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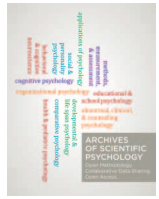

SPECIAL SECTION: HETERODOX ISSUES IN PSYCHOLOGY

Getting to Baselines for Human Nature, Development, and Wellbeing

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ABSTRACT

To make judgments about research findings, one must have a baseline against which to compare the results. One of the baselines the field of psychology should use is what is normal or typical for humanity as a species. Humanity emerged from the social mammalian line with many similar basic needs. Human infants are born highly immature and require an intensive "nest" to grow properly. However, modern industrialized societies often do not provide humanity's evolved nest, thereby undermining optimal normal development in their citizens. Yet, scientific psychologists, who assess citizens in these societies, assume they are studying typical members of the human species. But human beings are extensively shaped by postnatal experience, expected experience that the evolved nest provides. Humanity's evolved nest has been a characteristic of virtually all societies until recently. Industrialized nations typically do not provide the evolved nest, leading to underdevelopment of human species characteristics which include cooperative sociality and nature connection, contributing to the current destructiveness of modern humans toward one another and the planet. We make several suggestions for how to realign psychological science to include the multi-disciplinary knowledge needed to understand humanity and the development of human nature. We recommend that psychology take seriously the evolved nest and assist parents and policymakers in its provision. Our future may depend on it.

SCIENTIFIC ABSTRACT

Every responsible science is careful to establish baselines for the phenomenon under study. In psychology, baselines are usually coupled with assumptions about what is typical human behavior in a particular domain. We note the limitations of current methods for establishing baselines and suggest that a broader, transdisciplinary and metatheoretical approach is needed. Applied to human wellbeing, measurement is not a matter of applying techniques, but requires taking into account evolution, ethology, anthropology as well as other information that helps us establish baselines for species-typical human development. Human beings are biosocial creatures, highly malleable postnatally and dynamically shaped by experience, co-constructed by caregivers and the community and for which humanity evolved an intensive developmental system or niche. Humanity's evolved developmental niche or nest should be a factor in determining baselines. Members of current industrialized nations may not provide the best source for baselines in part because they usually are raised in a species-atypical manner (outside humanity's evolved nest = unnested). Among our suggestions, we advise that history/systems theory and a transdisciplinary approach be included in the psychology curriculum; that complexity be embraced;

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that authors' assumptions about humanity be disclosed in publications; that the degree of participant "nestedness" be reported by researchers. Now that neuroscience is confirming its importance, we suggest that the field of psychology attend to the evolved nest for raising human beings, advising parents and policymakers on its provision. Providing the evolved nest is a matter of ethics and may be vital for keeping the species from self and planetary destruction.

Keywords: baselines, metatheory, worldview, evolved niche, developmental systems

Critiques of industrial society and how it distorts human nature have been around for centuries, from Rousseau to Fromm. Yet, psychological scientists, whose discipline is grounded in industrialized societies, typically take for granted that the individuals they study are representative of humanity and generalize their findings across time and place. In this article, we challenge the taken-for-granted way of thinking about what it means to be human, arguing instead, à la Erich Fromm (Fromm, 1955), that what is presumed "normal" today—that is, what we as scientists assume as an appropriate given or baseline for the characteristic functioning of a species—is actually abnormal from the vantage point of historical and evolutionary contexts. We outline an alternative way of thinking about baselines for the study of human functioning—an alternative that is more compatible not only with nonwestern, indigenous psychologies but also with contemporary evolutionary theory, anthropology, primatology, and comparative psychology. Our aim in promoting this alternative approach is to improve science, not to argue, in postmodern fashion, against science in toto. Instead, we exhort psychological scientists to remember that humans are not only humans but are also primates, mammals, vertebrates, and carbon-based life forms who, most importantly for psychology, are highly immature at birth and who, through their active engagement with the world around them, dynamically develop and are coconstructed as biosocial creatures. That is, our individual nature emerges from our experiential relations with the environments within which we are embedded, within developmental and support systems that themselves coevolved with humanity and are modified through our activity in them.

