

# Whose crime is this anyway?

CCTV research shows that unfamiliar faces are difficult to identify. **ANDREW J. EDMONDS**

**W**HILE closed-circuit television (CCTV) footage often clarifies what happened in an incident and provides basic information about the individuals involved (e.g. number, sex, etc.), identifying individuals from such images is problematic. Zoë Henderson and researchers from the Universities of Stirling and Glasgow investigated the task of trying to match images obtained from a realistic crime from both poor- and good-quality CCTV footage.

A mock bank raid was filmed on poor-quality CCTV cameras, which an installation company agreed were typical of those used in most high-street banks. The raid depicted two robbers entering the bank: one holding up the cash desk, and the second taking a bystander hostage. The best still images for each robber were edited. In

the first experiment 100 participants were shown these colour images, alongside a greyscale photographic array of eight similar-looking people (one array for each robber), and were asked to identify each of the robbers in their respective arrays (the robber was always present). The task of matching faces from poor-quality images was extremely difficult, and led to frequent confusion between similar-looking people.

In follow-up experiments, broadcast-quality images ('potentially the standard for future [CCTV] systems') of the robbery were used. Participants matched a single image of each robber to an array; in one trial, one robber wore a hat to conceal their external face features (such as hairstyle), while the second robber was not in disguise. Similarly, in another trial, one robber was present in the array while the

second robber was absent. All possible combinations of these conditions were presented to different participants. The results again showed a high rate of errors. For trials where external features were shown, correct performance across target-present and target-absent trials was only 64 per cent, while concealment of features further reduced correct performance rates, suggesting that matching of unfamiliar faces is dominated by external features; that is, those most likely to vary between different images.

Finally, participants were asked to decide which of two photographs was the robber shown in the video footage (the robber was always present; Experiment 4) or whether the video footage image and one other photograph showed the same person (Experiment 5). Despite the reduction in task demands, performance remained highly error prone (e.g. in Experiment 5, 28 per cent incorrectly stated that the images matched, while 45 per cent rejected a match when the images showed the same person).

A related study by the same research group headed by Mike Burton at the University of Glasgow suggests that these findings are specific to unfamiliar faces. In the first experiment participants were asked to judge whether low-quality CCTV images of people (members of staff at the university) and high-quality photographs were of the same person. Performance of 60 participants from the university, who were highly familiar with the 12 targets, was compared with that of 60 participants from the University of Paisley, who were unfamiliar with any of the people shown. Despite poor image quality, participants who were familiar with the target were able to match or reject a match with considerable accuracy (92 per cent), compared with 'unfamiliar' participants, who achieved only 70 per cent accuracy.

A second experiment investigated whether a brief familiarisation period (designed to resemble encountering a person casually, such as knowing a criminal from a different conviction) could produce the matching advantage found for highly familiar faces. Even when participants were shown high-quality videos of 12 men for one minute each prior to the test phase, matching of pairs of high-quality

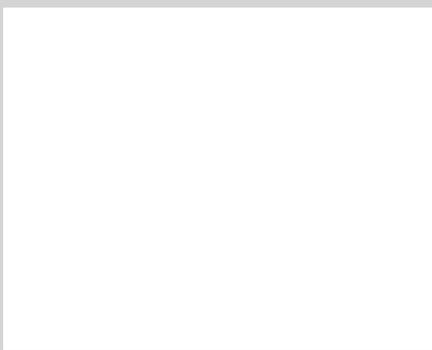
## Sex and science

How the one influences exposure to the other. **NEIL MARTIN**

**I**T seems a common perception that girls are lagging behind boys in scientific achievement. From school to university, females seem to perform less well than males at science-based subjects. Of many reasons suggested for this discrepancy, one of the most frequently cited is socialisation: parents and teachers are more likely to engage boys in science and scientific explanations that they are girls.

In an ingenious experiment to test this hypothesis, Kevin Crowley and researchers at the Universities of Pittsburgh and California sought the permission of parents visiting a Californian children's museum to film and record their interactions with their children as they made their way round the exhibitions. Data were collected from 298 interactions between mothers and fathers and their daughters and sons on 26 days over a 30-month period. Conversations were rated according to whether they involved explanations or descriptions of, or directions for, exhibits.

