

Delusions of gender – ‘neurosexism’, biology and politics

Cordelia Fine's new book is a bold new attack on the very idea that there are any *essential* sex differences in the human mind and the brain. Her barely veiled

agenda, in this long, scholarly book, is to show that any sex difference found in humans can be made to vanish! How? Simply by a quick manipulation of a social-psychological variable. If, for example, men on average score higher on a maths test or a mental rotation (spatial) test, then simply by *telling* women ahead of time that women on average score

higher on such tests can not only lead women to perform better than they usually do, but can make the sex difference vanish.

These are just some of the dozens of social psychological studies that Fine reviews, and her argument has an appealing simplicity: if women and men *can* score equally in areas where robust sex differences have been reported, then surely they don't constitute *essential* sex differences. They must instead be a remnant of the centuries of sexism that attempted to portray women as less intelligent than men. Fine goes further to argue that any modern cognitive neuroscientist who suggests there may be any essential sex differences in the human mind is just perpetuating these historic sexist attitudes. And she coins a new word for the exploration of sex differences in the mind by contemporary scientists: 'neurosexism'. She litters her book liberally with quotes from 18th- and 19th-century sexists, as if contemporary scientists in the field of sex differences are no different from those who wished to deprive women of the vote, keep them confined to domesticity, and as if to say

'look: nothing has changed'.

So what's good and what's wrong with her basic argument? What's good is that this book examines the role of social psychological factors in how men and women perform on psychological tests, and this is a welcome contribution. As one of those psychologists Fine has in her sights, it might surprise her that I strongly agree that social variables are important and doubtless play key roles in shaping our behaviour. Indeed, the kinds of effects Fine highlights can be thought of as commonsense demonstrations that if you make someone feel more confident, they do better on a test; or that if you change a person's expectations of how they will perform, their performance is influenced by their expectations. We should thank Fine for reminding readers not to forget the importance of social factors influencing sex differences.

But showing that a manipulation of social variables changes behaviour does not prove that it was those very social variables that cause the spontaneous sex differences in the first place. Social manipulations are forms of intervention, and we shouldn't fall victim to the old fallacy of assuming that the absence of a treatment is the cause of a condition. Aspirins can make headaches vanish, but headaches aren't necessarily caused by the absence of aspirin. Where I – and I suspect many other contemporary scientists – would part ways with Fine is in her strident, extreme denial of the role that biology might play in giving rise to any sex differences in the mind and brain. My own book *The Essential Difference* was I think quite moderate in suggesting that sex differences are the result of both social and biological influences, and the same is true of Melissa Hines' excellent book *Brain Gender*. But for Fine, even a hint of biological influence is too much biology.

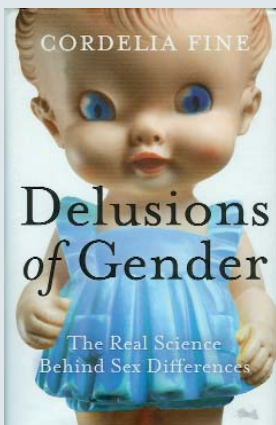
So how does she deal with experimental findings that show either prenatal or neonatal influences on sex differences? Here, her main strategy (arguing that sex differences can be made to vanish by using the trick of manipulating social psychological variables) just doesn't apply. So she is forced to adopt a different strategy, namely, dissecting the experiments that purport to show prenatal or neonatal influences, to reveal that such

experiments are flawed and therefore incorrect in their conclusions. This is Fine's last-ditch attempt to make sex differences go away.

Being a co-author of some of these experiments I can examine her criticisms with the benefit of close knowledge of the studies she discusses, and found errors in her critiques. For example, in our newborn study (Connellan et al., 2001), which showed that girls look longer at a human face and boys look longer at a mechanical mobile, Fine attempts to dismantle this evidence by saying we should have presented both stimuli at the same time, rather than one at a time, since one at a time might have led to fatigue-effects. However, she overlooks that it was for this very reason that we included counterbalancing into the experimental design, to avoid any risk of such order-effects.

Secondly, she argues that the experimenter may not have been totally blind to the baby's sex because there might have been 'congratulations' cards around the bed ('Congratulations! It's a boy!'). However, she overlooks that it was precisely for this reason that we included a panel of independent judges coding the videotapes of just the eye-region of the baby's face, from which it is virtually impossible to judge the sex of the baby. Fine is right that our newborn baby study needs to be independently replicated, given its importance for establishing a human sex difference in the mind at a point in development *before* culture has had a chance to have any influence. But it is an example of where Fine's scholarship shows some shortcomings, where details are overlooked in order to fit her biology-free theory of human sex differences.

