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IV. NEUROBIOLOGY AND MORAL MINDSET

Theories of moral motivation often focus on how central moral concerns are to the individual and the consistency of behaviour matching these concerns. Yet few people are consistently virtuous. Why might this be? Triune ethics theory suggests that humans evolved different moral mindsets that when triggered, vary in perceptions and affordances for moral action, thereby partly explaining human moral inconsistency. The three basic ethical mindsets are safety (self-protection), engagement (relational attunement), and imagination (abstraction). A mindset or its subtype can become a disposition and/or be evoked by situations — in person-by-context interactions. Normative moral mindsets for compassion and reflection may require optimal brain development during sensitive periods; otherwise a self-protective orientation can become dominant.

INTRODUCTION

Moral self, moral identity and moral personality are terms used to indicate the centrality of moral constructs in a person's self-concept (Lapsley & Narvaez, 2004; Narvaez & Lapsley, 2009). According to Blasi (1980), an individual with a moral personality situates moral concerns centrally in the self-concept and feels obligated to live consistently with respect to moral concerns. A person with a moral identity has moral traits that are chronically accessible and automatically applied to social information processing (Lapsley & Narvaez, 2004; Narvaez, Lapsley, Hagele & Lasky, 2006).

Most of the time, moral identity and moral motivation are discussed as if they are unitary concepts, as if the normative understanding of moral personality (e.g., responsible, caring, fair) is universal across individuals and situations. In this chapter, I suggest that moral identity and moral motivation are not unitary constructs but that instead humans have multiple moral motivations rooted in the evolved strata of the brain. According to this view, moral motivation shifts when a different mindset is active. Mindsets energize moral behaviour, like motivation generally energizes behaviour (Kelinginna & Kelinginna, 1981). In the view of triune ethics theory, behaviour can be energized to self-protect, to attune with others or to abstract, detaching emotionally from the present.

MORAL MOTIVATIONAL MINDSETS

According to Triune Ethics Theory (TET; Narvaez, 2008b; 2009), three types of affectively-rooted moral mindsets emerged from human evolution based on evolved brain strata (McLean, 1990), although anatomical details are much more complex. Nevertheless, the strata tend to govern distinctive brain states, upon

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which morality is presumed to emerge (Gardner & Cory, 2002). These mindsets arise out of biological propensities but are shaped by experience during sensitive periods. Rooted in basic emotional systems, these biological propensities propel human moral action on an individual and group level. When an individual uses a particular mindset to guide decisions and actions, it becomes an ethic, a normative imperative that trumps other values.

A mindset represents a “central motive” that colours perception and goal setting and comprises part of what Moll and colleagues call the event-feature-emotion complexes that drive moral cognitive phenomena (Moll, Zahn, de Oliveira-Souza, Drueger & Grafman, 2005). In other words, motivational cognition and emotion are inextricably linked (Allman, Hakeem, Erwin, Ninchinsky & Hof, 2001). As a type of motivated cognition, each ethic influences which affordances are salient for action, saturating ongoing experience with that ethic’s values (Moll, de Oliveira-Souza, Eslinger, Bramati, Mourao-Miranda, Andreiulo et al., 2002).

Each ethic is *subjectively* moral, that is, to the individual in a particular moral mindset the actions undertaken feel like moral actions, like the right and good thing to do at that moment. The Ethic of Safety emerges under a sense of threat and is focused on self-preservation and self-protection. To most philosophers and religious traditions, the egoistic orientation or the Safety ethic is *objectively* immoral and because it is often reflexive instead of intentional, not moral. However, to the individual, the reflexive action feels good and right in that moment. The other two mindsets fit with normative theories of moral concerns. The Ethic of Engagement focuses on relational presence and social resonance. The Ethic of Imagination embraces reason, stepping back from present emotions to coordinate instincts and intuitions, adapt to ongoing social relationships, and address concerns beyond the immediate. An ethic can be primed by the context, in interaction with personality disposition. See Figure 1 for a schematic of the ethics.

