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"Consciousness without control"

Abstract:

How do phenomenology and function change when prefrontal control is reduced and what does this mean for the development of consciousness? There has been extensive and important work in consciousness studies examining the relation between conscious phenomenology and prefrontal control. Conscious, top-down, endogenous attention and executive decision-making and planning are clearly related to distinctive patterns of frontal control and coordination.

But what happens to phenomenology and function when prefrontal control is diminished or attenuated. Does consciousness simply fade or disappear? Or does it take different forms? This question is particularly important in understanding the development of consciousness, given that prefrontal control clearly increases with age.

Investigators using very different methods have described function and phenomenology in cases of diminished prefrontal involvement. These include cases of electrical disruption of frontal function and administration of psilocybin and LSD, brief exposures of multiple crowded objects in "ensembles" and perception and cognition in young children. In all these cases prefrontal control is attenuated. There appear to be some striking similarities in function and experience in these cases. With diminished prefrontal control, attention, experience and cognition may become distributed rather than focused, holistic rather than analytic and more bottom-up and exogenously determined, rather than top-down and endogenously determined. There is also evidence for increases in flexibility, and in some kinds of learning and creativity. Attenuated prefrontal control may have some computational and cognitive benefits that balance the costs of diminished focus, inhibition and executive function, and may be accompanied by distinctive kinds of phenomenology. This may help us understand what it is like to be a baby or young child, and why.