

Evolution, Child Raising and Compassionate Morality

Darcia Narvaez

*Narvaez, D. (2017). Evolution, childrearing and compassionate morality. In Paul Gilbert (Ed.), *Compassion: Conceptualisations, Research and Use in Psychotherapy* (pp. 78-186). London: Routledge.

Introduction

The focus of most scholarship on compassion is adults and adulthood, yet according to what will be discussed here, we should be paying attention to the effects of early life experience on its development. Moreover, a human-centric compassion is incomplete. Compassion must also be directed to more-than-human life. In fact, this inclusivity is a part of humanity's ecological inheritance of cooperation, but which requires the evolved developmental niche or nest (EDN) to develop properly. With the EDN humans develop an organic morality, relational attunement with the natural world, grounding ego-self in commonself, the whole of life.

The Setting

Although many Western scholars and media journalists assume human nature to be naturally selfish and aggressive, following Hobbes and Thucydides, this is an unusual assumption in the history of human societies (where most presume divine origins and cooperative natures after childhood; Sahlins, 2008). What is misunderstood by those holding the Hobbesian view is that much of human personality is epigenetic. In fact, child development is a rapidly shifting epigenetic, plastic undertaking that arises from the interaction among such things as built-in basic needs, cultural press on parents and their caregiving skills, and the ongoing emergent characteristics and maturational schedule of the child. Children develop as if in a 3-D printer: thousands of layers upon layers of multiple systems and subsystems are built moment-by-moment from social and other lived interactions, shaping the person and the trajectory of development. Moreover, for every complex behavior, hierarchical layers of systems have interacting sensitive periods during development (Knudsen, 2004)—if care is inappropriate during these times, the system may never be properly established (e.g., anxiety controls, Meaney, 2001). If early layers are mislaid, through maltreatment or even undercare, the individual will have gaps or misshaped systems (e.g., misreactive stress response, Lupien, McEwen, Gunnar & Heim, 2009).

I believe undercare happens routinely in “civilized” societies, like the USA, because the culture (shared practices and beliefs) aims to control babies instead of providing for their evolved needs. Such cultures often thwart instinctive caregiving practices through parental shaming and lack of support. The result is the feared and dismaying selfishness and aggression presumed to be genetic (Wrangham & Peterson, 1996). But, as noted, these characteristics too are primarily epigenetic in the broadest sense. Thus, the type of human that these Western scholars consider normal, is *abnormal* in many ways. But what is normal? To determine baselines for normality and potential, we need to understand human heritages.

EVOLUTIONARY INHERITANCES

To comprehend how our baselines have shifted, it is important to understand humanity's inherited nature, its setting and its plasticity. We must examine humanity's inheritances, which include not only genetic material but things that are transferred across generations outside of genes (extra-genetic) (Jablonka & Lamb, 2005; Oyama, Griffiths & Gray, 2001). Although there are multiple extra-genetic inheritances, three are mentioned here: cooperation in Nature, the evolved developmental niche and human biosocial plasticity.

Cooperation in Nature. Animal and plant life on the planet are built around layers and layers of cooperation and companionship. Every life form exists in a web of memory from the past and mutual support in the present. Even humans are “symbionts on a symbiotic planet” (Margulis, 1998, p. 5). Humans are alive because their bodies are filled with trillions of bacteria, carrying many more bacterial genes than human genes (Dunn, 2011). Everywhere in the natural world, cooperation is commonplace. For example, forests are a complex “exquisite symbiosis among living tree, living fungus, dead tree, burrowing mammals and even...insects of the soil;” and the normal biodiversity is adaptive—forests with more mycorrhizal fungi in root systems are better protected from acid rain (Luoma, 1999, p. 111, 128). Although we may not want to call natural dynamic systems like this compassionate, they do represent what is called mutualism, the ongoing give-and-take-and-give of the natural world (Kropotkin, 2006; Worster, 1994). Human embodiment, from gut to brain, fits cooperatively into the social and natural world.

Species-Typical Nest. The anthropologist, Colin Turnbull (1983), contrasted what he called his spirit-killing British upbringing with the life-enhancing upbringing of the Mbuti, whom he studied. The Mbuti follow the species-typical nest noted around the world among small-band hunter-gatherer societies, the type of society in which the human genus spent 99% of its history. What is the species-typical nest for human young?