The Safety Ethic: Innate Shaped Instincts

The Safety Ethic is rooted in the R-complex (MacLean, 1990), or the extra-pyramidal action nervous system (Panksepp, 1998). Dominant in reptiles, the R-complex in mammals relates to territoriality, imitation, deception, struggles for power, maintenance of routine and following precedent. The Ethic of Safety is based primarily in these and similar instincts, which revolve around survival and thriving in context, instincts shared with all animals and present from birth. Primitive emotion systems related to fear, anger and basic sexuality reside here. Because survival mechanisms are hardwired into the brain, they are not easily damaged and can become the default mindset when social support is lacking and brain development is suboptimal.

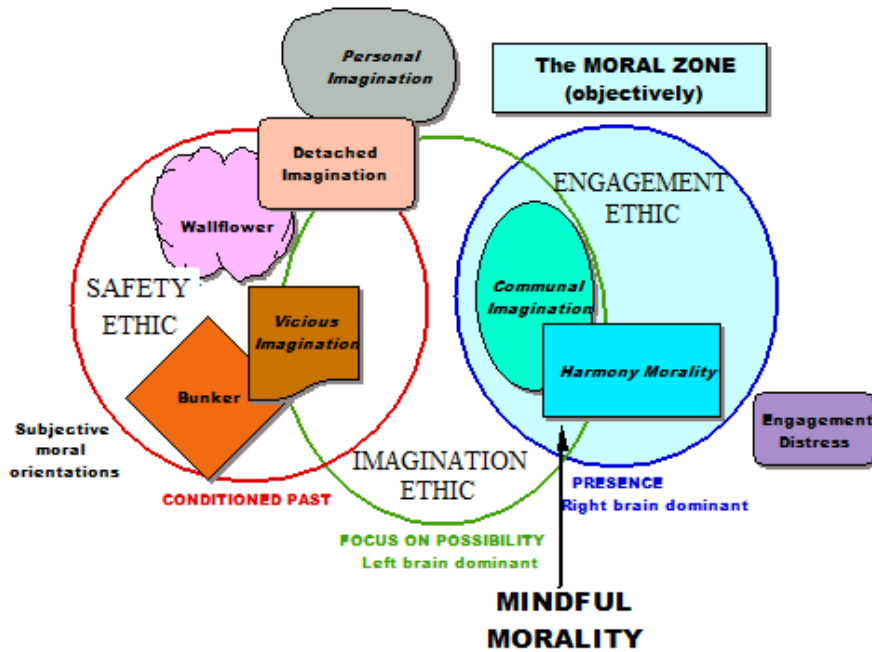


Figure 1: Triune Ethics Theory: Types and Subtypes of Ethics

The safety mindset is about self-protection in view of perceived threat (real or imagined). The immediate goal for safety takes over the mind so energies focus there. When this occurs, the individual can take an aggressive stance (bunker safety), to ward off the threat, or a withdrawing, freezing stance (wallflower safety), to try to escape from the threat. A humorous example is when George Costanza on the television show *Seinfeld* thinks there is a fire at a children’s party and pushes everyone else out of the way to escape to safety, thinking only of himself. The primary goal is to return to a sense of security, predictability and control, whether through harshness towards others, escape or some combination as with Costanza.

The ethic of safety is part of lower evolution, driven by goodness of fit and self-interest (Loye, 2002). It has its place in individual and group survival and as a more primitive moral expression. However, it is not the driving force of human evolution as identified by Darwin (1871/1981); that force is initiated in the systems underlying the Ethic of Engagement, an ethic that focuses on relational presence.