Revisiting assumptions about humanity is particularly critical at this time because the received baselines of culture and personality that emerged from industrialized and capitalistic worldviews (e.g., detachment from nature, anthropocentric, and materialistic) correspond with the many ecological and social crises that threaten biodiversity and life on the planet generally: a sixth mass extinction (Kolbert, 2014), worldwide ecological system distress (Millennium Ecosystem Assessment, 2005), rapid loss of biodiversity (Bar-On, Phillips, & Milo, 2018), and rapid global warming (Intergovernmental Panel on Climate Change [IPCC], 2013). The received baselines of human culture and personality are a sharp contrast to the kind of human functioning observed in preindustrialized societies (Ingold, 2005, 2011; Narvaez, 2013; Sahlins, 2008) where aims are typically to live cooperatively within the larger biocommunity and to fulfill one's potential through holistic development of emotional, perceptual, and cognitive capacities (Turnbull, 1984). Here we examine notions of "human nature" as the visible dominant psychological propensities of the species, focusing more specifically on aspects of sociality—egoistic or communal, selfish or prosocial, aggressive or cooperative. In this article, we articulate and critically examine the basic metatheoretical presuppositions that condition how psychological scientists have conventionally thought about baselines—and the species-typical human nature they are assumed to reflect—in psychological functioning.

Psychological scientists often rely on statistical analyses of central tendencies to establish their baselines for species typicality. Such a practice presupposes that baseline construction is largely, if not wholly, an empirical exercise, that what is "true" about species typicality can be established empirically and "objectively" by following the numbers and allowing the data to "speak for themselves." Psychological science proceeds on the assumption that a perspective-free view of reality (e.g., Nagel's, 1989, "view from nowhere") exists and should be pursued by eliminating as much subjectivity from the discipline as possible. However, the assumption that such empirically minded practices of baseline construction can lay bare a mind-independent reality of natural categories is just that: an assumption. It reflects a certain philosophical belief, or metatheory, about the nature of reality and about how we, as humans and as scientists, come to know that reality (Kuhn, 1962; Laudan, 1977; Overton, 2015). Specifically, it takes for granted that statistical techniques that are designed to extract invariance from the tremendous intra- and interindividual variability of human functioning in context are effectively yielding a more "objective"—and, therefore, more scientifically "real"—framing of that functioning.

To be sure, no science operates without metatheoretical assumptions. Thus, in the all-important context of establishing baselines for human functioning, what researchers choose to empirically sample and how they choose to examine a sample are necessarily preconditioned by the conceptual framework and knowledge base that guides their notions of what is normal for human beings. Despite being clearly and necessarily framed by certain metatheoretical presuppositions, scientists all too often follow presuppositions implicitly and, even more concerning, without recognition that they have presuppositions.

In its attempt to be seen as a legitimate science, psychology has been drawn to reductionist treatments of the human person—from genomic testing to neuroscientific imaging—without taking the necessary steps to integrate such information into a conception of a whole person, of the human community, or of the human species. The dynamism and complexities of human development and behavior are lost in these simplistic notions of human functioning. We propose an alternative framework with a specific, transdisciplinary account of what a human being is and what humans need to grow in a species-typical manner. First, we examine the most common viewpoint apparent in researchers' choices and discourse.

The Dominant View

By and large, psychological scientists have taken as their baseline for human nature a worldview predicated on notions of "the march of progress"—a worldview shaped by Abrahamic religions as well as by Greek and Enlightenment philosophies (Latour, 2013; Merchant, 2003; Turner, 1994). This is a worldview that regards humans as discontinuous from, and more intelligent than, other animals, and that envisions humans as the "foreordained product of a ladder" of evolutionary advance (Gould, 1977, p. 62), much like they are the pinnacle of creation in Abrahamic religions. The roots of this view in modern, scientific thought trace in part to Descartes and his rationalist, intellectualized treatment of thought and consciousness (Malcolm, 1977). Though scientists long ago abandoned the substance dualism of Descartes, his view of mental phenomena as necessarily representa-

tional or propositional in content persists in modern scientific thought, including psychology.