First, it must be noted that humans are highly immature at birth and should be in the womb another 9-18 months compared to other animals whose bone growth is complete and are mobile at birth (Trevathan, 2011). As a result many human brain and body systems set their parameters and thresholds *postnatally* (e.g., stress response) in interaction with expected experience. Child raising practices are notably similar around the world in SBHG societies. Here is the brief list of components of the human nest, what my colleagues and I call the Evolved Developmental Niche:

- **Soothing perinatal experiences** (e.g., no separation from mother; no induced pain)
- **Breastfeeding on request:** nursed frequently (2-3 times/hr initially) for 2-5 years
- **Affectionate touch:** babies¹ are held, carried and kept nearby virtually all of the time.
- **Responsivity:** baby's needs and interactions warmly responded to; companionship throughout life
- **Free play:** self-directed free play in natural world with multiage playmates

¹ Babies refers to children under age 2.5.

- **Positive social support:** high social embeddedness including being frequently cared for by individuals other than mothers (allomothers such as fathers and grandmothers, in particular)

See the first column in Table 1 for a list of common effects. Converging evidence suggests that the species-typical nest provides the type of experiences that a baby's body/brain expects for developing species-typical capacities. Why do the EDN components have such effects?

Table 1. The Effects of the Evolved Development Niche on Child Outcomes

Evolved Developmental Niche (EDN) with samples of general effects ¹	Sample effects on young children's moral development ²
PERINATAL EXPERIENCES Vaginal childbirth (instead of cesarean section) Baby can initiate breastfeeding and cascade of hormones in mother (Trevathan, 2011)	Empathy, conscience, self-regulation
BREASTFEEDING Immune system, non-depression, intelligence, perception, less cancer and diabetes, all around better health (USDHHS, 2011)	<i>Initiation:</i> conscience, intelligence; <i>Length:</i> conscience, inhibitory-control
TOUCH Growth, self-regulation, genes turned on to control anxiety (not turned on with lack of touch) (Meaney, 2001)	Empathy, self-regulation, conscience, intelligence, relational attunement, (lack of) social opposition, (lack of) social withdrawal
RESPONSIVENESS Calm brain, low stress reactivity, instigates calming hormones (e.g., oxytocin) which in early life significantly affect neurobiological development. vagus nerve well established (Porges, 2011)	Cooperation, non-depression, non-aggression, self-regulation, relational attunement, (lack of) social opposition, (lack of) social withdrawal
PLAY Self-regulation, social skills, no ADHD (Panksepp, 2007)	Empathy, self-regulation, relational attunement, (lack of) social opposition, (lack of) social withdrawal
POSITIVE SOCIAL SUPPORT Overall child outcomes better (Hrды, 2009)	Competence, cooperation, non-aggression, intelligence, relational attunement, (lack of) social opposition, (lack of) social withdrawal

(1) For expert reviews and more references, see Narvaez, Panksepp, Schore & Gleason, 2013; Narvaez, Valentino, Fuentes, McKenna & Gray, 2014; Narvaez, Braungart-Rieker, Miller, Gettler & Hastings, 2016. (2) Unless otherwise noted, findings are from our studies: Narvaez, Gleason, Wang, Brooks, Lefever, Cheng, & Centers for the Prevention of Child Neglect, 2013; Narvaez, Wang, Gleason, Cheng, Lefever & Deng, 2013; Gleason, Narvaez, Cheng, Wang & Brooks, 2016.

Human biosocial plasticity. Humans are dynamic systems who are born with many psychobiosocial propensities that are shaped by experience after birth. Humans come from a tree of life where emotion systems are ancient. Capacities to deliberate and think linearly are recent developments in the tree of life. Although many of us may think of ourselves as *thinking creatures* that *feel*, biologically we are *feeling creatures* that *think* (Taylor, 2009, p. 19).

Emotions evolved as “psychobehavioral potentials” whose functions are shaped by experience, and for humans, particularly by caregivers (Panksepp, 1998). The infant and the caregiver's attachment systems provide a mechanism by which the rudimentary nervous system of the infant can be co-constructed by the caregiver. As an “external psychobiological regulator,” the caregiver helps shift external into internal regulation, increasing the complexity of maturing brain systems as they learn to adaptively regulate interactions between the baby-self and the social environment, particularly the mother (Schore, 2001a, p. 202). During prenatal and perinatal life, brain stem neuroendocrine and neuromodulatory systems that govern the HPA axis and regulate the maturation of the neocortex are developing rapidly (Aitken & Trevarthen, 1997; Bear & Singer, 1986; Durig & Hornung, 2000; Schore, 1994; Osterheld-Haas, Van der Loos, & Hornung, 1994). Under good-care conditions, by four months postnatally the connections between the amygdala and sites mediating motor activity and distress have become mature (Weber, Watts, & Richardson, 2003). Before that time, reactions to unfamiliar events are not patterned clearly, though loud noises can trigger fear.²

Daniel Stern (1993, 1999) described the delicate matchings of expression between mother and infant as an attunement of *vitality contours*, the “essential musicality of intuitive parenting communication,” signaled through modulations of the intensity of movement (Papousek, 1996, p. 65). Their relationship is dynamic, guided by affection and disaffection, with displays and evaluations of shared purposes and interests. This rich, positive social experience results in the child's secure attachment and capacities for mutual responsiveness and reciprocity, social intersubjectivity (self to self), dyadic meaning making and repair (Tronick & Beeghly, 2011). One can say that *what babies practice is what they become*. When raised in a species typical manner, develop a deep sense of reciprocity with others which facilitates moral functioning.

