

Foundations of sand?

Christian Jarrett on the lure of academic myths and their place in classic psychology

Other sciences have their cardinal theories; of relativity, of evolution, the big bang, to name but three. Psychology has its theories too, of course. But arguably psychology's foundations are built not of theory but with the rock of classic experiments – Asch's 'conformity studies', the Stanford Prison Experiment, Little Albert, Milgram, the Hawthorne studies, Kitty Genovese... the list goes on. So important to psychology are these experiments that they've acquired an almost mythical status. And like myths, the way some of them have been told has shifted and distorted with time. Some psychologists have noticed this trend, and they're doing their best to correct the misunderstandings – which they say could be harmful to our science.

The helpful witnesses

You'll be hard-pressed to find a psychology textbook that doesn't tell the sad story of Kitty Genovese's murder in the Kew Gardens neighbourhood of New York in 1964. Most will describe the shocking details of how there were 38 witnesses to the stabbing, all of them residents in the apartment block overlooking the scene of the crime, all of whom did nothing. Genovese's tragedy inspired the psychologists Bibb Latané and John Darley to formulate and test their theory that people's sense of social responsibility is

diluted when they are in a group – the Bystander Effect.

The Bystander Effect itself has since been supported by ample research, but a

paper published last year in *American Psychologist* by Rachel Manning at the University of the West of England and colleagues uncovered fresh historical research showing how the story of Kitty Genovese, as it's usually told, is actually something of a myth (see Box). In short, probably only one person witnessed the actual murder and several witnesses did do something to help.

'Given the iconic status of the 38 witnesses story, I wanted to find out more about the place where this incident occurred,' says Manning. 'Having looked through the, interestingly, fairly limited information available in textbooks and journal articles, I trawled the internet,

looking for photos and any other information I could find about Kew Gardens. I came across Joseph De May's local history website (www.oldkewgardens.com)... Joe had started to examine the 38 witnesses story as a clearly difficult but important aspect of the history of Kew Gardens.'

The commonly told inaccuracies in the Kitty Genovese tale stem from the local newspaper article which first broke the news. No doubt this version of what happened, shocking as it is, has subsequently served textbook writers well, seeking as they do to link experimental research with the real world in an engaging way. This begs the question: if the distortions have survived largely through accident or convenience, and if the actual Bystander Effect has been supported by subsequent research, does it matter that the tale of Kitty Genovese is not entirely rooted in reality?

Manning's group say it does because the power of the Genovese story has reinforced the notion that crowds are dangerous (in this case through their alleged inaction), thereby inhibiting research on the potential positive aspects of group behaviour. Manning hopes her article will help to redress the balance.

'Since the publication of our article, we have been contacted by a number of people, including textbook writers, who are happy to correct the historical record,' Manning says. 'However, some people remain quite attached to it and are reluctant to challenge its veracity.'

The power of independence

Another psychology classic re-told in any textbook you happen to sample are the so-called Asch 'conformity experiments', in which lone participants, embedded in groups of confederates working for the researcher, were asked to compare the lengths of lines. The key test was whether participants would go along with a majority opinion that was clearly wrong.

Your chosen reference will no doubt inform you that Solomon Asch's

references

- Chiesa, M. & Hobbs, S. (2008). Making sense of social research: how useful is the Hawthorne Effect? *European Journal of Social Psychology*, 38, 67-74.
- Friend, R., Rafferty, Y. & Bramel, D. (1990). A puzzling misinterpretation of the Asch 'conformity' study. *European Journal of Social Psychology*, 20, 29-44.
- Rafferty, Y. & Friend, R. (1985). The Asch 'Conformity' Study. *Eastern Psychological Association (U.S.) Proceedings and Abstracts*, 5b:20.
- Gale, E.A.M. (2004). The Hawthorne Studies – a fable for our times. *Quarterly Journal of Medicine*, 97, 439-449.
- Hodges, B.H. & Geyer, A.L. (2006). A nonconformist account of the Asch experiments. *Personality and Social Psychology Review*, 10, 2-19.
- Harris, B. (1979). Whatever happened to Little Albert? *American Psychologist*, 34, 151-160.
- Manning, R., Levine, M. & Collins, A. (2007). The Kitty Genovese murder and the social psychology of helping. *American Psychologist*, 62, 555-562.
- Parsons, H.M. (1974). What happened at Hawthorne? *Science*, 183, 922-932.
- Smyth, M.M. (2001). Fact making in psychology. *Theory and Psychology*, 11, 609-636.

