

■ **Kenneth L. Davis, Jaak Panksepp**
**The Emotional Foundations of Personality: A
Neurobiological and Evolutionary Approach**
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The current state of personality assessment for clinical purposes is largely dominated by the ever-present Big Five model, a taxonomy for personality traits based on language descriptors. This model is consistent with the Lexical hypothesis, which claims that the personality characteristics most important to people become, sooner or later, part of their language; furthermore, these traits are likely to be represented in language by a single word, as individuated in the five factors of this model: openness to experience, conscientiousness, extraversion, agreeableness, neuroticism. These were established using factor analysis in the 90s, making this model intrinsically theory-free. This top-down approach to the daunting task of classifying human personality traits, however all-encompassing and noteworthy from certain perspectives, is flawed in the sense that it does not account for what biologically *causes* our personality.

There is much that is still unknown about the complex workings of the brain, however, it is possible to ascertain that personality is largely determined by the fine tuning of certain systems

(or circuits), mostly involving anatomically ancient structures. To find these underlying mechanisms, classify and methodically investigate the influence they have on the behaviour of animals, has been one of Jaak Panksepp's most important contributions to the fields of neuroscience and psychology. In essence, he gave birth to the field of *Affective Neuroscience*.

Affective Neuroscience is the study of the subcortical affective *BrainMind* (the term Panksepp used to underline the assumption of monism). One of Panksepp's main works, *The Archaeology of Mind: Neuroevolutionary Origins of Human Emotions*, offers an evidence-based taxonomy of the seven primary emotional systems that explain why and how we behave the way we do. These systems have been found to be common across all mammalian species and constitute effective evolutionary solutions for successful animal life on earth. The seven circuits (and corresponding behaviours) Panksepp identified in his research are: SEEKING (exploration, motivation), RAGE (anger), FEAR (anxiety), PANIC (sadness), PLAY (joy), CARE (nurturance), LUST (sexual arousal).

In fact, since the primary emotions that are generated in those systems have intrinsically pleasant or unpleasant affects, they have a learning-facilitating function that is basically a "birthright survival system" for all mammals. This has already been thoroughly demonstrated by Panksepp (see J. PANKSEPP, L. BIVEN, *The Archaeology of Mind*, W.W. Norton Company, 2012) using a variety of methods. For example, he showed that the artificial stimulation of some of those systems can be used as reward/punishment in a behavioural task with high effectiveness. The system of PLAY for instance, when activated, produces an internal state so pleasing that the animal actively seeks it; connecting the pressing of a lever (or whatever action needs to be trained) with the stimulation of this system leads to the reinforcement of that behaviour. Since the way we react to external stimuli, both in terms of our explicit behaviours and our internal states, can be considered to constitute our personality, these subcortical systems are the causal mechanisms that give rise to personality. Hence their importance in Panksepp's work.

The theory of personality built on the principles of affective neuroscience proposes the existence of endophenotypes, which are primary emotional-affective personality profiles generated initially from

our individual genomes; LUST has been inexplicably excluded from the systems that define our personality. Items in questionnaires such as the *Big Five Questionnaire* (BFQ) do not tap directly into the primary emotions that define endophenotypes, hence cannot be used to measure them. However, the *Affective Neuroscience Personality Scale* (ANPS) was specifically built to test Panksepp's hypothesis that such endophenotypes exist. Its items are very explicit in asking about primary emotions so that only a minimum degree of cognitive processing is required to answer. Of course, ANPS is only a language-based report. More direct data will be needed to support Panksepp's view, which, given the present level of technology, is still difficult to obtain. The ANPS is composed of 112 items arranged in fourteen blocks that include one question for each system plus one related to Spirituality and a filler research question; the complete version can be found in the appendix of the book.

One of the main problems identified in clinical applications of the BFQ is the genericity of the factor *Emotional Stability*, which lumps together an array of negative affects, that correspond to activity in the FEAR, RAGE and PANIC emotional systems. Considering that the extremes of each of these emotions lead to different psychopathologies, it is important that the tests we use can distinguish between them. A person might have considerable issues in controlling anger but not suffer from depressive feelings and/or anxiety. Yet, this simple example would result in a medium to high score in the *Emotional Stability* factor, which does not give the clinician any insight whatsoever into the specificity of the patient's sufferings. The *Affective Neuroscience Personality Scale*, instead, classifies symptoms on the basis of the dysregulated emotional system that brought them about. For this reason, the resulting scales are more useful for diagnostic purposes than the *Emotional Stability* factor in the BFQ.

Considering the shortcomings of the *Big Five* model and the fact that Panksepp does not rely on it but developed the ANPS as an alternative scale to measure personality, it is perhaps strange that such a large portion of the book is dedicated to it. However, the attention he devotes to the Big Five is justified by the deeply-rooted position this model holds in the field of personality psychology worldwide; to challenge such a pillar of the field requires extensive discussion of its merits and

flaws, otherwise the author's proposal for a new system would lack legitimacy.

As Panksepp underlines in the chapter on *Epigenetics* and *Psychopharmacology*, the new model for personality has had an enthusiastic reception as well as many successful applications. Biotechnological studies have shown that personality traits acquired through epigenetic mechanisms are among the characteristics which can be inherited. Spending quality emotional time with parents can, thanks to epigenetics, promote the development of these emotional systems in such a way that reduces the incidence of problems like *Attention Deficit Hyperactivity Disorder* (ADHD) and the necessity for pharmaceutical treatment later on. The same principle applies at a cultural level: in play-promoting environments, the PLAY system is more stimulated and becomes stronger, providing a protective factor against the development of personality related disorders. This feature is also inheritable due to epigenetic mechanisms.

In the field of neuropsychopharmacology, the research conducted on the mammalian BrainMind on the basis of Panksepp's model has led to the development of three new antidepressant treatments: the molecule GLYX-13 for the treatment of depressive symptoms has already passed toxicology tests and is having significant effects; deep-brain stimulation (DBS) of the SEEKING system is effective in counteracting major depression symptomatology, up to the point of eventually reversing it; and the opioid buprenorphine has been shown to be highly effective for the treatment of suicidal thoughts deriving from hyperactivity of the PAIN/Sadness system.

The Emotional Foundations of Personality can be considered a textbook, both in terms of its content and structure. The background topics, especially Affective Neuroscience and the history of personality studies, are discussed in the beginning of the book, providing the necessary foundation for the more technical chapters at the end, which present neuroimaging studies and evidence from the field of neuropsychopharmacology. The book is structured in a way that allows the reader to peruse any chapter independently of the others. On the one hand, this is positive as the reader can focus only on the sections they are particularly interested in; on the other hand, the price paid for the independence of the chapters is a certain repetitiveness: the most crucial information is examined time and again throughout the book, excessively prolonging the reading experience, which, at times, can also feel a little fragmented.

In spite of this, Panksepp's work is certainly worth reading. This insightful book not only puts forward a fascinating new approach to personality theory but also provides a thorough account of all the steps taken to make it useful also for clinical purposes. At various points throughout the discussion, the author states that further research is needed to develop the field of *Affective Neurosciences* and to improve its clinical applications; still, plenty has already been done. To all interested in knowing more about the subject, Panksepp's book and the twenty-eight pages of references included in it are undoubtedly a very good starting point.

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