Moral Development

Early life is an apprenticeship for social and cognitive development. Thus, when babies are treated with compassion and interact with empathic, emotionally-present others, they are practicing the dances of empathy and prosociality while their brains are sensitive to establishing the neurobiological underpinnings of those systems which will be used throughout life (e.g., vagal tone; Porges, 2011; oxytocin system; Carter 2003). In the EDN, the baby practices the precursors of compassion: presence, empathy, intersubjectivity, reciprocity, perspective taking, playful co-construction of narratives, and reverence—the *beholding* of the other. Babies construct the foundations for expertise (knowhow) in sociality, using their

² Kagan and Fox (2006) argue that reactivity is not a *fear* reaction (unless the stimulus is a known danger) but a *surprise* reaction—surprise in response to the unfamiliar. Of course, these reactions can be linked if a child is not helped with self-regulation, so that as an adult, the unfamiliar is frightening.

emotion and cognitive systems to get along with others with agility and nuance (Aristotle's "social fittedness"). They learn to "resonate" with the treatment they receive and the varying intersubjectivities they encounter and co-construct in social relations. The child builds a biosocial personal grammar for the social life that will underlie all future relations (Narvaez, 2011; Stern, 2010; Trevarthen & Delafield-Butt, 2013).

Early experiences shape different life narratives (Schore, 1994). Personal guiding narratives are embedded in biology. Every organism has a story grammar written into its being, formed by early experience: patterns of need-response-outcome. These are biologically engraved and difficult to change later. If the need-response-outcome patterns become frequent and predictable, the child takes the internalized narrative into his/her personality. Thus, a baby learns its habitual life-guiding social narratives from caregiver treatment (called "internal working models" by Bowlby, 1951). When the baby's needs are trusted and satisfied, guided gently towards calm prosociality, the child develops a sense of trust in self and the world. The internal impulses are reliable; the world is worthy of trust; I can relax. Warmly responsive caregivers, providing companionship care, gently shape the impulses towards self-control and prosociality. So for example, as demonstrated in SBHG, when surges for autonomy occur in toddlerhood, the child is not discouraged but redirected away from aggression, supported in their prosocial self-development (Hewlett & Lamb, 2005; Narvaez, 2014). There is no punishment or coercion. Instead, the child learns to move *with* community values because mother and caregivers embrace the child's needs without complaint. The EDN, whose effects we have noted, provides what we might call a *Compassion Acquisition Support System*. Under conditions of the EDN, human nature naturally grows in cooperative, ways.

Children raised in the evolved nest tend to show the characteristics of Darwin's (1871) moral sense: social pleasure, empathy, concern for the opinion of others and habit development in response. These characteristics are less apparent in societies where the EDN is degraded (Narvaez in press). Adults in EDN-providing societies also demonstrate Darwin's moral sense and are generous, egalitarian, honest, and cooperative (for review, see Narvaez, 2013). They demonstrate flexible relational attunement, which emerges from the layers of sociality capacities built from the beginning of life. I call this an engagement ethic (Narvaez, 2008, 2014, 2016).

Engagement involves the ability to employ emotions well—emotional intelligence—such as the ability to recognize, regulate, and express emotions effectively (Brackett & Mayer, 2003). But more than that, an active engagement ethic involves relational commitment and attunement to the other in the present moment. There is a sense of fellow feeling that encompasses the same concern for the other as for self in terms of justice, care, mercy, and reciprocity. Me+me becomes we. Positive social emotions are activated, including empathy/sympathy, generosity, and charity. An engagement ethic means that the welfare of the other who is present is taken equally into account when action is taken. It's a no-self approach to social relations as a shape-shifting social self is newly co-constructed with the other in a responsive dance. These capacities are mostly tacit and shaped by experience during sensitive periods (e.g., early life, adolescence, emerging adulthood).

EDN-provision also influences higher order capacities (abstract thought, imagining possibilities) which build on these relational capacities to bring about a communal imagination. Communal imagination allows one to move agilely within appropriately representational processing and content spaces, integrating controlled-automatic and specific-abstract aspects appropriate for the situation (the iCASA framework; Koutstaal 2013). Communal imagination

emphasizes the common good (Daly & Cobb, 1989) and ecological interdependence (Worster, 1994), fitting with notions of universalism, tolerance and democratic processes. Communal imagination fosters the collective coordination of building moral institutions (Narvaez, 2010).