experiments provide a striking illustration of the power of social conformity. Indeed, a fourth edition of Richard Gross's *Psychology: The science of mind and behaviour* on my bookshelf quotes social psychologist van Avermaet stating unequivocally: 'The [Asch] results reveal the tremendous impact of an "obviously" incorrect but unanimous majority on the judgements of a lone individual'.

But is that really what the results showed? A paper published in 1990 by Ronald Friend (now emeritus professor at Stony Brook College) and colleagues, contends that Asch actually saw his results as a demonstration of the power of independence (see Box). Interpreting his results, Asch wrote in 1952: '...the facts that were being judged were, under the circumstances, the most decisive.'

Of course, a degree of subjectivity is inevitable – one reader might focus on what they see as the remarkable number of participants who stayed independent, while another marvels at the number who yielded. Given this scope for varying interpretation, the most important aim for any author, presumably, is to report the results in an unbiased fashion – something an analysis of textbooks by Ronald Friend and Yvonne Rafferty in 1985 showed hasn't tended to happen.

Over half the 99 textbooks sampled quoted the percentage of responses in which participants yielded to the group majority, without even mentioning the far larger proportion of responses which went against the mistaken herd (only one writer showed the opposite bias). As regards individual differences, 42 per cent of books gave greater emphasis to quoting the number of participants who conformed, while just 5 per cent showed the opposite bias. Another misleading habit has been to flag up the percentage of participants who yielded to majority opinion at least once (76 per cent), without providing the opposite figure – the 95 per cent of participants who stayed independent at least once.

Others have challenged the whole conformity versus independence debate as overly simplistic. Bert Hodges and Anne Geyer published a paper in 2006 in which they argued the most interesting participants in Asch's studies were those – the majority, in fact – who sometimes yielded to the majority opinion but sometimes stayed independent, as they attempted pragmatically to balance the demands of an extremely awkward social situation. According to Hodges and Geyer's account, giving the occasional false answer, in line with majority opinion, might actually represent the best strategy for persuading others of the truth

The Bystander Effect

Drawing on De May's research, Rachel Manning's group suggest the truth of the story is that there weren't 38 witnesses; probably only one person saw the actual stabbing; and the police were called. Much of the fresh evidence comes from transcripts of the trial in which Winston Moseley was charged with Genovese's murder. None of the three witnesses who were called reported seeing the stabbing; in fact, Moseley's final, fatal attack took place inside the apartment block, out of the view of all but one of the known witnesses. And contrary to the popular notion that no-one did anything to help, one of the witnesses claims to have shouted at Moseley, scaring him off from his initial attack – a claim corroborated by a second witness. Moreover, a former police officer – a 15-year-old eyewitness at the time of the murder – says that his father called the police.

Asch's conformity experiments

Groups of between six and nine people were asked to match, out loud, a target line, according to length, with one of three comparison lines. All but one of the group members were actually accomplices working for Asch, and on 12 of 18 trials they were instructed to unanimously match the target line with the wrong comparison line. The majority of participants' responses (63.2 per cent vs. 36.8 per cent) went against the erroneous majority. Another way Asch measured outcomes was to examine individual differences. This showed that just 5 per cent of participants were always swayed by majority opinion whereas 25 per cent of the sample consistently stuck to their guns.

Though rarely reported, Asch's research also included the collection of qualitative data via interviews. Many participants said that although they had agreed with the group on occasions, they were certain all along that the group were wrong. This confirms the idea that participants hadn't actually been persuaded by the erroneous group majority, but rather they were attempting to play an awkward social situation in the best way possible.

of your own claims, by showing them that their judgments are relevant and have been noted.