Within orthodox cognitive science, for example, mind may be of the same material substance as the outside world and the body itself, but it still has no direct, epistemic access to the outside world, given that mind is now routinely reduced to the workings of the brain, an organ physically separated from immediate contact with the extraorganismic environment. In this view, the mind or brain can, therefore, directly act only on surrogates for the outside world—that is, representations—and, as the center of subjectivity and thought, must dictate instructions to the body for how to actually behave in the world. As a result, the organism itself, as body, becomes a mere vessel or peripheral channel for the brain, as central executive, to instruct. This brain-body dualism, still evident in cognitive science research today, reincarnates the basic subject-object dualism of Descartes, dichotomizing between a thinking or reactive subject (now identified with the brain) and the world of objects, including the body (Bennett & Hacker, 2003; Wheeler, 2005). In recognizing the distortions of interpretation and memory that arise from the influence of framing, emotions, and situations, contemporary cognitive science has certainly advanced well beyond traditionally rationalist views of individuals as *dispassionate* processors of information. However, the treatment of cognition as fundamentally *computational* in nature—as the "transformation of a set of input values into a set of output values" (Barrett, 2010, p. 592) modeled after the deliberative kind of calculated decision-making that characterizes developmentally sophisticated, reflective, analytic thought (Tallis, 2004)—remains alive and well in contemporary cognitive science.[1]

The view that emerges from this lingering Cartesian influence is one of an individual whose mental capacities—consciousness, thought, feeling, or decision-making—rest within her or his brain, resulting in a disembodied subject disembedded from the complexities of living in the natural world. Many laboratory studies operate from these assumptions, including the currently popular area of statistical learning. Although alternative conceptualizations like distributed cognition and extended cognition challenge some of these assumptions, the dominant paradigm is still one of *isolated individuals* making their own decisions. Though an old critique, the typical human is still tested as if a detached observer of the surrounding world and of her or his own body (Merleau-Ponty, 1962). It is assumed that the most developmentally advanced levels of thought are reflectively propositional and computational, abstracted from real-time physical embodiment and environmental embeddedness—the type of thinking encouraged in schooling and tested in laboratories. These are assumed to be foundational (albeit perhaps in a preconscious form) to everyday psychological functioning (Taylor, 2006; Wheeler, 2005). For over half a century, cognitive science's metaphor for the mind has been the computer, representing, as computers do, a technological pinnacle of modern scientific endeavor, though with the work of heuristics (e.g., Kahneman, 2011), it is more recently understood as "a creaky old calculator sunk in a sticky swamp of feelings" (Konner, 2002, p. 139). Nevertheless, a Cartesian-inspired, cognitivist treatment of the "natural" human as disembodied and disembedded still pervades psychological science today, implicitly if not explicitly (Di Paolo, Buhrmann, & Barandiaran, 2017), despite some in developmental science arguing for more "interpenetration" of persons and contexts (e.g., Sameroff, 2010).

Contemporary human beings and how they develop are taken to be species-typical because "we have evolved and progressed" to this point. Technological advance is a sign of species progress. Such a view no doubt contributes to the assumptions that data from WEIRD societies (Western, Educated, Industrialized, Rich, Democratic—12% of the world's population; Henrich, Heine, & Norenzayan, 2010) are the most appropriate because they come from societies with the most "progress"—societies whose inhabitants most closely approximate in their functioning the detached ideal of the scientific attitude. Even though Darwin (1871/1981) showed that humans are part of a tree of life, sharing many characteristics with other animals (more recently, DNA studies show that the human body and genome share many characteristics with other animals and even plants; Shubin, 2009), humans are studied as if separate from the rest of nature, and as "the lords and masters of nature" (Descartes, 1637/1988), rather than as reciprocal members of a biocommunity in constant interaction with other-than-human sentience—the view common in preindustrialized and sustainable societies in existent for hundreds and sometimes thousands of years (Descola, 2013). The dominant worldview is so pervasive that it is hard to realize that it is an epistemological position. Indigenous peoples, however, have long espoused a powerful, relational alternative. to this world view we now turn.

A Relational Alternative

For most of human history, an alternative, indigenous, worldview regarding the construction and conceptualization of human nature has dominated among human societies (Redfield, 1953). The particular notion of human nature emerges from a worldview predicated on notions of "relationship" and "embeddedness"—a world view in which humans behave as part of Nature and its systems, not separate from it. Far from being superior to nature, humans are partners with nature, and, in Native American traditions, actually the younger siblings of more ancient and wiser entities like ravens and bears who are treated as relatives to be respected as persons "like us" (Deloria, 2006; Descola, 2013). It is assumed that nature preserves humans and that the ecologies of the landscape require careful attention and humble usage to preserve the wellbeing of the biocommunity (Descola, 2013). The focus of native science is respectful relationship, attending to partnership with other entities rather than dominance over them (Cajete, 2000). Holistic wellbeing is assumed to be the normal outcome for a human being. Human nature is expected to be cooperative and communal not only with other humans but with other-than-humans. From the vantage point of this indigenous world view, the self- and money-focused human nature displayed by many European explorers and settlers and postindustrial humans is shocking. As Marshall Sahlins (2008) put it:

> For the greater part of humanity, self interest as we know it is unnatural in the normative sense; it is considered madness, witchcraft or somesuch grounds for ostracism, execution or at least therapy. Rather than expressing a pre-social human nature, such avarice is generally taken for a loss of humanity. It puts in abeyance the mutual relationships of being that define a human existence. (p. 51)

Such a relational alternative to the Cartesian-inspired narrative has in recent decades enjoyed increasing currency as a scientific paradigm within both the biological and social sciences (Latour, 2004; Lickliter & Honeycutt, 2015; Overton, 2015; Smolin, 2013). Comprehensively explicated by Overton (2015), the *Process-Relational* research paradigm traces its lineage to a variety of philosophical sources—from pre-Socratic thinkers like Heraclitus and Anaximander, to German Enlightenment sources like Leibniz, Schelling, and Hegel, to the process philosophies of Bergson, Dewey, and especially Whitehead—

[1] Even in the increasingly influential subfield of embodied cognition, the idea of all cognition as computational in nature still holds sway throughout large portions of the literature, even if that computational process is no longer confined to the head or brain (Di Paolo et al., 2017; Marshall, 2016).

all of whom shared deep and abiding concern for "an *organic* rather than a mechanical view of nature" (p. 31, italics added). Proponents of a Process-Relational conceptual framework espouse a view of organisms—both humans and nonhuman—as thoroughly immersed in and integrated with the worlds they occupy and of organismic activity as necessarily contextualized and situated, with "all facets of the individual and the context exist[ing] in mutually influential relations" (Overton & Lerner, 2012, p. 376).

This is a view of the human not as an observer reflectively removed from the world but as, first and foremost, an open, holistic system in constant, direct, immersive exchange with the world, an intersubjectivity of being (Overton, 2015). It is a view fundamentally attuned to the philosophical field of phenomenology and phenomenologists' (such as Heidegger, Sartre, and Merleau-Ponty) assertion that "our way of being in the world . . . is characterized primarily in terms of *practical action* . . . our primary way of encountering worldly entities is by using them rather than by theorizing about them or perceiving them in a detached manner" (Gallagher & Zahavi, 2012, p. 171, italics added). In other words, baselines for human psychological functioning should be modeled after our *prereflective*, direct engagement with the world. For this is our everyday, "original experience of the world" (Gallagher & Zahavi, 2012, p. 99)—the ceaseless, being-in-the-world, *lived body* experience that necessarily preconditions any detached stance we might possibly adopt in reflecting upon the world or our experience within it. Our subjectivity and experience are *whole* organism phenomena, borne of our immediate immersion in the world and irreducible to any of our constituent parts as organisms.

In the Process-Relational scientific paradigm, the organism as thoroughly embodied and embedded, actively and directly engaged in practical, prereflective commerce with the world, constitutes the everyday state of affairs for human beings. One of its most robust expressions can be found in current theoretical work, such as Di Paolo et al.'s 2017 book on "sensorimotor life," that advances the *enactive* approach to psychological functioning, an approach to embodied cognition first introduced by Varela, Thompson, and Rosch (1991). In describing the enactive approach, Di Paolo et al. (2017) describes enactivism "as a *lifelike* process anchored in the living body . . . the living and the lived body, the material and the experiencing body—is conceived as the source of all that the mind is and can be" (p. 20).

In a time of planetary ruin by the dominant culture, it may be especially appropriate for psychology to reexamine its worldview. As David Kidner (2001) points out, we are a particular kind of animal with an evolutionary history both of which modern industrial society suppresses while promoting the idea that technology frees us from nature and its constraints. He points to psychology's role in keeping the illusion of separation and detachment going:

> Psychology's active support for a form of individuality that is consistent with industrialism is therefore misleading in two crucial, and related, respects: first, in the implication that the person studied as an isolated entity separate from culture or nature is either whole or healthy; and, second, that alternative forms of personhood are somehow necessarily deficient. (Kidner, 2001, p. 56)

Though the computer metaphor and the conventional, Cartesian-inspired approach to psychological functioning that it serves remain a mainstay of the discipline, a viable, organically inspired alternative is waiting in the wings. Critically, what contributes to these misconceptions is that nearly everyone from a western-industrialized nation has been raised outside the species-typical developmental system. Baselines for raising a human being have shifted in those societies, influencing human capacities and nature (Narvaez, 2017). We look at an alternative conception next, a relationally inspired evolutionary systems account for baseline conceptualization and construction.

