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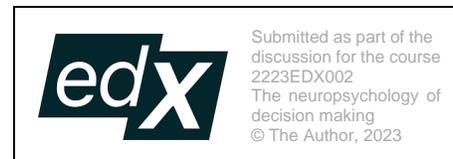
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A very brief examination of the Neuropsychology of Decisions

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Abstract

Human decision-making processes are the result, as in many other psychological processes, of the interaction of nature and nurture. A solid understanding of the neuroscientific underpinning of such processes, in combination of a well-grounded anthropology of the human person, help shed light on the role, the phenomenology and the outcomes of such decisions in developmental considerations and everyday life behavior.

Keywords: Neuroscience, Philosophy, Psychology, Psychiatry, Psychotherapy, Cognition, Decision, Ethics

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Prefrontal Cortex: Are we all animals?

How do we know that-and-what we know? Utilizing animal models in neuroimaging research appears to be fully justified given the strong similarities, both in functional and

structural terms, between human beings and other animals, primates in particular. Of course, this assumption still rests on a relatively utilitarian(ist-ic) and mechanist(ic) explanations, as viewing performance, power levels in terms of skills, particular utilizing

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empirical methods of investigations and parameters such as speed and quantity makes sense only according to a preference -in itself outside these domains- for computational values as primary source for a hierarchy of value.

Nature and Nurture in development

Focusing on internal and external environment, it appears evident -because multiple studies indicate it- how our neural development is strongly based on the mutual influence of such factors. Whether we view such development as continuous or discontinuous, as unipolar or multipolar, and whether discrete steps and separations exist in absolute or relative terms between these (see for instance the early research by Piaget, Brofenbrenner, Shelton, etc.). A wonderful example in this area is the psycho-functional (in this sense with clear moral-ethical implications) development of the sense, perception, and relation to self of emotions, feelings, and thoughts of happiness and sadness. This “being-in-the world” (Heidegger would certainly be pleased) is thus modulated on -for instance- the way the mother reacted to emotions and external/internal stimuli with positive or negative facial expressions in reaction to (perceived) positive or negative triggers, thus “neuroeducating” her child to perceive reality and respond to it in similar ways. This of course opens a whole series of consideration in the areas of positive, abnormal, and clinical psychology, and sheds new light on psychopathological factors.

What about mental health disorders?

The neurochemical (i.e., neurotransmitter-based) theory of the etiology of mental health disorders is predicated upon the observed relative difference in the value, secretion, and overall modulation of certain chemicals, especially neurotransmitters, and more in particular dopamine, serotonin, (nor)adrenaline (norepinephrine), and other

such as acetylcholine, as well as (β)endorphin and oxytocin. A useful, albeit simplistic view of these etiological assumptions, is considering certain chemicals as “uppers” or “stimulants” and other as “downers” or “depressants.” According to this view, an individual suffering from so-called “neurological-sympathetic hyperactivity” (of course, not to be confused with equivalent terminology found in diagnostic considerations such as ADHD) might benefit from chemicals which would help “the system” “calm down” (i.e., from “downers”). Conversely, someone with a “depressed presentation” (again, CNS-related) would benefit from the stimulation obtained from those chemicals in the opposite category. Of course, this would result in added information for the assumption of such chemicals by individuals “art baseline” with the ultimate result of inappropriately stimulating an excess in response in the “up” vs. “down” mechanisms. This is consistent with the “dopaminergic overactivity” view of psychosis and schizophrenia, as primarily (thus, contrary to certain analytic psychology frameworks) caused by variations in such neurotransmitter (and related dopaminergic block produced by traditional antipsychotics / neuroleptics). Albeit revised according to more modern psychopharmacological research results, this model remains shared among professionals in regard to positive vs. negative symptomatology, with psycho-antagonists (in the neurochemical sense) for dopaminergic transmission (dopamine D2 receptor).

Positive psychology and experiences

A nurturing and informative approach to areas such as developmental neuroscience, child psychology, and parenting comes from the realization that the current scientific evidence corroborates what certain shared “common sense” approaches to human relationships in human growth and development claim. More in detail, understanding how love plays a fundamental

(literally speaking, thus in terms of neurofunctional-structural and developmental, especially in the context of pruning, plasticity and flexibility) role in the experience of the individual. Thus, positive childhood experiences constitute a solid “antidote” to the negative effects of negative experiences through the lifespan. Of course, neuroscientific evidence is no substitute for a solid understanding (we could say, an “anthropology”) of the human person, as it is simply not meant to be prescriptive but rather prescriptive, as in the bulk of natural-empirical scientific observations. Thus, a much lengthier conversation should arise to better define terms such as “love” and “negative experiences.” For instance, any examination of a resilient self” should focus on the role of neurotransmitters such as dopamine and serotonin in the appreciation and maintenance of a “solid core” which is the ultimate result of a proper balance between “challenging (developmental) experiences” and proper “nurturing retreat” to nurture the soul and provide strength for future adventures, life lessons, and (self) discoveries.

Conclusion

Given the considerations illustrated above, we could certainly argue that the extension of the nature-nurture debate should extend to etiological factors, namely whether innate/birth-related traits are to be considered stable and constant in the lifespan, both in terms of general values and characteristics (see the theory / doctrine of humors and temperaments and regarding the development of pathological factors. It follows that an appropriate, neuroscientifically- and anthropologically-informed understanding of the development of the individual should result in proper therapeutic intervention to mitigate the effects of abnormal development in terms of decision-making networks, to foster a more balanced and nurturing life for all subjects.

Limitations

The primary limitation of this study is the nature of this analysis, which constitutes a brief examination, in the form of a course discussion of the neuropsychology of human decision making, the content of which is not intended to be a substitute for professional medical advice, diagnosis, or treatment, and does not constitute medical or other professional advice.

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