This is the species-typical story of organic morality, a morality embedded in the tree of life and grown with an acceptance of human animal needs and grounded in earth-based living systems. This orientation of providing for children's built in needs and living with the earth is still apparent in some traditional societies (e.g., Bolin, 2010; Mendoza, 2016). Species-typical personalities lead to compassionate and communally imaginative morality.

Although the discussion to this point emphasizes individual capacities, humans are social creatures throughout life. Human nature and personality are malleable. They can shift based on the choices individuals and communities make. The brain/mind requires appropriate environmental support for its optimal development until adult maturity (around age 30). After that it still requires positive, supportive social experience that keeps the mind attuned to the community and the brain awash in prosocial hormones. Otherwise, morality can go awry, as evidenced in faulty cognitive or affective processes, resulting in violence to self or others.

But what happens when upbringing is species atypical? Not only neurobiology is affected but also sociality. Moral development and moral functioning go awry when the EDN is degraded. The deep moral core of humanity's heritages may never develop.

Undercare. Growing a child with a degraded nest is like growing a plant in the closet. The plant will be weak and easily stressed. But of course it is worse because of the complex epigenetic factors that are scheduled to occur in a human's early life. Hofer (1987, 1994; Polan & Hofer, 1999) tested eight physiological systems in rat infants and found that the presence of the mother coordinated each one, corroborating Lewis and colleagues' (2000) point that the mammalian nervous system cannot build itself alone but requires the caregiver's "hidden" regulation of infant development across sensory systems (e.g., olfactory, tactile). Without appropriate care in early life, mammals grow up with erratic biological systems that are easily thrown into disarray when unpredictable things happen (Meaney, 2001). Lacking limbic regulation, mammals can slip toward physiological chaos. Indeed, mammalian maternal touch can lower an infant's heart rate during a distressing experience, which trains the infant's systems for adaptive responding to stress (Calkins & Hill, 2007). Isolated monkeys may survive isolation from caregivers, but not very well. Their systems become lastingly disorganized, preventing them from socializing (and reproducing). Abused and neglected children develop in disorganized ways similar to those of isolated monkeys. In both cases, "interlocking neural barriers to violence do not self-assemble" resulting in "a limbically-damaged" being that is "deadly"; severe neglect results in "a functionally reptilian organism armed with the cunning of the neocortical brain" (T. Lewis et al., 2000, p. 218). These are extreme cases, but how much damage is caused by an unloving early life? We can all tell the difference between a child who is well loved and one who is not. Knowledgeable loving care provides extensive experiences of intersubjectivity, critical for establishing conscious and unconscious capacities for relational communication and connection. Experiential deficits may damage capacities for empathizing and sympathizing. With poor early care, self-regulatory mechanisms in multiple systems may not develop properly. When overactivated for any period of time, stress hormones melt synapses and change gene expression (Kang et al., 2012) undermine long term physiological and mental health, especially when this occurs during the rapid development in early childhood. As a result, the stress response systems can be faulty for life.

Triune ethics. Triune ethics meta-theory (TEM; Narvaez, 2008, 2014, 2016) describes humanity's moral heritages and the ways morality develops in species-typical and species-atypical circumstances. Our human moral heritages include engagement and communal imagination but toxic stress in early life can undermine their development. A child misdeveloped or undercared for develops stress reactivity. The nature of the stress response is that when it is triggered, there is a shift in blood flow away from higher order thinking and toward mobilization for flight-fight-freeze-faint. The survival systems of the brain take over, impairing complex, nuanced thinking (like perspective taking) and undermining openness to others. Too much personal distress can promote social panic, social withdrawal, internalizing, or externalizing, undermining sociality. Contrary to relational attunement, these represent enhanced survival systems. When guiding behavior they become an ethic and can become dispositional protectionist ethics.

We study aspects of the EDN in my lab, relating its characteristics to wellbeing and morality in children and adults.³ By investigating the precursors of these TET orientations, we hoped to illuminate the relation between EDN and moral capacities. The right column of Table 1 shows some of our findings, demonstrating that characteristics of the EDN are related to children's moral development, from self-regulation to empathy. It is not surprising that sociomoral functioning depends on biological functioning because the development of a well functioning neurobiology means that social systems too function flexibly in response to changing situations. Humans are embodied creatures who are biosocially constructed by experience, especially in early life when the child is highly immature but dynamically flexible.