Baselines for Human Functioning: An Evolutionary Systems Account

To establish baselines for a species, we need to take into account an animal's evolutionary history. Humans evolved through the tree of life and share many characteristics with other animals, from spines to mitochondria (Shubin, 2009). As young animals, humans are in need of nourishment, warmth and safety to survive. Some might assume that this is enough to worry about, because evolution only requires surviving to reproduction, but this is a misunderstanding. Social mammals need much more to survive, thrive, and reproduce. Evolution by natural selection requires outcompeting one's rivals (Lewontin, 2010) that depends not only on better survival, but thriving. And the competition occurs over multiple generations of descendants.

Though similarly emerging from the social mammalian line, humans are distinctive from other apes because of the move to bipedalism over the course of evolution. This move resulted in narrowed pelvises, requiring children to emerge when highly immature—actually showing characteristics of fetuses until about 18 months of postnatal age and growing the brain from about 25% of adult volume at full-term birth to about 60% in the first year, 90% by age 3 (Montagu, 1968; Trevathan, 2011). As a result, human brains are experience-expectant, relying on an ordered and regulating set of experiences for brain construction and wiring (Cushing & Kramer, 2005; Greenough, Black, & Wallace, 1987). As the most immature of primates with the longest time to maturity (three decades), and a most plastic and epigenetically malleable neurobiology (Gomez-Robles, Hopkins, Schapiro, & Sherwood, 2015; Moore et al., 2017), young humans require deep and extensive nurturing. What evolved that could function in the service of meeting such needs?

Like other animals, humans evolved a developmental system that matches up with the developmental timings of the young. This developmental system, or *niche*, is counted as one among many inheritances, other than genes, from our ancestors (Gottlieb, 2002; Oyama, Griffiths, & Gray, 2001; West-Eberhard, 2003).[2] The evolved niche is largely like that of our social mammalian ancestors, a lineage that emerged over 30 million years ago with an intensive niche that has only deepened with human evolution. The common characteristics of the evolved niche have been noted by anthropologists studying nomadic foragers around the world (the type of society in which humanity spend 99% of its genus history; Hewlett & Lamb, 2005). The niche for young children includes soothing perinatal experiences (no painful procedures, no separation of baby from mother), breastfeeding on request for several years, caregiver responsiveness, extensive affection, self-directed social play, multiple allomothers, and positive social support for mother and baby (Hrdy, 2009; Konner, 2005, 2010)—a set of practices now called the Evolved Developmental Niche (EDN; Narvaez, Gleason, et al., 2013).

We can identify the EDN as part of humanity's evolutionary inheritance, but then we must also examine why it is important. Humans are biosocial *becomings* (Ingold, 2013), developing biologically dynamically through social experience interacting with maturational schedules and sensitive periods for a host of systems, especially in early life. There are constant, real-time, inseparable coactions between persons and their social and physical worlds, resulting over time in periods of developmental stability and periods of dramatic

[2] Other inheritances include self-organization and plasticity, ecology, and culture.

organizational transformation in persons and their relations to the world around them. These are the dynamics of self-organization (Overton, 2013; Oyama et al., 2001). Sensitive periods abound under these circumstances (Knudsen, 2004; Kuo, 1967). For example, when mammals miss certain experiential relations with their worlds (e.g., affection) in early life, deficits are likely to follow that undermine wellbeing, such as a defective oxytocinergic system (Wismer Fries, Ziegler, Kurian, Jacoris, & Pollak, 2005) and misdeveloped epigenetic controls of anxiety (Champagne, 2014). Long term health and well-being are influenced by the quality of early experience (for reviews of different aspects, see Buckley, 2015; Narvaez, Panksepp, Schore, & Gleason, 2013; Shonkoff et al., 2012; Shonkoff & Phillips, 2000). Multiple systems undergo rapid development during the early years including the major stress response system, which establishes parameters that last a lifetime (Lupien, McEwen, Gunnar, & Heim, 2009; Murgatroyd, & Spengler, 2011). Does the EDN matter beyond preventing physical disease or lack of thriving? Animal models suggest that a species typical niche matters for the development of systems related to sociality, and that such effects even extend across generations (e.g., Franklin, Linder, Russig, Thöny, & Mansuy, 2011). To further address this question, we need to examine societies that provide the EDN and observe how they differ from societies that do not provide it.