The researchers found that parents



were more likely to explain exhibits to their sons than to their daughters. If the behaviour of parents helps shape the behaviour of their children, the researchers suggest that this disparity could have a significant effect on the child's interest in and knowledge of science.

Crowley, K., Callanan, M.A., Tenenbaum, H.R. & Allen, E. (2001). Parents explain more often to boys than to girls during shared scientific thinking. *Psychological Science*, 12, 258–261.

photographs ('Are these two people the same?') was no better than for participants for whom the faces were completely novel at test. However, in a third experiment, when participants were familiarised with the faces in pairs and encouraged to talk to each other about the people whose faces were shown, matching of these targets to faces in an array (target present on 50 per cent of trials) at test improved significantly, suggesting that it may be the nature rather

than length of the exposure to a face that is important.

Taken together, these papers suggest that the most appropriate and beneficial use of CCTV images is as a trigger to recognition of an individual, who is not necessarily highly familiar. The authors warn against the use of CCTV images (even high-quality) being presented as evidence of identity where people who are unfamiliar with the offenders are likely to make

decisions on the basis of highly error-prone impressions of resemblance.

Bruce, V., Henderson, Z., Newman, C. & Burton, A.M. (2001). Matching identities of familiar and unfamiliar faces caught on CCTV images. *Journal of Experimental Psychology: Applied*, 7, 207–218.

Henderson, Z., Bruce, V. & Burton, A.M. (2001). Matching the faces of robbers captured on video. *Applied Cognitive Psychology*, 15, 445–464.

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# Gay but not happy?

An American study shows that discrimination of gay men and women is psychologically harmful. **CELIA KITZINGER**

**M**ANY people in America and the UK experience discrimination for their race/ethnicity, their religion, disability, sex or sexual orientation. Research on racism has clearly shown that it has negative mental health consequences for black people, leading to depression, anxiety and feelings of low self-worth. However, when researchers have found evidence of psychological problems among gay, lesbian or bisexual people, they have sometimes treated these as evidence that homosexuality is itself a mental health problem, rather than considering ways in which discrimination might be implicated.

A study by two psychologists shows that gays, lesbians and bisexuals experience significantly more social stigma and discrimination than do heterosexuals, and that experience of discrimination is correlated with higher incidence of depression, anxiety and other psychological illnesses.

Vickie Mays and Susan Cochran from the University of California in Los Angeles, drew on data from the 73 self-identified 'homosexual' and 'bisexual' respondents and the 2844 self-identified 'heterosexual' respondents in the National Survey of Midlife Development in the United States. This is a nationally representative sample of adults aged 25 to 74 years who were interviewed, most of whom (87 per cent) also completed a self-administered questionnaire.

The survey collected respondents' experiences with discrimination both as lifetime experiences and as day-to-day hassles, and asked about the perceived reasons for, and consequences of, any discrimination experienced. Lifetime

experiences included not being hired or promoted at work, being prevented from buying or renting a home, being forced out of a neighbourhood, and being hassled by the police. Day-to-day experiences of discrimination included being treated with less courtesy or respect than others, being called names, insulted, or threatened.

Lesbian, gay and bisexual people reported both more lifetime and more day-to-day experiences with discrimination than did heterosexuals. The survey also collected information about respondents' mental health status. Gay, lesbian and

bisexual respondents were found to have a significantly higher prevalence of psychiatric illnesses, and the odds of having a psychiatric disorder were significantly increased in individuals reporting any lifetime discriminatory event or any day-to-day experiences with discrimination.

Experiences of discrimination were also positively correlated with reported high levels of non-specific psychological distress (assessed by Likert-items that asked about feeling 'so sad nothing could cheer you up', 'nervous', 'hopeless' or 'worthless' or that 'everything was an effort').

The researchers speculate that 'widespread and pernicious experiences with discrimination lie at the heart of the somewhat greater prevalence of psychiatric morbidity among lesbians and gay men found in recent studies' and conclude that their findings 'support the perspective that discrimination has harmful mental health effects for sexual minorities'.

Mays, V. & Cochran, S. (2001). Mental health correlates of perceived discrimination among lesbian, gay and bisexual adults in the United States. *American Journal of Public Health*, 91, 1869–1876.