Although we would all like to believe in Fine's extreme social determinism, efforts to explain (purely in terms of social variables) why neurodevelopmental conditions like autism, learning difficulties, and language delay affect boys more often than girls lead to the ludicrous position of blaming these conditions on sexist factors in society (or in parents). And extreme social determinism has major difficulties explaining why left-handedness is more common in boys (12 per cent) than girls (8 per cent). In contrast, a moderate position that recognises that – over and above the important role of the social environment –



The Gender Delusion:
The Real Science Behind
Sex Differences
Cordelia Fine

biology may also play a small role opens up all sorts of lines of inquiry (e.g. into the effects of prenatal hormones and genes). Autism runs in families and many genes have been implicated, and it may turn out that some of these are relevant to why it is sex-linked.

I have also been impressed to see consistent correlations between amniotic fetal testosterone (FT) levels and measures of social development across 10 years of follow-up studies of a cohort of typically developing children we have been tracking, whose mothers all had amniocentesis during pregnancy (Baron-Cohen et al., 2005). An extreme biological determinism would be equally ludicrous, since there is no doubt that social variables can amplify and interact with such biological effects.

Fine is of course obliged to try to find fault with these hormone studies, challenging, for example, whether FT in the amniotic fluid reflects FT in the brain. Again she overlooks that if we could measure FT *in the brain* in an ethical way, we would. FT in amniotic fluid is the next best ethical option, and it seems to be showing us that FT is associated with sex differences in the mind.

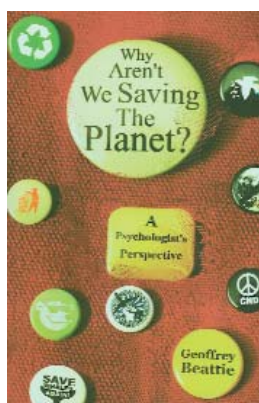
Ultimately, for me, the biggest weakness of Fine's neurosexism allegation is the mistaken blurring of science with politics. Her book reads as a polemic about the implicit political bias underlying the science of sex differences. However, this ignores that you can be a scientist interested in the nature of sex differences while being a clear supporter of equal opportunities and a firm opponent of all forms of discrimination in society. One endeavour need have nothing to do with the other. Fusing science with politics is, in my view, unfounded.

| *Icon Books*; 2010; Hb £14.99

Reviewed by Simon Baron-Cohen who is at the Autism Research Centre, University of Cambridge

References

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A global problem

**Why Aren't We Saving the Planet?
A Psychologist's Perspective**
Geoffrey Beattie

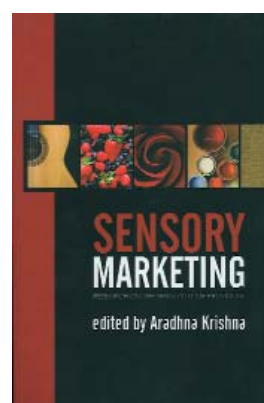
Geoff Beattie, best known for his media presence, invites the reader to join him on his personal journey from being an 'environmental unbeliever' to formulating action plans and getting excited about further avenues of psychological research focused on saving the planet. Beattie was driven to action by a former student and his 'fear of not feeling fear' over proven facts about climate change.

Beattie considers the difficulty of measuring attitudes to climate change (for example, the impact of social desirability biases) and the oft-encountered gap between attitudes and behaviours. For example, their implicit association test research finds that people do exaggerate their green credentials. Their research into unconscious eye movements as people peruse green labelling on packages is particularly interesting and reveals how this information needs to be made much more salient if it is to be used effectively in consumer decision making. To get at unconscious opinions on green issues, Beattie brings in his more typical work on non-verbal communication and considers how real environmental attitudes can be deduced from speech and movement. He also discusses how films can have a strong but temporary impact on attitudes and not necessarily lead to changes in habitual behaviours.

At times, the book appears to have been put together quickly, with long, streaming sentences and frustrating typos. Some readers will not care for Beattie's introspective first-person narrative and should consider other texts in the area. For others, it will be a thought-provoking, engaging personal account coupled with actual psychological research on this most pertinent global issue.

| *Routledge Academic*; 2010; Pb £9.95

Reviewed by Fidelma Butler who is an occupational psychologist in training



Makes good sense

**Sensory Marketing:
Research on the Sensuality of Products**
Aradhna Krishna (Ed.)

First impressions of this book were that it practices what it preaches – the cover is soft, almost furry to touch, presenting a distinct tactile experience in itself. I have read other books on the importance of the senses within marketing literature, but this book differs in that it is underpinned by psychological theories and methodological approaches, thus appearing more academically 'sound' – excuse the pun.

The outcome of a conference event, current research is discussed alongside contemporary and familiar sensory marketing examples, and should appeal to academics and marketing professionals alike. The main disappointment was the implicit assumption running throughout the book that there are just five senses to consider, which for me led to the richness of our sensory experiences being downplayed. It was nice to see equal weighting given to the five areas that were covered – touch, taste, smell, vision and sound – but perhaps there is a good case for a further book that extends into other sensory areas. The suggestions for future research certainly point in this direction.

| *Routledge*; 2010; Pb £14.95

Reviewed by Jenna Condie who is a postgraduate researcher at the University of Salford

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