Humanity spent 95–99% of its existence in small-band hunter-gatherer communities (SBHG). These societies have few possessions, do not cultivate plants or domesticate animals, and forage nomadically in similar patterns throughout life. They have been studied all over the world by anthropologists and are shown to provide the EDN (Hewlett & Lamb, 2005). SBHG adults are typically described as calm, content, generous, independent, and communal (for reviews, see Ingold, 2005; Narvaez, 2013). Such were perceptions of native peoples when they were encountered by first contact explorers to the New World, like Columbus (Siepel, 2015). Native personalities appear to be set to a more *empathic* than *egoistic* orientation (Cory, 2016). Using Big-Five personality theory, a recent study of the Tsimane, a forager-horticulturalist people who likely provide components of the evolved nest, found a "big two"—communally oriented factors of prosociality and industry (Gurven, von Rueden, Kaplan, & Massenkoff, 2013). Because human personality and capacities are already in the process of dynamic construction early in life (Hood, Tucker Halper, Greenberg, & Lerner, 2010), we can surmise that the EDN provided by these societies helps to ground the common adult personalities found across such societies worldwide. Indeed, longitudinal studies of child development indicate that responsive and affectionate care fosters secure attachment and a cooperative personality (e.g., Kochanska, Koenig, Barry, Kim, & Yoon, 2010; Narvaez, Gleason, et al., 2013). Moreover, a secure attachment relationship, itself linked to responsive care, serves as a protective factor in the presence of psychopathological risk conferred by the short allele of the 5-HTTLPR serotonin transporter gene which is linked to neuroticism (Kochanska, Philibert, & Barry, 2009).[3]

However, the reader may protest, modern societies typically do not provide the EDN, or much of it, yet the human species has taken over the planet—7 billion and counting. Is this a sign of evolutionary success, and does this show that the EDN does not matter for evolutionary success (J. Belsky, personal communication, 2016)? Is the whole "goal" of evolution to proliferate? Actually, evolution is marked by greater and greater *diversity* of species, not more of one species—"Endless forms most beautiful" (Darwin, 1871/1981). Diversity is critical for the flourishing of an ecological community, with each species having its niche (Wilson, 1988). Darwin's (1859/1962) theory of natural selection describes a mechanism for population-level changes in species evolution and divergence. The theory does not discuss how a plethora of species get along day to day, which requires a balanced cooperation within narrow parameters (Paracer & Ahmadjian, 2000), characteristically on display in societies that live close to the earth (Descola, 2013). On a day to day basis, the natural world evolved to be deeply mutualistic and cooperative (Margulis, 1998; Paracer & Ahmadjian, 2000). Birds warn other species of predators. Animals share water holes with their predators (when the predators are not hungry). Forests are communities of shared resources and communications with "mother" trees who share nutrients through their roots even with other species (Wohlleben, 2016). For humans too, hyper-cooperation was a significant factor in human adaptation (Burkart et al., 2014). For example, the (postmenopausal) grandparental generation has been a key part of the EDN, supporting mother and child survival and wellbeing (Hawkes & Coxworth, 2013; Hrdy, 2009). Early life social stress breeds poor health and early death (Felitti & Anda, 2005), characteristics that did not help human ancestors survive, thrive and reproduce. Moreover, a species' history is largely about conservation of prior adaptations from one generation to the next, not about competition. Most things inherited do not change from generation to generation. For example, any given pair of humans share over 99.9% of their DNA, inherited over many generations, differing on 1/1000 base pairs (<.1% of DNA; National Institutes of Health, 2007).[4]

