Psychology study – Any volunteers?

What makes a good experiment volunteer? **FIONA LYDDY**

THE majority of published psychology experiments recruit a convenient but not necessarily representative sample of participants: undergraduate volunteers. Students may volunteer to be participants or they may be 'mandatory volunteers', as when they participate for course credit. When volunteers choose which type of experiment to participate in, generalisability is further reduced and potential confounds are introduced, as personality and demographic variables may predict time of participation and the type of experiment chosen.

A study currently in press by Alyson Aviv and colleagues (University of Washington) used a comprehensive personality inventory, the NEO PI-R, to assess the traits that predict time of participation in a university subject pool across one semester. Additional demographic and academic measures were also taken. Psychology undergraduates (N = 257) volunteered to participate in a personality experiment for course credit, choosing from available time slots over 15 weeks. Participants completed the NEO PI-R and a short questionnaire of demographic and academic variables, and rated their enjoyment of participation in the subject pool.

JOHN HARRIS (REPORTDIGITAL.CO.UK)

Not necessarily representative

The NEO PI-R has five dimensions each with subscales: neuroticism, extraversion, openness, agreeableness and conscientiousness. Differences in personality were scaled by participation time, by correlating the NEO PI-R score with week of participation. The broad trait of neuroticism did not predict participation time, but participants higher on the anxiety and self-consciousness subscales participated earlier. Students higher on conscientiousness participated earlier, while those higher on extraversion and openness participated later. Correlations with non-personality variables were also found. Early participants had higher grade point averages and enjoyed their psychology classes and participation in the subject pool more.

The data suggest that time of participation may be unwittingly manipulated in a way that confounds the independent variables of an experiment or contributes erroneously to the effect size estimate.

The authors recommend eliminating the element of choice in participation to reduce such bias, as 'whenever subjects are given a choice in an experimental setting, that choice may be a function of personality'.

Aviv, A.L., Zelenski, J.M., Rallo, L. & Larsen, R.J. (in press). Who comes when: Personality differences in early and late participation in a university subject pool. *Personality and Individual Differences.*

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Cereal errors

Early morning is the worst time of day to sustain attention. **FIONA LYDDY.**

IF you've ever poured coffee in your cornflakes or brushed your teeth with something mistaken for toothpaste you'll be aware of the influence of circadian rhythms on cognitive performance. Levels of sleepiness, mental effort and distractibility vary as a function of time of day, and failures of executive control such as absent-minded errors peak at night and after waking. The higher cognitive functions are particularly susceptible to circadian variation; recent research suggests that frontal lobe function is most compromised.

A study by Tom Manly and colleagues at the MRC Cognition and Brain Sciences Unit, Cambridge, examined performance variability as a function of time of day in normal adults. They used a clinical task that predicts absent-minded slips in brain-injured patients – the sustained attention to response test (SART). During the SART, participants watch single digits appear on a screen at a predictable rate and respond to each digit with a single button press. This establishes a routine, automatic response pattern that can be measured by reaction time. At unpredictable stages a 'no-go' target appears to which no response should be made. More active control over the routine response is required to avoid erroneous button presses.

Ten undergraduate volunteers were tested every six hours in their college rooms (at 1am, 7am, 1pm, 7pm) over four consecutive days. In each session participants completed the SART, the Stanford sleepiness scale and a visual analogue scale of sleepiness. Although there was no effect on speed of response, errors varied with time of day. Higher error rates occurred at 1am and 7am and greater accuracy in the early afternoon and evening, a pattern that was not modulated by practice effects. Real-life slips, which are often characterised by lapses in control over the routine, would be expected to show similar time-of-day effects.

Manly, T., Lewis, G.H., Robertson, I.H., Watson, P.C. & Datta, A.K. (2002). Coffee in the cornflakes: Time-of-day as a modulator of executive response control. *Neuropsychologia, 40*, 1–6.

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Are you looking at my pint?

Cognitive cues enhance thirst. **ANDREW J. EDMONDS**

MUCH research aimed at furthering our understanding of thirst has largely focused on the associated physiological changes. However, as the desire to ensure that we do not die of thirst is something of a primary motive, one might assume that 'the onset of drinking behaviour is mediated by cognitive processes that can elicit these actions'. Henk Aarts and researchers at Leiden and Amsterdam Universities and Eindhoven University of Technology investigated whether feelings of thirst increased the cognitive accessibilty of drinking-related cues.

Fifty-eight undergraduates were randomly assigned either to a 'thirsty' condition or to one of two 'non-thirsty' conditions. Participants first performed a lexical decision task, in which they were required to decide whether each of 10 words was a real (existing) word or not as quickly as possible. The average response time across the five real words was calculated. To induce thirstiness, participants in the thirsty condition were then given three salty sweets containing liquorice, each of which had a letter marked on one side. They were given one minute to decide, by detecting with their tongue, which letter was marked on each sweet. In the remaining (non-thirsty) conditions participants either performed the same task with non-salty sweets or carefully drew each of the three figures depicted on the sweets. Finally, participants performed a second lexical decision task with 48 words (24 real, 24 non-real). Of the real words, eight were associated with drinking (e.g. glass, cup, juice), with the remainder not drinking-related (e.g. chair, lamp).

The results of the lexical decision task showed that thirsty participants responded significantly faster to drinking-related items than to non-drinking related items, and they were faster to do so than were 'non-thirsty' participants.