Engagement Ethic: Epigenetic Intuition

The second wave of brain evolution brought about the organization central to mammalian functioning, the limbic system and related structures (“paleo-mammalian;” MacLean, 1990). The foundational set of structures is identified as the visceral-emotional nervous system on the hypothalamic-limbic axis (Panksepp, 1998). This system lends a feeling tone to the functions of the R-complex, allowing for emotional signalling both internally (learning) and externally (sociality) (Kon-

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ner, 2002). MacLean (1990) proposed that these paleo-mammalian structures are the seat of human emotion, personal identity, memory for ongoing experience, and an individual's sense of reality and truth. Notable are three signatory sets of behaviour that did not exist systematically in evolutionarily prior species (although these emerged separately in birds): nursing and maternal care, audiovocal communication between mother and offspring, and play. Human brains are reward-seeking structures, evolved to obtain gratification primarily from social relationships (Nelson & Panksepp, 1998). However, how well these structures function can depend on maternal and other caregiver care in early life.

A human infant's brain and body systems are dependent on experience, particularly through an attachment relationship that requires the caregiver to act as an "external psychobiological regulator" (Schoore, 2001, p. 202) as the brain is socially wired and constructed in the early years (Eisenberg, 1995). "Development may be conceptualized as the transformation of external into internal regulation" where the "progression represents an increase of complexity of the maturing brain systems that adaptively regulate the interaction between the developing organism and the social environment" (i.e., caregivers; Schoore, 2001, p. 202). For example, the caregiver plays multiple roles in regulating the physiological and psychological development of the infant. Hofer (1994; Polan & Hofer, 1999) describes how the caregiver's "hidden" regulation of infant development cuts across sensory systems (e.g., tactile, olfactory) and influences multiple levels of functioning. For example, maternal touch can lower an infant's heart rate during a distressing experience, supporting an adaptive behavioural response in the circumstance (Calkins & Hill, 2007, p. 240). When separated, the mother's absence causes multiple levels of disruption in the infant and the infant stops growing (Schanberg, 1995). In contrast, skin-to-skin contact promotes healthy sleep cycles, arousal and exploration levels (Feldman, Weller, Sirota & Eidelman, 2002).

Brain-building experiences are embedded in attachment relationships and are multivariate, little understood, but implicated in moral functioning (Schoore, 2003a; 2003b). Here is one example. The basic regulatory processes of the parasympathetic nervous system appear to be deeply affected by caregiver behaviour. This occurs in part via the regulation of the vagus nerve (vagal tone), upon which emotional, behavioural, physiological and motor regulation are dependent (Calkins & Hill, 2007). The parasympathetic nervous system regulates cardio output through vagal tone under environmental stress (Porges, 1996). Responsive parenting with co-regulated communication patterns are related to good vagal tone, opening up sociality, whereas nonresponsive parenting leads to poor vagal tone and social distress (Porter, 2003; Haley & Stansbury, 2003; Calkins, Smith, Gill & Johnson, 1998; Kennedy, Rubin, Hastings & Maisel, 2004). In adults, good vagal tone function is related to greater compassion (Eisenberg & Eggum, 2008).

Evidence is increasing that engagement and its emotional components (e.g., secure attachment, empathy) are a primary force behind moral behaviour. For example, even among primates, empathy is a common occurrence (De Waal, 1996). Moreover, for most Gentile rescuers of Jews in World War II "caring compelled action"—most were driven by "pity, compassion, concern and affection" (Oliner, 2002; p. 125). The Engagement ethic is a capacity that dominates social interac-

tions in ancestral social contexts (i.e., among hunter-gatherers; Ingold, 1999) where generosity and affability are fostered (see Narvaez, in press-a).