A too-common assumption in psychology is that genes are dominant and environment is almost incidental to the individual's outcomes (Azar, 2002), rather than understanding that there are multiple inheritances beyond genes such as a species-typical developmental system, which shapes the expression of many genes. Self-organization represents another inheritance. Young humans self-organize through their real-time activity in relation to the worlds they occupy, so important distinctions must be made. *Functional* adaptation within a lifetime is not the same as *evolutionary* adaptation (in the genetic fitness sense; Narvaez, Gettler, Braungart-Rieker, Miller-Graff, & Hastings, 2016). In the context of getting fed and not further abused, a circus elephant develops tricks to entertain an audience, but this is not evolutionary adaptation. A child who develops aggressive tendencies in the context of growing up in an unresponsive and threatening setting is functionally, but not evolutionarily, adaptive. The child's increased aggression reflects developmental plasticity of multiple systems that are largely shaped in the early years of life such as the stress response (e.g., HPA; Lupien et al., 2009) and self-regulatory neurological mechanisms related to social capacities (Schore, 2003). The hyperreactivity of the stress response and underdeveloped foundations for sociality undermine the fitness of the individual (Suomi, 2006). In summary, early life stress (the missing EDN, trauma, and abuse) undermines brain development, leading to various pathologies because of stress reactivity and underdeveloped socially relevant systems.

Nevertheless, many researchers seem to assume that the experiences of children today are in the normal range for the species. This assumption guides research designs that consider only simplistic, self-protective responses during trauma or generalize from studies of nonhuman animals who are much less social and socially constructed

[3] In industrialized nations, where genetic studies are typically done and where the EDN is degraded, no specific gene has been found to be linked to any particular psychiatric disorder without an environmental component such as abuse in childhood (Abdolmaleky, Thiagalingam, & Wilcox, 2005). Experience plays a role in which genes are expressed.

[4] Moreover, 90–99% of genes that a person carries are not human but belong to the trillions of microorganisms that keep the person alive (Dunn, 2011). So then, what is competing?

(van der Doelen, Kozicz, & Homberg, 2013). Instead of questioning the nature of society today and its undermining of child development and human nature, many scientists create "just so" stories to rationalize what they find before them, again, because no understanding of a baseline for the species is held in mind. For example, a recent article in *American Psychologist* (Lewis, Al-Shawaf, Conroy-Beam, Asao, & Buss, 2017) summarized evolutionary psychology studies. The research reviewed focused on methods for staying alive (i.e., avoiding dangers, toxins, and attack; detecting cheaters) and mating—foci that represent concerns of organisms earlier in the tree of life, as if all it means to be human is to survive and reproduce. The foci show the limitations of gene-centric theory in tandem with a downwardly shifted baseline for human functioning, missing the higher-order capacities of humanity and what has been adaptive for humans—cooperative sociality—whose complexity takes decades of developmental support to fully attain. Nomadic foragers today demonstrate hyper-cooperation with nonkin (Hill et al., 2011). As noted, selfishness in adults traditionally has been considered witchcraft or madness in need of healing by other societies (Sahlins, 2008), but psychological science has reified selfishness as fundamental to human functioning. Instead of asking how a human adult can act selfishly and ruthlessly, which the vast majority of societies would wonder, the focus in Western psychological (and economic) sciences is on how an adult human can be altruistic. This reversal in understanding what mature human nature can be may be related to the pervasiveness of sociopathy that, according to sociologist, Charles Derber (2013), now governs U.S. societal institutions. He notes that sociopathy

> . . . is antisocial behavior by an individual or institution that typically advances self-interest, such as making money, while harming others and attacking the fabric of society. . . . *A sociopathic society, paradoxically creates dominant social norms that are antisocial—that is, norms that assault the well-being and survival of much of the population and undermine the social bonds and sustainable environmental conditions essential to any form of social order*. (pp. 4–5, italics in original)

Derber goes on to spell out ways U.S. institutions undermine human wellbeing and ecological sustainability based on what he calls antisocial norms, including the assumption of self-interest and the dominant focus on making money. In comparing advanced nations, the United States with the most degraded developmental niche generally, typically scores at or near the bottom for wellbeing in children and adults (National Research Council, 2013; Organisation for Economic Cooperation & Development, 2009, 2013).

These are signs of shifted baselines. Perhaps more importantly, today genetic competition and maximizing representation into the next generations seems like an inadequate marker of "success," as humans are overwhelming the planet's biocommunities, throwing everything out of balance, and destroying the diversity that has been the outcome of evolutionary processes. Nor is it advantageous for a species to systematically destroy its habitat as humanity is doing to planet earth or to toxically stress its young by not providing the species' evolved developmental system.