Culture. Our indigenous cousins, and most societies in human existence, have high expectations for virtue—skills and motivations for living well with others in ways that promote flourishing. But their virtue is inclusive of the local landscape, of other-than-humans—an ecological mindfulness that considers humans to be one member of a biodiverse, mutually-related community. Ecological virtue requires embeddedness in one's landscape and the development of *ecological attachment*. It represents moving *with* rather than *against* Nature. Within the hunter-gatherer worldview, "characteristics of [individuals] . . . are not so much expressed as *generated* in the course of development, arising as emergent properties of the fields of relationship set up through their presence and activity within a particular environment" (Ingold, 2011, p. 4). That is, development of the self is "understood relationally as a *movement along a way of life*, conceived not as the enactment of a corpus of rules and principles (or a "culture") received from predecessors, but as the negotiation of a path through the world" (p. 146). Civilized cultures that divorce themselves from ecological systems and the more-than-human world have forgotten this way of being.

The ecological mindfulness that our indigenous cousins display resembles Jill Bolke Taylor's description of the right-hemisphere dominance she experienced after having a stroke in her left cerebral hemisphere: "Our right hemisphere is designed to remember things as they relate to one another. Borders between specific entities are softened, and complex mental collages can be recalled in their entirety as combinations of images, kinesthetic, and physiology. To the right mind, no time exists other than the present moment, and each moment is vibrant with sensation. . . . the moment of *now* is timeless and abundant . . . The

present moment is a time when everything and everyone are connected together as *one*. As a result, our right mind perceives each of us as equal members of the human family. It identifies our similarities and recognizes our relationship with this marvelous planet, which sustains our life. It perceives the big picture, how everything is related, and how we all join together to make up the whole. Our ability to be empathic, to walk in the shoes of another and feel their feelings, is a product of our right frontal cortex." (p. 30-31). Iain McGilchrist (2009) points out how the Western world has suppressed the wisdom of the right hemisphere and instead is governed by the bureaucratic/scientific mode of the left hemisphere (which prefers static dead things and absolute control). In societies governed by this Western mindset, individual self-control and grounded sociality are underdeveloped and so must rely on external braces throughout life such as ideologies, many of which endanger other humans and particularly the more-than-human world.

Among civilized nations, but especially in the USA, EDN-consistent care has diminished. And the consequences are becoming more and more apparent. Here are a few examples. Measures of attachment preference indicates that insecure attachment is rising in the USA (Konrath, Chopik, Hsing & O'Brien, 2014) along with single-adult households, suggesting that social capacities and pleasure in sociality are fraying.⁴ At the same time empathy is significantly decreasing in college students (Konrath, O'Brien & Hsing, 2011). This is not a surprise because when a child's developmental trajectory is redirected by lack of the EDN, he or she shifts toward self-protection, orthogonal to the relational attunement that underlies empathy and compassion in the moment (Gleason et al., 2016). Neocortical capacities for abstraction, planning and imagination are also redirected toward protectionism and away from a communal imagination. Instead, the externalizing force is shaped into a "vicious" imagination of control over others and the internalizing force into a "detached" imagination of relational disengagement.

Virtue is something that seems to have deteriorated in Westernized societies, especially the USA (Derber, 2013), perhaps because of generations of EDN-inconsistent care. Too often, virtue has been narrowed down to anthropocentric, protectionist values. Ecological virtue has been shut out of dominant, civilized cultural narratives, practices and institutions. Instead, humans consider themselves separate and superior to the rest of Nature (Jensen, 2016).

REGROWING OURSELVES

Very few of us were raised with a species-typical nest, which means that as adults we have aspects of ourselves to repair. A fundamental aspect of therapy is to reawaken or activate the right hemisphere (Siegel, 1999).

Before right hemisphere development can occur, the survival systems must be calmed down and become less reactive. Self-calming techniques such as deep breathing, meditation and visualization can help. Compassionate mind training facilitates self-healing (Gilbert, 2009). Self-compassion therapy fosters kindness towards the self, understanding one's common humanity, and mindful acceptance of painful experience (Neff, 2011).

³ Morality refers to the ways we cooperate and get along with one another. Normal moral development includes basic characteristics like self-control and social attunement but also empathy, perspective taking, moral reasoning, and other characteristics.

⁴ Some say that attachment style "should be" based on cultural needs because parents prepare their children for a particular culture. But then one must argue that misdevelopment from a violent family is good. Misdevelopment is not good for humanity or for the planet.

The second step is to build social relational capacities and enjoyment. When a person is fully enjoying the present moment with others, the right hemisphere can grow new connections. Immersion in fun prosocial group activities, in and collaboration with the natural world, Social expression (e.g., folk dancing, spontaneous play) can be taken up to regrow the right hemisphere and sociality.