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## 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 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.103.

# The social contagion of memory

How social influence can make you recall events that didn't occur. **NEIL MARTIN**

**R**ESearch from social psychology and cognitive psychology shows how we can be misled into saying things or doing things we believe to be incorrect or that we are not sure about. Solomon Asch and Elizabeth Loftus's studies show how malleable memory can be, especially when we are faced with the pressure to conform.

Combining social and cognitive approaches, Henry Roediger III and researchers from Washington University designed a study that they argue demonstrates how false memories can be implanted by social influence, a phenomenon they call the 'social contagion of memory'. They sought to investigate whether conformity is simply 'public' (wanting to be seen to behave correctly and knowing the response is wrong) or 'private' (the conversion in belief is genuine); conformity is greater when participants make decisions in the company of others than when alone.

In one condition a participant and a confederate watched slides of six scenes

featuring common household objects for either 15 or 60 seconds. In a collaborative recall task in which both individuals tried to recall as many objects in the scenes as they could, the confederate made occasional mistakes such as recalling items that were not in the slides. After a short delay the participant was asked to list the items from the scenes. A second experiment was conducted without the erroneous suggestions.

Participants in the company of confederates who recalled objects that weren't in the scenes recalled significantly more erroneous objects than did those in the control condition. This effect was magnified if the exposure time to the scenes was 15 seconds (presumably, reflecting the fact that such a short period leaves little time to monitor the scene). Participants who recalled these erroneous items were also more likely to report that they 'knew' the objects were in the scene, rather than report they remembered seeing them.

The authors interpret the results in terms of Johnson's source monitoring framework (Johnson *et al.*, 1993). This argues that because we receive information from many sources, we may recall material but misattribute it to earlier events. The collaborative recall part of the social contagion may be an example of an early event acting as a source of retroactive interference. The more consistent the confederates' recall is with that of the event or scene, the stronger the social contagion will be; the more distinctive the recall, the less likely social contagion is to occur.

Roediger, H.L., Meade, M.L. & Bergman, E.T. (2001). Social contagion of memory. *Psychonomic Bulletin & Review*, 8, 365-371.

#### Reference

Johnson, M.K., Hashtroudi, S. & Lindsay, D.S. (1993). Source monitoring. *Psychological Bulletin*, 114, 3-28.

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## NEIL O'CONNOR AWARD 2002

A research award in developmental disability

### Call for applications \* NEW WIDER CRITERIA \*

THIS annual award, a cash prize of £300, plus up to £200 towards attendance at a BPS conference, is for published research on cognitive abnormalities that appear in development and persist throughout life.

The late Neil O'Connor was one of the UK's foremost experimental psychologists, and a pioneer in applying experimental methods to the study of developmental disabilities. Friends, relatives and former colleagues have contributed to a trust fund that will allow this award to be made annually until the year 2009.

The abnormalities being the subject of the research may include (but are not confined to) deafness, blindness, learning disabilities, dyslexia, language disorder, aphasia, Williams syndrome, Down's syndrome, autism, Turner's syndrome.

- The publication must be in a peer-refereed journal bearing the date 2000, 2001 or 2002, or be in press (official confirmation of this must be provided).
- The award is aimed primarily at anyone studying for a PhD or who is not more than 10 years post-PhD.
- The candidate must be either the sole author or main author of the paper concerned.
- There is no geographic restriction, but all submissions must be in English.
- The author of the winning paper will be presented with a certificate and issued with an invitation to present a paper on his or her research at the BPS Developmental Psychology Section conference.

Exceptionally, the award may be given to a more senior researcher in a non-tenured position, who may also be retired. In the case of multiple authors, the relative contribution of different authors must be outlined. The prize will be awarded to the main author, and the invitation to speak will be offered to the main author.

Applicants should submit the publication itself, a CV and a current mailing address (four copies). Nominations from senior colleagues are not required, and will be disregarded if submitted.

The BPS has appointed a specialist award subcommittee to adjudicate submissions.

Further details of the award may be obtained from the Chair of the Developmental Psychology Section, by whom submissions must be received no later than **1 March 2002**. Candidates will be notified of the outcome by **19 April 2002**.