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Why I study...

# Disgust

**R**ESearch can be great fun when it involves leaving a heavily used handkerchief on a chair (made all the more interesting with a dollop of wallpaper paste), placing some dog faeces on a table (moulded, in fact, from a mixture of melted chocolate, marzipan and artificial odourant), or leaving a few maggots in a teacup. It's the kind of research that you try not to do just before lunch.

These are just some of the ways in which researchers (myself included) have tried to elicit the emotion of disgust. It is only over the last 15 years or so that psychologists have begun to investigate the niceties of this emotion and its role in a range of phenomena – from psychopathology to the psychology of preferences.

So why am I interested in disgust? Probably because academic research – and psychological research in particular – can lead you anywhere if you are willing to take the time to pursue the perplexing but often tangential things that will inevitably crop up. B.F. Skinner called this the principle of 'serendipity' – dropping everything to pursue an unusual but beguiling set of data. Looking back on my own research career, serendipity has intervened on many occasions both to change and direct the course of my research. In fact, I find it quite baffling that many of my contemporaries are still conducting research on the very same topics they wrote about in their PhD – and nothing else! Is that dedication – or something else? Perhaps the principle of serendipity should be added to the undergraduate research methods curriculum.

During the late 1980s I had begun to grapple with the issue of why so many people were fearful of spiders, and many others in the UK frightened of snakes. I came to these issues as an experimental psychologist with experience in conditioning theory. This was at a time when conditioning models in anxiety research were getting a particularly bad

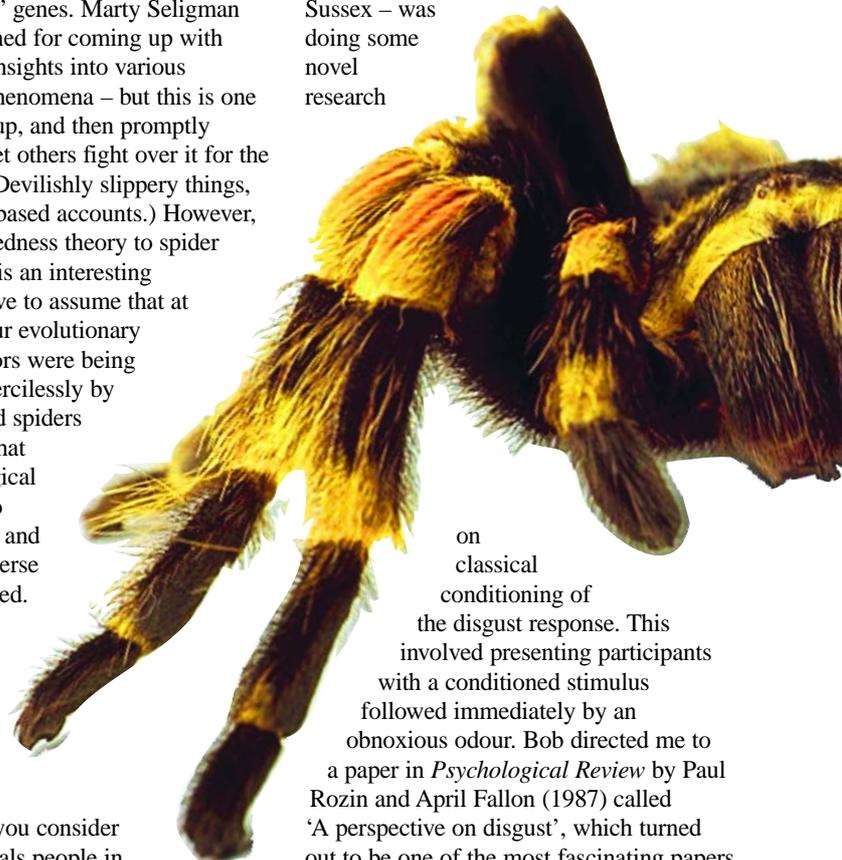
press – so I was going to put that right, and show what a powerful explanatory paradigm contemporary conditioning theory was.

Unfortunately for conditioning theory explanations, the majority of these people had never even encountered a poisonous spider or a live snake, and hardly anyone who was spider phobic could ever remember having a traumatic experience with a spider that triggered their phobia. The nearest we could get to a conditioning account of spider phobia was Marty Seligman's (1971) 'biological preparedness' account. This account claimed that we were all pre-wired to associate things such as spiders and snakes with traumatic outcomes – largely because such things had acted as selection pressures on our ancestors' genes. Marty Seligman has been renowned for coming up with some stunning insights into various psychological phenomena – but this is one that he thought up, and then promptly forgot, only to let others fight over it for the next 30 years! (Devilishly slippery things, these evolution-based accounts.) However, applying preparedness theory to spider and snake fears is an interesting business. We have to assume that at some point in our evolutionary past, our ancestors were being hunted down mercilessly by lethal snakes and spiders and only those that evolved a biological predisposition to associate snakes and spiders with adverse outcomes survived.