To develop optimally, the Engagement Ethic may require compassionate reciprocal experiences during sensitive developmental periods, as evident in ancestral environments. My colleagues and I are studying whether this is true or not. We are examining ancestral parenting practices, practices that are variations on social mammalian caregiving evolved more than 30 million years ago. In early life these include natural childbirth, extensive breastfeeding, constant touch, responsiveness to the needs of the child, multiple adult caregivers, and free play (Hewlett & Lamb, 2005). Even after controlling for maternal income and education, we are finding that each is related to some aspect of three-year-olds' moral development (e.g., empathy, conscience, social engagement, inhibitory control; Narvaez, Gleason, Brooks, Wang, Brooks, Lefever, Cheng & Centers for the Prevention of Child Neglect, 2012; Narvaez, Wang, Deng, Cheng & Gleason, 2012). Although evolution has prepared the human brain for sociality and moral agency, ancestral parenting practices during development may be required for normal formation of brain circuitries necessary for optimal social engagement and moral functioning (Green-span & Shanker 1999; Narvaez & Gleason, in press; Panksepp 1998; Schore, 2003a).

The reciprocity learned in a mutually responsive relationship with the caregiver may form the basis of a sense of engagement and communion. Ideally, this is experienced in early childhood so that interpersonal respect and reciprocity form deeply in sensorimotor memory. Insensitive care may fail to foster the deep empathy of which humans are capable. Lacking mutually responsive care may result in a general insensitivity to others and perhaps to injustice itself (Lerner, 2002).

Despite the importance of empathy and communion in moral behaviour, most research in morality has focused on reasoning. Reasoning and related capabilities are central to the Ethic of Imagination.

Imagination Ethic: Cultivated Deliberation and Narrative

The third major brain formation to evolve was the neomammalian, which refers to the neocortex and related thalamic structures (MacLean, 1990). This somatic-cognitive nervous system on the thalamic-neocortical axis (Panksepp, 1998) is focused primarily on the external world, providing the capacity for problem solving and deliberative learning. The frontal lobes are considered the pinnacle of human evolution. They are the source of our deliberative reasoning, which includes much more than rational thought in the traditional sense. The mind thinks with feeling (Konner, 2002) and a mind without feeling makes poor judgments (Damasio, 1999). The frontal lobes provide the relay station between emotions and goals, planning and doing, coordinating systems from all parts of the brain. They maintain the sense of identity in cultural context through narrative self-explanation.

The development of brain areas related to the Ethic of Imagination, like those related to the Engagement Ethic, require a nurturing environment. The prefrontal cortex and its specialized units take decades to fully mature and are subject to damage from environmental factors both early (Anderson, Bechara, Damasio, Tranel & Damasio, 1999; Koditwakku, Kalberg & May, 2001) and late in devel-

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opment (Newman, Holden, & Delville, 2005). Warm, responsive care fosters the emotion centers in the right brain (Schore, 2003a; 2003b) including the orbitofrontal cortex (OFC), vital to lifelong emotion regulation, whose inadequate or damaged development leaves one susceptible to psychiatric diseases such as depression and anxiety. The prefrontal cortex is susceptible to damage throughout development, not reaching completion until the third decade of life (Giedd, Blumenthal & Jeffries 1999; Luna, Thulborn, Munoz, Merriam, Garver, Minshew, et al., 2001). Binge drinking (Bechara, 2005) and violent video game play can turn normal brains into ones that look like those of aggressive delinquents (Mathews, Kronenberger, Wang, Lurito, Lowe & Dunn, 2005) as higher order development is halted. Of course, immature brain development influences moral expression, whether in the executive functions vital for the imagination ethic or the emotional regulation systems vital for the engagement ethic. The safety ethic is the default system when the Engagement Ethic and the Imagination Ethic have been poorly nurtured by the child's caregivers and community.

The Imagination ethic has several subtypes. *Communal imagination* combines the prosocial orientation of the engagement ethic with higher functioning, allowing for moral innovation and the extension of community beyond immediate relations into the future with those who are not present. *Vicious imagination* combines the self-protective mindset of the bunker safety ethic with the abstraction skills of the frontal lobe, creating plots and devices to impose one's will on others. When one has a powerful self-identity, it can propel one to take action (for better or worse). In terms of attacking USA interests, Osama bin Laden behaved from his vicious imagination mindset and, from what we are told in the gospels, Jesus usually behaved from an engagement or communal imagination mindset.