Conclusion

The most predominant worldview apparent in the practices and discourse in psychological science is governed by *Cartesian* presuppositions that are rooted both in pre-Darwinian views of humans as the culmination of progress in evolutionary design, as well as in neo-Darwinian, information age views of humans as information processors. We have countered this worldview with an alternative, *relational* metatheoretical framework for conceiving of species-typicality and of what constitute appropriate baselines for growing optimal human functioning and wellbeing. To be clear, we also advocate a rejection of the separation from nature and superiority to it, views that imbue much of psychological science. Thus, our critique is not a postmodern critique of Western science per se, but of the implicit assumptions that guide design and interpretation of empirical study.

Our aim has been to point out how psychological science, in general, has not attended to the evolutionary history of humanity in its construction of baselines for human functioning. Our article has emphasized a reexamination of basic assumptions, but these values and cultural roots run deep. As it is, there is a certain sort of fatalism that imbues Western psychological science—that there is no other way to be, that ill being is collateral damage of progress, that evolution has made us naturally selfish and aggressive and there is nothing to be done. However, just like traveling to another distinctive culture is a way to learn that you have a culture, traveling mentally to a different worldview is the first step in realizing that the world is experienced differently by others. This article is just a beginning, an alert, that the dominant presumptions are only assumptions and rare ones in the history of humanity.

What changes are needed? Here are a few suggestions in brief. First, many researchers are not aware of their assumptions *as* assumptions and have little sense of alternative views. They have often been hot-housed into their particular silo, with little experience outside of it. For psychological education, the following are needed: (a) Bring back history/systems theory into the psychology curriculum and include a transdisciplinary focus on human sciences, including native science (Cajete, 2000); (b) Emphasize the need to embrace the complexity of the phenomena that are studied in science rather than focusing on explaining away such complexity (Mitchell, 2009), much as John Muir (1911), following Alexander von Humbolt (Wulf, 2015) and George Perkins Marsh (1864/2003), noted: "When we try to pick out anything by itself, we find it hitched to everything else in the universe" (p. 211); (c) Include in published articles authors' philosophical or cultural disclosures regarding basic assumptions about humanity, much like disclosures about hypotheses and samples; (d) Acknowledge in research participants not only WEIRDness but also "nestedness"—degree of EDN experienced in childhood.

Second, explicit attention to and support of the EDN is needed. To the knowledge of the authors, no professional psychological association provides guidance to parents on early life care beyond responsiveness or domain-specific recommendations (e.g., screen exposure). Adopting the EDN as a baseline for child raising would not only give parents consistent guidance, it would allow researchers to measure child developmental differences and the dynamics concerning the nature of care received. Researchers across domains could operationalize species typicality for different phases in life and, for example, measure its degree in participants, analyzing what differences the EDN makes in terms of multiple physiological systems related to psychological functioning, psychological characteristics themselves and multigenerational fitness. Based on research findings made with a consistent species-typical baseline, policymakers would be better able to make informed choices about how best to structure social institutions and social support to ensure citizens have a chance to develop optimally.

Third, more cross-disciplinary research with those outside of psychology should be encouraged. For example, recent scientific breakthroughs regarding epigenesis and the microbiome necessitate taking into account the social nature of our biology at all levels, including neurotoxins and endocrine disrupters that influence personality, intelligence, and life outcomes (Grandjean & Landrigan, 2014). A child having a baby at 9 years old does not represent an evolutionary

phenotype but indicates an environment gone awry—toxic stress to a developing organism, most notably an environment poisoned by heavy metals or endocrine disruptors like plastics (Özen & Darcan, 2011). Psychology should shift to a multilevel integration of gene, microbiome, neuroendocrine, and neuronal systems, among others. Overall what is needed is theory, research and application of social neurobiology.

Finally, these are ethical issues. Should not individuals be given their birthright of a supportive development niche, or nest, for the reasons of justice—especially in this era when WEIRD and unnested humans have put us on the brink of global disaster? Certainly it is more convenient and, unfortunately, acceptable to argue that selfish genes encourage us to give into our worst sentiments. Instead, psychology can embrace a human nature that lives in partnership *with* instead of *against* the natural world, one where fulfillment of human potential is an aim and not an accident. In other words, psychological science should take responsibility to understand the dynamism of human potential at every age and how best to support and promote it within a living world. Should this be a primary professional responsibility?

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