You can just about believe this story. However, it starts to become a little stretched when you consider what other animals people in the UK exhibit avoidant or

fearful reactions to. Some surveys we conducted in the late 1980s and early 1990s came up with what, in retrospect, look like the usual suspects – cockroaches, slugs, snails, mice, rats, bats, maggots, lizards and so on. You can create quite a nice 'preparedness' scenario by imagining your ancestors on the African savannah being mercilessly hunted down by packs of flesh-eating slugs (or mice), and thus giving rise to your modern-day pre-wired predisposition to fear slugs (and mice).

While the preparedness stance on these fears began to look tenuous, conditioning explanations looked equally inappropriate. It looked like a dead-end for traditional explanations. At this time Bob Boakes – who was then a learning theorist at the University of Sussex – was doing some novel research



on classical conditioning of the disgust response. This involved presenting participants with a conditioned stimulus followed immediately by an obnoxious odour. Bob directed me to a paper in *Psychological Review* by Paul Rozin and April Fallon (1987) called 'A perspective on disgust', which turned out to be one of the most fascinating papers I've ever read. It was written at a time when

there was almost no literature on disgust in the psychological domain, and still stands the test of time as an accessible, stimulating paper full of interesting facts and hypotheses.

Although in retrospect it now seems obvious (much psychological research is like that!), it began to dawn on us that people were avoidant of some types of animals (slugs, snails, cockroaches, creepy-crawlies, etc.) because they were disgusted by them – not because they were spine-chillingly fearful of them. Subsequent studies began to show that there was a group of mainly small animals that had a cohesive fear-relevance, and this fear-relevance could not easily be attributed to any aggressive physical threat that these animals posed. In addition, if you were fearful (avoidant) of any one of this group of animals, you were also likely to be more fearful of all the other animals in this group (Davey, 1992; Davey *et al.*, 1998; Ware *et al.*, 1994). In 1991 George Matchett and I published a very basic study in *Behaviour Research and Therapy* showing that

measures of disgust sensitivity were significantly correlated with self-reported fear of



this group of small fear-relevant animals, but not with self-reported fear of larger predatory animals (such as lions, sharks and tigers).

It is still a great thrill to see that paper cited so often in the disgust literature – despite its obvious methodological shortcomings!

So, we knew that what people experience when they encounter these animals is disgust, and that there is a group of animals that elicit this response. But that was only the beginning. The next question was ‘Why these animals?’ – What endows them with this disgust-relevance? The group of fear-relevant animals is a real mixed bag: creepy-crawlies, reptiles, rodents, arachnids, and so on.

The disgust emotion is basically a food-rejection response that has evolved to prevent contamination and the spread of illness and disease. It has many similar properties to anxiety (for example, we tend to avoid both disgusting and anxiety-provoking things). But it also has a characteristic facial expression and has evolved to prevent oral incorporation of things that may be vehicles for disease (e.g. we wouldn’t like to put something we find disgusting into our mouths).

So why has this ragbag of animals come to be disgust-relevant? Well, probably for many different reasons. For example, in the past some of these animals have been closely associated with the spread of disease (e.g. cockroaches, rats), others are associated with contaminated food (e.g. maggots, mice), and still others have their disgust-relevant status because they have features that resemble primary disgust objects (e.g. snakes, slugs, and snails are often perceived as slimy, and this resembles mucus – a primary disgust elicitor).

But this still left a large part of the puzzle unfinished. One of the most significant animals in this list is the spider – why are spiders disgust relevant? This led to one of my most enjoyable and satisfying pieces of disgust research – undertaking a historical search for evidence of a link between spiders and disgust, disease and illness (Davey, 1994). And, sure enough, there was plenty of evidence

– much of which now seems to have been forgotten. It seems that when the causes of disease are unclear, people need something tangible to attribute the illness to, and in the past the spider has been a useful scapegoat.

Over the past 1000 years, Europeans had regularly seen the spider as a harbinger of the many devastating plagues that raced across the continent. There are also very many examples of tarantism in the literature – where local communities have blamed the bites of harmless spiders for unrelated bouts of illness. There are clearly many medical myths about the effects of spider bites, and one contemporary one is necrotic arachnidism – a range of skin ulcers from minor to life-threatening that are falsely

blamed on spiders and are prominent in the Americas and Australasia (e.g. Isbister, 2001). Doing a historical search of this kind really was fun, and was not the sort of thing I learnt in my research methods classes!

The study of the disgust emotion is now seen as relevant to a number of different areas of psychology. It has recently been called the ‘forgotten emotion of psychiatry [*sic*]’ (Phillips *et al.*, 1998). It is involved in the psychology of preferences. And in social psychology, disgust is seen as a powerful means of transmitting negative affect (e.g. the activities of groups that violate accepted social and moral values – e.g. Nazis – are often labelled as disgusting, and colloquialisms for faeces are used almost universally as a derogatory term).

So, what began as a crusading attempt to apply my knowledge of conditioning theory to specific phobias ended up 15 years later with me involved in a large-scale programme of research about an emotion that I had hardly heard of, using methodologies I was unfamiliar with, and being applied to areas of psychology that were entirely new to me. Thank God for serendipity!

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