

Re: the liver and the brain

Source: <http://sci.tech-archive.net/Archive/sci.cognitive/2004-09/0211.html>

From: David Longley (David_at_longley.demon.co.uk)

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In article <j9anj0135r6gscvnepcapnt4gvr3v49h8@4ax.com>, r norman <rsn_@_comcast.net> writes

>On Sun, 5 Sep 2004 23:47:08 +0100, David Longley

><David@longley.demon.co.uk> wrote:

>

>>In article <8d8494cf.0409051127.32b66d14@posting.google.com>, dan

>>michaels <feedbackroids@yahoo.com> writes

>>>

>>>This N.v.N thing is obviously a spectrum, with a lot of animals down

>>>on the nature/instinct end, and a general trend towards greater

>>>importance of nurture on the other end. If you look at it this way, it

>>>seems a waste of time to argue absolutes of "nature vs nurture",

>>>rather it seems more fruitful to figure out about where on the

>>>spectrum various animals would lie. In addition, you probably need

>>>several such spectrums, or scales, in order to cover different

>>>attributes ... motor, perceptual, etc ... as there is no doubt some

>>>differential placement regards each.

>>>

>>>Back to perception, it's actually not too hard to hypothesize the

>>>existence of neural circuitry for distinguishing predators from prey

>>>[or self-same species]. Frogs already have the basis of this in their

>>>class 3 and 4 retinal cells. One imagines precocial animals rely on

>>>something similar, albeit more sophisticated.

>>

>>If anyone is sincerely interested in learning how to approach these

>>(highly sensitive & 'political') issues within science, they'd be wise

>>to do a search on "behavioural genetics". Although we're soon likely to

>>see interval or ratio measures of behaviour replacing the classical

>>ordinal measures (upon which the factors comprising "intelligence" ('g')

>>were classically derived using IQ tests), the current and future focus

>>is likely to be on extensional measures such as chromosome 6 genes and

>>how these may relate to individual differences in parameters of

>>behaviour related to 'g' but measured at the interval or ratio levels of

>>measurement (cf. RT or IT at the msec level etc).

>>

>>Anyone interested should have a look at

>><http://www.robertplomin.com/index.html> and related links, paying

>>attention to what people like Jensen have had to say over the years.

>>After a little Herrnstein along the way, it may become clearer why the
>>priority of behaviour analysis has been emphasised so much in c.a.p, and
>>why the indeterminacies so characteristic of what's done at the other
>>end of the measurement scale (so favoured by mentalists) has been
>>denigrated as no more than muddled folk psychological rhetoric.
>
>The history of human behavioral genetics and sociobiology ala Jensen
>and Herrnstein is a sorry story filled with abuse of scientific
>notions for very partisan political objectives. Racism, or at least
>racial overtones, hangs heavy over the topic. No doubt some of the
>newsgroups involved in this exchange, like comp.ai.philosophy, have
>had rather extensive discussions of these issues
>
>However, from my perspective as a biologist on bionet.neuroscience,
>there is a valid scientific study of the natural behavior of a wide
>variety of animals living in their natural environment, a field
>usually termed ethology. The role of genetic "predetermination" in
>structuring the nervous system as a whole, in producing specific cells
>and circuits between cells, and in producing behavior is established
>for many animals beyond any question. In the roundworm,
>Caenorhabditis elegans, for example, every cell division from the
>fertilized egg is absolutely determined so that every adult individual
>of that species, barring mutation, has exactly the same number of
>cells (959 to be specific, with 300 neurons and 81 muscle cells).
>Humans, of course, show a different course of development. Still,
>understanding just how genetic and environmental aspects interact in
>producing mammalian nervous systems is something that is actively
>being investigated. I agree that many popular accounts of
>"evolutionary psychology" seem rather strained, to say the least.
>Still, genes undeniably have a strong impact on cells.
>

Just a few minor points, if only to reduce the likelihood of some possible misunderstandings by folk outside bionet.neuroscience (and perhaps a few there too ;-).

First of all it wasn't researchers such as Jensen or Herrnstein who were responsible for the abuse and politics – although I appreciate that my saying so probably won't matter ;-). Secondly, and relatedly, there's nothing racist about the findings they've reported. Thirdly, (and perhaps tellingly) little has been said in c.a.p about 'g'. Lamentably, many posters there simply presume, or make up their own folk psychological notions of "intelligence" (as have some academics elsewhere who should know better than to appeal to popular folk psychological notions such as "multiple intelligences"). Fourthly, "Behaviour Analysis" is a branch of biology which (experimentally) studies the contingencies which control behaviour under controlled conditions (and generally with far better control over its variables than classical "ethology" ever managed. It was the latter which largely (and in my view rather ignorantly) fuelled the nature–nurture controversy long after it should have been put to rest. For example, it

should be said that just about nobody studies *C.elegans* in the soil, they're studied in far more controlled environments such as petri dishes and under slides in laboratories. It would be facile to say that the same natural environments are created in the lab – this is just a way of saying one has control over ones variables. In much the same way, the methodology (and much of the technology) supporting Behaviour Analysis has become integral to much of the reputable research within modern neurobiology (which includes genome work on *C.elegans*, *Drosophila* and *Aplysia*). Having said that. I think it's fair to say that the almost exclusive preference for work with pigeons and rats (favoured by the EAB *in the past*) may arguably be said to have been to the field's detriment (if only because for many neurobiological research purposes, these species are just too complex).

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David Longley