity toward assessing real infidelity with adults, the less support one finds for the [evolutionary] hypothesis.'

Harris, C.R. (2002). Sexual and romantic jealousy in heterosexual and homosexual adults. *Psychological Science*, 13, 1, 7–12.

Shackelford, T.K., Buss, D.M. & Bennett, K. (2002). Forgiveness or breakup: Sex differences in responses to a partner's infidelity. *Cognition and Emotion*, 16, 299–307.

Associate Editor: G. NEIL MARTIN

Please send reviews (up to 400 words) of papers published in peer-reviewed journals (or at proof stage) – including a copy of the paper – to: Dr G. Neil Martin, School of Health and Social Science, Middlesex University, Queensway, Enfield EN3 4SF. Fax: 020 8362 5343; e-mail: n.martin@mdx.ac.uk. Further submission details are on p.271.

Children and research – Rights and wrongs

Children's lack of understanding of confidentiality may cast a shadow over experimental validity. **FIONA LYDDY**

THE validity of much psychological research depends on participants' understanding of their research rights. Uncertainty regarding confidentiality, for example, may be reflected in participants' responses. This is of particular concern when working with children, and, given the additional ethical responsibilities towards child participants, their understanding of their rights is of great consequence.

A study by Jennifer Hurley of Reed College and Marion Underwood of the University of Texas explored children's understanding of their research rights before and after participation in a study involving deception and potential emotional distress. The primary study examined how children cope with peer provocation. Children were asked to participate in a study examining 'how children interact when they play games'. The procedure

involved playing a computer game with a peer. But the game was rigged so that the participant would lose, and the peer was a confederate there to provoke participants by taunting them.

A sample of 178 children (aged 8–12 years) completed a questionnaire before and after participating to assess the effectiveness of the assent and debriefing procedures. Before participating, the basic procedure and the children's rights were outlined and confidentiality was explained; they were told how they could cease participation and that participating was their choice. After the study the children were debriefed, and the nature of the deception was revealed.

Before participation the majority of children understood what the study would involve, that they could decline or cease participation, and that no one would get details regarding their performance.

However, few children could clearly explain the goal of the study.

The post-debriefing questionnaire suggested that older children understood the debriefing but younger children were less clear on how they had been deceived (the presentation of a prize during the debriefing session may have distracted younger subjects somewhat). Younger children also did not fully understand confidentiality, which calls the validity of their responses into question. Many subjects still had difficulty describing the research goals accurately.

The deception did not appear to affect the children's trust; their understanding of their rights was not undermined by revealing the deception.

Hurley, J.C. & Underwood, M.K. (2002). Children's understanding of their research rights before and after debriefing: Informed assent, confidentiality and stopping participation. *Child Development*, 73, 132–143.