The third step is to build communal imagination by repairing compassion for the more-than-human, honoring and respecting natural processes; speaking up with concern for all entities as partners. We can find ways to support a sense of a Common Self even through such simple acts of supporting animals and plants on the land we tend.

CONCLUSION

From an evolutionary perspective we can see that human relational responsiveness, directed both at humans and other-than-humans, has been key to human adaptation (Narvaez, 2014).⁵ Although such reciprocal responsiveness forms the social patterns of planetary life generally, humans appear to have potential for more deliberate and organizational reciprocity with one another and the more-than-human. But only when properly developed. If one is aiming to develop compassionate people, one must attend to the dynamism that is human development and to humanity's species-typical nest.

References

- Aitken, K.J., & Trevarthen, C. (1997). Self/other organization in human psychological development. *Development and Psychopathology*, 9, 653-677.
- Atwood, J. B. (1999). Early warning and prevention of genocide and crimes against humanity. *Journal of Intergroup Relations*, 26, 33–39.
- Bear, M.F., Singer, W. (1986). Modulation of visual cortical plasticity by acetylcholine and noradrenaline. *Nature*, 320(6058), 172-176.
- Bolin, I. (2010). Chilliuhani's culture of respect and the circle of courage. *Reclaiming Children and Youth Worldwide*, 18(4), 12-17.
- Bowlby, J. (1951). *Maternal care and mental health*. New York: Schocken.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin*, 29, 1147–1158.
- Bystrova, K., Ivanova, V., Edhborg, M., Matthiesen, A.S., Ransjö-Arvidson, A.B., Mukhamedrakhimov, R., Uvnäs-Moberg, K., Widström, A.M. (2009). Early contact versus separation: effects on mother-infant interaction one year later. *Birth*, 36(2), 97-109.
- Calkins, S.D., & Hill, A. (2007). Caregiver influences on emerging emotion regulation: Biological and environmental transactions in early development. In J.J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 229-248). New York: Guilford Press.
- Carter, C.S. (2003). Developmental consequences of oxytocin. *Physiology & Behavior*, 79(3), 383-397.
- Daly, H.E., & Cobb, J. (1994). *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*, 2nd Ed. New York: Beacon Press.
- Darwin, C. (1871/1981). *The descent of man*. Princeton, NJ: Princeton University Press.
- Derber, C. (2013). *Sociopathic society*. Boulder, CO: Paradigm Press.
- Dunn, R. (2011). *The wild life of our bodies: Predators, parasites, and partners that shape who we are today*. New York: Harper.
- Durig, J., & Hornung, J.P. (2000). Neonatal serotonin depletion affects developing and mature mouse cortical neurons. *Neuroreport*, 11(4), 833-837.
- Gershoff, E.T., Lansford, J.E., Sexton, H.R., Davis-Kean, P.E., & Sameroff, A.J. (2012). Longitudinal links between spanking and children's externalizing behaviors in a national sample of White, Black, Hispanic, and Asian American families. *Child Development*, 83, 838-843.
- Gilbert, P. (2009). *The compassionate mind*. Oakland, CA: New Harbinger.
- Gleason, T., Narvaez, D., Cheng, A., Wang, L., & Brooks, J. (2016). The relation of nurturing parenting attitudes to flourishing in preschoolers. In D. Narvaez, J. Braungart-Rieker, L. Miller, L. Gettler, & P. Hastings (Eds.), *Contexts for young child flourishing: Evolution, family and society* (166-184). New York, NY: Oxford University Press.
- Gottlieb, G. (1991). Experiential canalization of behavioral development: Theory. *Developmental Psychology*, 27, 4-13.
- Gross, J. J. (Ed.) (2007). *Handbook of emotion regulation*. New York: Guilford.
- Hewlett, B.S., & Lamb, M.E. (2005). *Hunter-gatherer childhoods: evolutionary, developmental and cultural perspectives*. New Brunswick, NJ: Aldine.
- Hofer, M. (1987). Early social relationships: A psychobiologists view. *Child Development*, 58, 633-647.
- Hofer, M.A. (1994). Hidden regulators in attachment, separation, and loss. In N.A. Fox (Ed.), *Emotion regulation: Behavioral and biological considerations. Monographs of the Society for Research in Child Development*, 59, 192-207.
- Hrdy, S. (2009). *Mothers and others: The evolutionary origins of mutual understanding*. Cambridge, MA: Belknap Press.
- Ingold, T. (2011). *The perception of the environment: Essay on livelihood, dwelling and skill*. London: Routledge.
- Jablonka, E., & Lamb, M. J. (2005). *Evolution in four dimensions: Genetic, epigenetic, behavioral, and symbolic variation in the history of life*. Cambridge, MA: MIT Press.
- Jensen, D. (2016). *The myth of human supremacy*. New York: Seven Stories Press.
- Kang, H.J., Voleti, B., Hajszan, T., Rajkowska, G., Stockmeier, C.A., Licznernski, P., Lepack, A., Majik, M.S., Jeong, L.S., Banasr, M., Son, H., Duman, R.S. (2012). Decreased expression of synapse-related genes and loss of synapses in major depressive disorder. *Nature Medicine* 18(9), 1413-7.
- Knudsen, E.I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience*, 16 (8), 1412-1425.