However, the human capacity for abstraction means that one can be detached from immediate social experience and reside in a personal realm. This happens when people have a personal goal such as the shopper who on an errand can be so single minded that she ignores social connections and misses opportunities to help others. In the modern world, this is a common occurrence. A dispositional *detached imagination* dissociates from emotion as a matter of course owing to right brain shut down, damage or inadequate socioemotional development (Siegel, 1999). Moral psychology experiments often focus on detached imagination by using decontextualized scenarios that do not require the intuitive insight provided by well-shaped emotions (Narvaez, 2010).

Adaptive Moral Motivation

Moral motivation fluctuates along with the changing needs and goals of the individual. As a shifting dynamic system, the individual moves through social space with general, built-in mammalian desires — to fit in, to connect with others, to be safe, to feel competent (e.g., Deci & Ryan, 1985) — but also with goal and dispositional habits shaped by experience. In each situation, an individual aims for what is perceived to be good and the most satisfying option. This is what all organisms do. Pattern recognition propels action. Learned patterns of response, especially sensorimotor memory built in early life, shape action choices and corresponding perception and action. Moral motivation is a momentary combination of immediate

goals, longterm goals (e.g., identity, habits) and responses to the perceived context and the people (other dynamic systems) in the situation. If one has not had much social experience during sensitive periods, one may not notice social cues. If one experienced early trauma, one may have heightened thresholds for threat cues, seeing threat where there actually is none (Dodge, 1985).

Personality involves chronic schemas of perception, interpretation and action that interact with situations (Lapsley & Narvaez, 2004). Personality dispositions form a unique personal signature within situations. For example, a man may always become dismissive and insensitive around women but not around men and only when feeling threatened. Some personalities are more strongly consistent across situations (e.g., always helpful to others) whereas other personalities may only be helpful to family members. Cultural narratives and expectations matter but so do individual practices that build capacities over time.

TET mindsets are distinctive and lend themselves to different motivations. Each mindset is an orientation rooted in a different set of emotion systems with a distinctive set of concerns. Safety and Engagement are orthogonal. It is not possible to be in both mindsets at once (although there may an oscillation between them). Safety is based in the sympathetic nervous system and the Engagement in the parasympathetic. In a safety mindset, the individual will operate reflexively with learned/conditioned patterns of self-protection and move within the emotion systems of FEAR, SEEKING, and RAGE (capitalized to reflect empirically identified systems, Panksepp, 1998). Memory and reasoning are diminished owing to self-protective sympathetic system arousal. Whether the person acts on preferred impulses for aggression or withdrawal depends on the skills of inhibitory control and how well the action fits with the goals of the moment. A person who has a habitual safety orientation may react internally with anger or insult but learn to inhibit external reaction. An individual may not run away physically but emotionally, as happens with avoidant attachment (Mikulincer & Shaver, 2007a). With emotional distancing and emotional detachment, harm to others is more likely (Bandura, 1999). However, one can learn to inhibit an ingrained safety ethic with meditation and other exercises, as well as immersion in safe social climates. Change can occur when one feels relationally calm and safe. Ideally, one learns to rewire the brain through intentional reshaping of habitual responses (Schwartz & Begley, 2003) and through maintaining moods that foster an engagement ethic, as when one focuses on gratitude or relational support (Mikulincer, Shaver, Gillath, & Nitzberg, 2005).

Whereas the Engagement Ethic is more of a right-brain orientation of openness and relational awareness, tapping into prosocial emotions of CARE, PLAY, LUST, the systems underlying the Imagination Ethic operate more from a left-brain orientation of analysis with linear thinking, categorization and so forth (for a review, see McGilchrist, 2009). These executive functions allow one to reflect on one's actions and imagine possibilities. Taking multiple viewpoints is a way to see alternatives to one's conditioned orientation. Human reflective capabilities allow for the selection of environments that foster preferred intuitions. However, reflective abstraction does not necessarily lead to changes in action. Changing habitual patterns of perceiving and acting takes more than reflection. It also requires guided practice (see Narvaez, 2006, 2007, 2008a, in press-b).