In the second experiment a further 84 participants were either made to feel thirsty or were asked to draw the three figures depicted on the sweets. They then waited in a different office for four minutes, in which eight drinking-related items had been placed. Upon their return, a surprise test required participants to recall as many of the items in the office as possible.

Consistent with the findings of the first experiment, participants who had been made to feel thirsty recalled significantly more drinking-related items than did those in the control condition, suggesting that feelings of thirst enhanced recall. Although increased cognitive accessibility to drinking-related items may merely reflect a desire to remove an unpleasant taste in the mouth, these findings nevertheless support the view that a current motivation (in this case the desire to quench one's thirst) heightens the accessibility of (drinking-related) cues which are likely to fulfil that motivation.

KATE GREY

A 'transparent-ambiguous' stimulus?

Perhaps an even more striking and convincing demonstration of the effects of feeling thirsty is provided by Mark Changizi and Warren Hall from Duke University in the USA. These authors noted that transparency is a property that is almost invariably associated with water and, as such, they considered whether or not thirsty participants would favour perceptions of a transparent surface in 'transparent-ambiguous' stimuli.

In their study 74 participants either were made to feel moderately thirsty by eating a bag of salty crisps or drank water until they were not thirsty. Participants were shown 72 circular (36 ambiguously transparent, 36 definitely or definitely not transparent) and 64 rectangular (24 ambiguously transparent, 40 definitely or definitely not transparent) stimuli, presented as stereograms on a computer with the aid of a stereoscope. For each image they were required to decide whether they perceived a transparent surface. At the end of the experiment, participants rated their degree of thirst.

Participants who were made to feel thirsty prior to the experiment were significantly more thirsty at the end of the experiment than were those who quenched their thirst prior to participation. More importantly, thirsty participants were significantly more inclined to perceive a transparent surface in an ambiguous stimulus than were non-thirsty controls.

These articles suggest that the cognitive accessibility of drinking-related cues (as measured by heightened arousal, awareness and recall) and even perceptions of ambiguous stimuli can be biased by current states (thirst) and motivations (desire to quench thirst), enabling us to orient our behaviour in the real world accordingly. Thankfully, the motivation to quench a thirst biases our cognitive system to (Aarts *et al*. suggest) 'help us…detect a can of Coke or a cool glass of beer that would go unnoticed under other circumstances'.

Aarts, H., Dijksterhuis, A. & De Vries, P. (2001). On the psychology of drinking: Being thirsty and perceptually ready. *British Journal of Psychology, 92*, 631–642.

Changizi, M.A. & Hall, W.G. (2001). Thirst modulates a perception. *Perception, 30*, 1489–1497.

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Further submission details are on p.159.

Are you looking at my partner?

Men showing off their resources and women flattering a man's ego are two tactics for stealing a mate. **NEIL MARTIN**

WITH Valentine's Day tucked away, it is safe to talk about infidelity. It has been estimated that between 20 and 50 per cent of married people will be unfaithful to their spouse at some point. If this estimate is accurate, what makes a person pinch another's partner and how do they do it?

David Schmitt and David Buss of Bradley and Texas Universities investigated the types of personalities that are typically involved in what they call 'mate poaching'. They administered a questionnaire about romantic attraction and mate poaching as well as the 'Big Five' personality questionnaire to over 150 undergraduates at an American university.

They found that 85 per cent of men and women reported that attempts had been made to poach them from their partners by asking them on a date. When they looked at participants who were romantically linked (over half the sample), 20 per cent of men and 28 per cent of women stated that they were with partners they had poached from others. Agreeable and conscientious people were least likely to be mate poachers. Those who described themselves as having erotophilic tendencies – a constant desire to satisfy sexual needs – and who tended not to regard relationships as exclusive were more likely to poach. These individuals were also rated by others as more sexually attractive: it appears that the poacher may have to be sexy, as well as adulterous.

MGM (COURTESY KOBAL)

Extraverts were more likely than introverts to be recipients of poaching attempts. Those who rated themselves as sexually attractive, not relationship-exclusive and as emotionally investing (loving) were those who received the greatest attempts at poaching.

When the researchers investigated whether women and men perceived the same costs and benefits of poaching, they found that men were more likely than women to perceive the benefits of poaching physically attractive partners who were already in relationships. Women, conversely, were more likely to view resource acquisition as a benefit of poaching, especially in short-term relationships. Having easy access to multiple sexual partners was also viewed as a benefit of poaching to men. Competition with a current partner and concerns about the fidelity of the poached person were perceived as costs.

Women who thought they would make themselves more attractive by being derogatory to the partner of the poached mate were not as successful as when they enhanced their physical attractiveness. The former tactic was seen as a more effective cue in the short term than the long term.

Men were found to be more effective than women at poaching when they displayed resources. Men who showed displays of dominance were also more likely to be effective at short-term poaching. Getting someone drunk was an ineffective poaching cue in the long term but one with moderate success in the short term, especially when used by women. Men were more effective at using humour as a poaching cue than were women; women were more effective at using an 'ego boost'.

Although based on a sample of undergraduates and assessing perceived effectiveness rather than actual effectiveness of poaching, this series of studies show that poaching is a common romantic phenomenon, and that men and women use different cues with varying degrees of success to poach a mate from his or her existing partner.

Schmitt, D.P. & Buss, D.M. (2001). Human mate poaching: Tactics and temptations for infiltrating existing mateships. *Journal of Personality and Social Psychology, 80*, 894–917.

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