Yvonne Rafferty at Pace University in New York says the misinterpretation of Asch's experiments continues to this day, even finding a voice on the internet. 'I just Googled "Asch Study Social Psychology"', Rafferty says, and the top link (<http://tinyurl.com/6pjmima>) brought me to a blog site that states "Solomon Asch's classic... social psychology experiment shows that many of us will deny our own senses just to conform with others." Rafferty notes that Wikipedia propagates the same line, even suggesting that Asch's experiments provide an empirical basis for the ideas on conformity raised by George Orwell's 1984.

Why do people who write about classic psychology experiments want to propagate the idea that we're all prone to becoming mindless sheep in the face of a majority opinion? Rafferty believes part of the answer lies in the headline appeal of the notion that conformity is all powerful. But beyond that she wonders if their lies a darker motive. 'Why is individualism so overvalued by society – what threat do organisations perceive if we are not viewed as sheep?', Rafferty asks. 'Is there

perhaps a fear that we might unionise or otherwise come together for a common cause?'

Echoing Manning's views on the influence of the Genovese myth, Rafferty believes that the misreporting of the Asch experiments has had a harmful effect on the direction taken by social psychology research. 'In overemphasising the powerful but detrimental effect of the group on the individual, the discipline of social psychology may have inadvertently undermined its potential usefulness in showing the practical contribution and positive benefits that groups can have for individuals,' Rafferty says.

Conditioning babies

You'd be forgiven at this point for thinking that it is exclusively social psychology that suffers from the lure of academic myths. Not so. One of the most consistently misreported studies in psychology is the tale of Little Albert and his conditioning by John Watson and Rosalie Rayner in 1920. For decades the case has been heralded as the classic example of how humans, like animals, can be easily led to fear innocuous stimuli using classical conditioning, and how this fear generalises to other similar stimuli according to the

rules of behaviourism.

Unfortunately, Watson and Rayner's study was conducted in a haphazard fashion (see Box) – a fact neglected by most textbooks. To give one example: It is often reported that Albert's conditioned fear of white rats generalised to, among other things, a fear of dogs. The reality is that Albert was initially unmoved when, after his conditioning, a dog was first brought into the laboratory. After that, the dog, previously silent, barked three times loudly just six inches from Albert's face. In the words of the original 1920 report, not only was Albert upset, but 'The sudden barking of the hitherto quiet dog produced a marked fear response in the adult observers!' This was hardly an appropriately controlled test of Albert's conditioned fears.

Authors have also invented stimuli that Albert was never tested on, including a cat, a man's beard, a white furry glove, his Aunt, a teddy bear, as well as the oft-cited claim that he became fearful of all 'furry animals'. Another curious error is that textbook authors have tended to claim that Albert's mother withdrew him from Watson and Rayner's care before they had a chance to extinguish his fears using desensitisation. The truth, apparent from the original 1920 report, is that Watson and Rayner knew a month in advance when Albert would no longer be available.

'These inaccuracies definitely do still exist,' says Professor Benjamin Harris at the University of New Hampshire, author of a landmark critique of the Little Albert story published in 1979 entitled

'Whatever happened to Little Albert?' 'There are still people out there who want to give an easy explanation for things like stimulus generalisation in classical conditioning,' says Harris 'and it is just too inviting an idea that something like white objects or furry objects are going to be fear arousing because of the process of stimulus generalisation.'

Could the misreporting of the Little Albert story have damaged progress in psychology in the same way that Manning and Rafferty believe academic myths have inhibited certain lines of research in the social domain? According to Harris, this depends on the extent to which you believe behaviourism continues to exert an unjustified influence on contemporary psychological thought. 'You could argue that it makes people complacent, leading them to think simplistically about PTSD or other forms of adult psychopathology,' he says.

Beyond his 1979 paper, Harris has devoted great energies to correcting the mis-telling of the Little Albert story, unfortunately with little success. For example, Harris worked to ensure the tale was told accurately by Philip Zimbardo in the 1990s *Discovering Psychology* TV series broadcast on American Television. Harris sold the show producers the rights to footage of the Watson and Rayner study, which he had serendipitously discovered under a stairwell at the University of Michigan. But instead of this serving to improve the veracity of the

programme, the producers edited the clip in such a way to make it appear that Watson had in fact conditioned two children, not just one, a misleading impression reinforced by Zimbardo's narration!