Personality Effects

As noted previously, dispositional tendencies towards one ethical mindset or another may develop from experiences during formative years. The dispositional tendency may be manifested as a meta-agenda for interpersonal relationships. See Figure 2 for a simplified illustration of the three mindsets when online as “meta-agendas” and the subtypes that emerge.

Capabilities for the Engagement Ethic allow one to reach out to others in empathy when they are in distress (Mikulincer & Shaver, 2005). Good early care tends to foster an agreeable empathic, and conscientious personality (Kochanska, 2002) as well as openness to experience and good executive functions (Greenspan & Shanker, 2004), the characteristics typically found among moral exemplars.

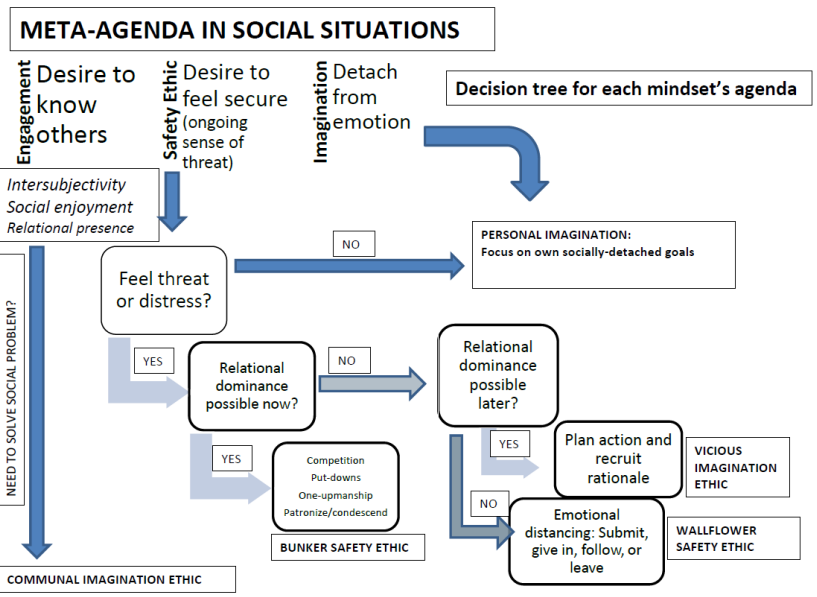


Figure 2: Triune Ethics Mindsets as Meta-agendas with Sample Decision Tree

In contrast, a person can have a foundational sense of insecurity based on early childhood experiences of extensive distress that together promote a distrustful view of the world. This is notable in attachment disorders, which can make a person less empathic toward and receptive to others (Eisler & Levine, 2002; Mikulincer & Shaver, 2005). The person whose personality is dominated by the ethic of safety may have a “stressed brain” formation from trauma or neglect (Newman, Holden & Delville, 2005) or one in which the right brain may be partially shut down from inadequate emotional nurturance (Schore, 2003b). A stressed brain is related to poor attachment and bonding and to compromised social abilities: “Stress during infancy that is severe enough to create insecure attachment has a dissociative effect, disrupting right hemispheric emotional functioning and species preservative

behaviour, and a permanent bias towards self preservation can become an adult trait" (Henry & Wang, 1998, p. 863).

In contrast, a personality that can integrate engagement and imagination into communal imagination is able to move beyond immediate self interest, to conceptualize alternative social systems, think impartially about moral problems, counteract harmful instincts and intuitions or behave altruistically in circumstances that evoke the safety ethic (e.g., Frankl, 1963). As pointed out earlier, however, when threat is high (and engagement ethic is low), a personality may be dominated by vicious imagination, focusing on maximizing safety and dominance, or disengage from emotion in detached imagination, making decisions like a distant bureaucrat (Bandura, 1999).

