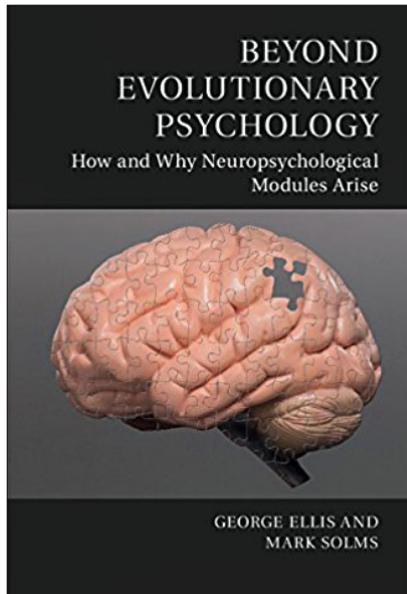


BOOK REVIEW



Beyond Evolutionary Psychology: How and Why Neuropsychological Modules Arise

By George Ellis and Mark Solms.

Cambridge: Cambridge University Press, 2018. ISBN: 978-1-107-66141-7

Evolutionary psychologists can be divided into two broad groups: nativists, who regard the mind as a product of essentially genetically innately specified, domain-specific structures and processes, and empiricists, who consider the mind

(specifically the neocortex), as a 'soft-wired' arrangement of neurons designed by genes and continually sculpted by experience and developmental processes under the influence of ascending neural pathways from the limbic (emotional) brain, which asserts its influence globally in the neocortex by neuromodulators (the evo-devo theory). It was Noam Chomsky who first formulated the idea of an innate grammar module in the brain's neocortex, which Steven Pinker developed into a 'language instinct'. Innate modules, it was argued, were necessary to equip the neonate to survive in a world with a 'poverty of stimulus', despite the richness of the mother-child bond in the vulnerable period of the newborn's life. Profs George Ellis and Mark Solms of the University of Cape Town are among a long list of researchers who have challenged this idea in their very recent book of seven chapters and 177 pages, with a comprehensive reference list and illustrations.

The modular theorists suggest that the evolved mind is adapted to survive in the context of the African savannah of the hunter-gatherers, which empiricists feel discounts the ability to respond to changes in the environment, for example, the modern way of life. New environments, with the variety of stimuli they generate, could be very unpredictable, demanding of the mind a characteristic plasticity, an ability to adapt to new experiences, which a modular brain with its innate specificity may be unable to cope with. Brain plasticity would allow for

rewiring of the brain to suit new needs as the neurons, with their 'softer' synapses, break old connections and make new ones, to adapt to new environmental circumstances. Gene expression in neurons certainly plays a role here, with epigenetic mechanisms working through gene-regulated networks. This is the manner in which we learn about our unpredictable environments, which require this flexibility rather than a restrictive instinctive response that would make adaptation difficult. Interaction with our environments enables us to survive and reproduce, thus helping us to fulfil the Darwinian imperative! Of course there are innate instinctive modules in the brain, performing affective rather than cognitive functions, largely in the limbic system, the subcortical sensory and motor systems, and the autonomic and peripheral nervous systems, well described by the authors.

No matter which side of the debate the reader is on, this book is a worthwhile read for the layperson and specialist alike, leaving much to mull over. The book has a section on how we learn, how we read and the importance of the narrative, all very useful in the context of illiteracy and a failing educational system in South Africa.

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