The 'whatever' effect

A true sign that a study or studies have acquired mythical status is when they lend their name to an 'effect'. So it is with the 'Hawthorne Effect', a name derived from a series of experiments on productivity conducted at the Hawthorne Works of the Western Electric Company in Chicago, in the late twenties, early thirties. But according to Mecca Chiesa at the University of Kent and Sandy Hobbs at the University of Paisley, the fame of these studies is not matched by their quality (see Box). The pair published a critique last year in which they lamented the thriving, widespread usage of the term in light of its hopelessly vague meaning and given that the original Hawthorne studies were woefully poor.

Chiesa and Hobbs sampled over two hundred books published between 1953 and 2003 and found an astonishingly broad range of uses for the term 'Hawthorne Effect', with many such meanings actually contradicting each other. In some cases the term was used to imply that simply being the subject of an investigation can enhance workers' performance. Elsewhere the term was used more specifically, to refer to the presence of a 'warm climate', the 'presence of an observer', 'concern' or merely 'friendly supervision'. Moreover, there were widespread inconsistencies in how the effects were supposed to exert their influence, with some accounts suggesting an unconscious effect, while others pointed to 'feelings of pride' or 'job satisfaction'.

Chiesa says she first became

What cognitive revolution?

Nevermind that key studies in psychology are a little mythical, Sandy Hobbs believes there are in fact entire movements in our science's history that may have a whiff of fiction about them too. Test any psychologist on the history of psychology and they'll probably tell you that the first half of the twentieth century was dominated by behaviourism, before the rise of computers inspired the cognitive revolution of the latter half of the century. But Hobbs says they're wrong on both counts. Citing the work of Alexander Lovie, who used mentions of the word 'attention' in psychology journals as a proxy for the status of the cognition approach, Hobbs says there was only a tiny dip in articles dealing with attention in the 1930s and 40s, and that behaviourism never really dominated during that time.

'Behaviourists were studying animal cognition' he says, 'and psychoanalysis and Gestalt psychology were also flourishing alongside.' On the other hand, there's no evidence that behaviourism died in the 50s or that it isn't thriving today. 'The first Skinnerian journal was published in the 50s,' says Hobbs, 'and today there are 20 or 30 of them.'

'Many psychologists would say that cognitive psychology is the main approach,' Hobbs continues, 'but the existence of a flourishing comparative approach to psychology is a bit of an embarrassment to them because it means that we haven't established a Kuhnian [Thomas Kuhn was an eminent historian of science] "normal science" as you have with physics and chemistry. I think that's the attraction of the cognitive revolution as a myth. It's a way of dealing with uncomfortable facts about our subject.'

interested in the Hawthorne Effect after hearing the same comment over and over in response to research she was involved in. 'Finally, when I was asked by a journal editor to respond to "the potential criticism that our findings were an example of the Hawthorne Effect" I thought it was time to have a closer look,' she says. 'That was when I discovered that just about everything and anything was speculated to cause improvement in human performance.'

Hobbs says he thinks a key part of the problem causing the perpetuation of myths in general and of the Hawthorne Effect in particular is people's reliance on secondary sources. 'People read something, don't question it and that then leads to poor quality knowledge. The concept is appealing but there's this reification – once something's got a name it somehow seems more concrete and real.'

He adds that the rise of the internet may have added to this problem, especially as it makes it so much harder to gauge the veracity of a source. 'When I was a student you looked at the *Daily Express* and at a journal and there was a clear difference – you're setting out with assumptions about what the standards are. But now you can get websites that look neat and clean but the content is pretty much valueless.'