⁵ Of course this is true for any earth creature—it must fit into a network of community relations or will eventually perish if it does not cooperate. Dominant “weed” species eventually die out (modern human culture is categorized this way). In recent history, human culture has trumped biology so that natural selection is undermined and people who are raised to be functionally maladapted are kept alive and reproduce, though in the past they would have died, leading to a host of humans who are not representative of our adapted ancestors.

- Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science*, 11(6), 191-195. doi:10.1111/1467-8721.00198
- Konrath, S. H., O'Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: a meta-analysis. *Personality and Social Psychology Review*, 15, 180-198.
- Konrath, S. H., Chopik, W., Hsing, C., & O'Brien, E. H. (2014). Changes in Adult Attachment Styles in American College Students Over Time: A Meta-Analysis. *Personality and Social Psychology Review*, 18(4), 326-348. doi: 10.1177/1088868314530516
- Koutstaal, W. (2013). *The agile mind*. New York: Oxford University Press.
- Kropotkin, P. (2006). *Mutual aid: A factor of evolution*. Charleston, SC: BiblioBazaar.
- Lewis, T., Amini, F., & Lannon, R. (2000). *A general theory of love*. New York: Vintage.
- Luoma, J.R. (1999). *The hidden forest: The biography of an ecosystem*. New York: Henry Holt and Co.
- Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nature Reviews Neuroscience*, 10(6), 434-445. doi:10.1038/nrn2639
- Margulis, L. (1998). *Symbiotic planet: A new look at evolution*. Amherst, MA: Sciencewriters.
- Marinoff, L., (2007). *The middle way: Finding happiness in a world of extremes*. New York, Sterling Publishing Co.
- Meaney, M. J. (2001). Maternal care, gene expression, and the transmission of individual differences in stress reactivity across generations. *Annual Review of Neuroscience*, 24, 1161-1192.
- Mendoza, S.L. (2016). Doing "indigenous" ethnography as a cultural outsider: Lessons from the Four Seasons. *Journal of International and Intercultural Communication* <http://dx.doi.org/10.1080/17513057.2016.1154181>
- Narvaez, D. (2008). Triune ethics: The neurobiological roots of our multiple moralities. *New Ideas in Psychology* 26:95-119.
- Narvaez, D. (2009). Triune ethics theory and moral personality. In D. Narvaez & D.K. Lapsley (Eds.), *Personality, identity and character: Explorations in moral psychology* (pp. 136-158). New York, NY: Cambridge University Press.
- Narvaez, D. (2010). Moral complexity: The fatal attraction of truthiness and the importance of mature moral functioning. *Perspectives on Psychological Science*, 5(2), 163-181.
- Narvaez, D. (2011). The ethics of neurobiological narratives. *Poetics Today*, 32(1): 81-106.
- Narvaez, D. (2013). The 99 Percent—Development and socialization within an evolutionary context: Growing up to become "A good and useful human being." In D. Fry (Ed.), *War, peace and human nature: The convergence of evolutionary and cultural views* (pp. 643-672). New York: Oxford University Press.
- Narvaez, D. (2014). *Neurobiology and the development of human morality: evolution, culture and wisdom*. New York, NY: W.W. Norton.
- Narvaez, D. (2016). *Embodied morality: Protectionism, engagement and imagination*. New York, NY: Palgrave-Macmillan.
- Narvaez, D. (in press). Evolution, early experience and Darwin's moral sense In R. Joyce (Ed.), *Routledge Handbook of Evolution and Philosophy*. London: Routledge.
- Narvaez, D., Braungart-Rieker, J., Miller, L., Gettler, L., & Hastings, P. (2016). (Eds.), *Contexts for young child flourishing: Evolution, family and society*. New York, NY: Oxford University Press.
- Narvaez, D., Gleason, T., Wang, L., Brooks, J., Lefever, J., Cheng, A., & Centers for the Prevention of Child Neglect (2013). The Evolved Development Niche: Longitudinal effects of caregiving practices on early childhood psychosocial development. *Early Childhood Research Quarterly*, 28 (4), 759-773. Doi: 10.1016/j.ecresq.2013.07.003
- Narvaez, D., Panksepp, J., Schore, A., & Gleason, T. (Eds.) (2013). *Evolution, early experience and human development: From research to practice and policy*. New York, NY: Oxford University Press.
- Narvaez, D., Valentino, K., Fuentes, A., McKenna, J., & Gray, P. (Eds.) (2014). *Ancestral landscapes in human evolution: Culture, childrearing and social wellbeing*. New York, NY: Oxford University Press.
- Narvaez, D., Wang, L., Gleason, T., Cheng, A., Lefever, J., & Deng, L. (2013). The Evolved Developmental Niche and sociomoral outcomes in Chinese three-year-olds. *European Journal of Developmental Psychology*, 10(2), 106-127.
- Neff, K. (2011). *Self-compassion*. New York: William Morrow.
- Osterheld-Haas, M. C., Van der Loos, H., and Hornung, J. P. (1994). Monoaminergic afferents to cortex modulate structural plasticity in the barrelfield of the mouse. *Brain Res Dev Brain Res*, 77(2), 189-202.
- Oyama, S., Griffiths, P.E., & Gray, R.D. (2001). *Cycles of contingency: Developmental systems and evolution*. Cambridge, MA: MIT Press.
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. New York: Oxford University Press.
- Panksepp, J. (2007). Can PLAY diminish ADHD and facilitate the construction of the social brain? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16, 57-66.
- Papousek, M. (1996). Intuitive parenting: A hidden source of musical stimulation in infancy. In I. Deliège & J. Sloboda (Eds.), *Musical beginnings: Origins and development of musical competence* (pp. 88-112). Oxford: Oxford University Press.
- Polan, H.J., & Hofer, M.A. (1999). Psychobiological origins of infants' attachment and separation responses. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 162-180). New York: Guilford.
- Porges, S. W. (2011). *The polyvagal theory: Neurophysiological foundations of emotions, attachment, communication, self-regulation*. New York: W.W. Norton.
- Ross, M. H. (1995). Psychocultural interpretation theory and peacemaking in ethnic conflicts. *Political Psychology*, 16, 523-544.
- Sahlins, M. (2008). *The Western Illusion of Human Nature*. Chicago: Prickly Paradigm Press.
- Schanberg, S. (1995). The genetic basis for touch effects. In T. M. Field (Ed.), *Touch in early development* (pp. 67-80). Mahwah, NJ: Erlbaum.
- Schore, A. (1994). *Affect regulation*. Hillsdale, NJ: Erlbaum.
- Schore, A. (1994). *Affect regulation*. Hillsdale, NJ: Erlbaum.
- Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22(1-2), 7-66.
- Sroufe, L.A., Egeland, B., Carlson, E.A., & Collins, W.A. (2008). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford.
- Stern, D. N. (2010). *Forms of vitality: Exploring dynamic experience in psychology, the arts, psychotherapy, and development*. Oxford: Oxford University Press.