Putting psychology on the couch

Other sciences certainly do have their own myths – just think of the story of Newton and the falling apple or Archimedes leaping out of the bath following his Eureka insight. Perhaps myths just seem more prominent in psychology because we tend to talk and write about our science in terms of studies rather than facts. Certainly the work of Mary Smyth at Lancaster University would appear to be consistent with this view – she has compared psychology and biology textbooks and found that psychology appears to have comparatively few taken-for-granted facts. Instead, numerous experiments are described in detail, lending scientific credence to any factual claims being made.

Related to this, there's no doubt that the actual subject matter of psychology plays a part too – there's that ever-present pressure to demonstrate that psychological findings are more than mere common sense. Benjamin Harris says that historians have described psychology as putting a scientific gloss on the accepted social wisdom of the day. 'Psychology is always going to have a strong social component,' he explains. 'With psychological theories speaking to

Little Albert

Watson and Rayner's study was conducted in a haphazard, barely controlled way. Some fear of stimuli was induced and did generalise, but not in the neat, consistent way that textbook authors have reported. Watson and Rayner banged a steel bar and claw hammer together behind 11-month-old Little Albert's back at the same time as they presented him with a white rat. This was done seven times, over two sessions, a week apart, after which Albert cried and attempted to avoid the white rat when presented with it.

Five days later, Albert showed a fearful response to the rat, a rabbit, a dog, a sealskin coat and what's described as a 'negative response' to a Santa Claus mask and to Watson's hair, as well as a mild response to cotton. However, he played happily with the hair of Watson's assistants. In short, the infant had hardly shown a neat transfer of his fear to all things white and fluffy as is often reported.

After five more days Watson again conditioned Albert to fear the rat and this time also conditioned him to fear the rabbit and dog. Later that same day Albert barely reacted when presented with these animals in a different room – again showing how messy the real results were. Finally, 31 days later, Albert was tested again with many of these stimuli. He showed a fear response to the rat, mask, coat, rabbit and dog, yet he also initiated contact with the coat and rabbit.

The Hawthorne Effect

The investigations into factory productivity at Hawthorne were never published in a peer-reviewed journal, and the term 'Hawthorne Effect' was in fact first coined many years later by John French in 1953 in his chapter contribution to a book on research methods.

According to separate analyses of the Hawthorne studies by H.M. Parsons in 1974 and Edwin Gale in 2004, the idea of a 'Hawthorne Effect' probably stems from experiments on the effect of such factors as lighting, ventilation, payment method and supervision, often at the same time, on the productivity of women working on telephone relays. For example, one study involved the female factory workers witnessing the lights being re-fitted with ostensibly superior bulbs, which were in fact identical, and those women then showing improved performance.

A key flaw in the studies, according to Chiesa and Hobbs, is that two of the five female workers were replaced between experimental conditions in a repeated measures design, obviously meaning that any observed effects could have been due to a change in personnel rather than anything more complicated.

the human condition, there's always going to be an appeal to myths that resonate more with experience than something coming out of the lab that's sterile and ultra scientific.'

Another role that myths play is to reinforce the empirical legitimacy of psychology and to create a sense of a shared knowledge base. 'In this way, tales such as of Kitty Genovese or Little Albert are rather like origin myths, pushing the creation of psychology, or a particular approach within psychology back in time, thus giving an air of greater authority,' says Harris.

Hobbs agrees: 'It's nice to have something that you can take for granted,' he says. 'In the case of the Hawthorne Effect and other myths, you shouldn't take it for granted, but it's comforting to be able to say "oh this could be the Hawthorne Effect" and for others to nod and say "ah yes that's right".'

But if, as we've seen, these myths are

harmful to psychology – for example, inhibiting potential fruitful lines of research, or leading to meaningless criticisms of submitted papers – then shouldn't we be doing more to set the record straight? Harris is philosophical: 'The more time I spend studying the history of psychology, the more I just enjoy standing on the sideline and watching psychologists argue about the myths – that itself becomes part of the interesting history of the science,' he says. 'You get to see how psychologists' understanding of human nature has its fashions, it's always dynamic.'

Hobbs, though, thinks we should be doing more. 'There isn't any sense of a field of study looking at the myths of psychology and I think that's regrettable. I think if there were it would make people be more on their guard.'

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