- Stern, D.N. (1993). The role of feelings for an interpersonal self. In U. Neisser (Ed.), *The perceived self: Ecological and interpersonal sources of self-knowledge* (pp. 205-215). New York: Cambridge University Press.
- Stern, D.N. (1999). Vitality contours: The temporal contour of feelings as a basic unit for constructing the infant's social experience. In Rochat, P. (ed.), *Early Social Cognition: Understanding Others In the First Months of Life*. (pp. 67-90). Mahwah, NJ: Erlbaum.
- Taylor, J.B. (2008). *My stroke of insight*. New York: Viking.
- Trevarthen, C., & Delafield- Butt, J. T. (2013). Biology of shared experience and language development: Regulations for the inter- subjective life of narratives. In M. Legerstee, D. Haley, & M. Bornstein (Eds.), *The infant mind: Origins of the social brain* (pp. 167– 199). New York: Guilford Press.
- Trevathan, W.R. (2011). *Human birth: An evolutionary perspective, 2nd ed.*. New York: Aldine de Gruyter.
- Tronick, E., & Beeghly, M. (2011). Infants' Meaning-Making and the Development of Mental Health Problems. *American Psychologist*, 66(2), 107–119.
- Turnbull, C. (1984). *The human cycle*. New York: Simon and Schuster.
- U.S. Department of Health and Human Services (2011). *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.
- Vaughan, E. (2015). *The gift in the heart of language: The maternal source of meaning*. Mimesis International.
- Weber, M., Watts, N., & Richardson, R. (2003). High illumination levels potentiate the acoustic startle response in preweanling rats. *Behavioral Neuroscience*, 117(6), 1458-1462.
- Worster, D. (1994). *Nature's economy: A history of ecological ideas*. New York: Cambridge University Press.
- Wrangham, R. W., & Peterson, D. (1996). *Demonic males: Apes and the origins of human violence*. Boston, MA: Houghton, Mifflin and Company.