Situations may trigger a moral mindset, triggering self-situation memories (Freud's fantasies) except in the case of complete open-minded and openheartedness, which reflects a meta-agenda to avoid filters of judgment and analysis. TET mindset triggers can reflect a need for homeostatic balance restoration, setting up conditions for action (Franken, 2006). Action towards homeostasis can restore meaning and sense, diminishing threats to the self (Heine, Proulx, & Vohs, 2006). What keeps moral behaviour going may be different from the moral mindset that instigates it. Disposition (practiced responses) and executive controls must keep it going. Persistence requires a meta-goal with ongoing monitoring of planned action. Expectancy theory (Vroom, 1964) may provide a framework for moral persistence, where motivation is influenced by expectancy (probability of success), instrumentality (connection of success and reward) and value of obtaining the goal. Using James' view of self-esteem (success/prentensions), those with low moral motivation may have had their prior attempts not succeed, affecting their sense of self-efficacy and self-esteem, and so they lowered their expectations for their own moral behaviour or shifted their attention and goals elsewhere — to more successful, better fitting endeavours (Higgins, 2012).

Situational Effects

Each of the three ethical mindsets is available to some degree in each person (unless there has been too much damage). Situations can stimulate different ethics. For example, terror management studies show that priming for safety (death) or for engagement (attachment) influences subsequent helping behaviour as well as attitudes towards and treatment of outgroup members (Hart, Shaver & Goldenberg, 2005; Mikulincer & Shaver, 2001). An environment characterized by safety and caring not only increases learning but prosocial behaviour as well (Solomon, Watson & Battistich, 2002). When a particular ethic is primed, it is presumed to influence perceptual sensitivities (Neisser, 1976), affective expectancies (Wilson, Lisle, Kraft & Wetzel, 1989), rhetorical susceptibilities (attractive fallacies), behavioural outcome expectancies and preferred goals (Mischel's "subjectively valuable outcomes," 1973, p. 270), as well as perceived affordances (social, physical and action possibilities). For example, when the safety ethic narrows one's perceptual and response systems, the affordances for behaviour centralize around self-advantageous and ingroup-advantageous actions.

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Whether or not an ethic is evoked by a situation, culture or climate, varies from moment to moment according to personal history. Although situations can promote a mindset or put one in a mood for a mindset to be activated, habitually compassionate people keep themselves in a good mood (e.g., with gratitude) like the Dalai Lama. Priming varies in a person-by-context interaction. That is, some personalities are more primed by particular situations (Cervone, 1999). For example, although aggression cues promote hostile thoughts and actions generally, individuals high in agreeableness are not primed for aggression in these circumstances but activate pro-social responses (Meier, Robinson & Wilkowski, 2006). Moral exemplars likely have less variability in their responses and, instead, like the Dalai Lama, are able to maintain an engagement or communal imagination mindset.

Two Research Studies

To test triune ethics moral identities, my students and I have developed identity measures following Aquino & Reed (2002) where the respondent indicates the importance of moral goals represented by a set of terms (for *safety* identity: controlled, tough, unyielding, competitive; for *engagement* identity: caring, compassionate, merciful, cooperative; for *imagination* identity: reflective, thoughtful, inventive, reasonable). I report on two studies with college students using these measures.

Study 1 included 194 undergraduates who took questionnaires on computer which included Experience in Close Relationships-Revised (Fraley, et al., 2000), a measure of attachment; Basic Needs Effectance (sense of efficaciousness concerning areas of life identified as basic needs); Tomkins (1964) Humanism-revised; Big-5 Personality Scales (Goldberg et al., 2006); Triune Ethics Identity Scales (Narvaez, Brooks & Hardy, 2012); Action for the Less Fortunate (how often individuals have taken actions to help the less fortunate).

In the first study we expected that engagement and imagination ethical identities would be directly predicted by early experience. We used as proxies for early experience: secure attachment, humanistic orientation, basic needs effectance. We also expected early experience proxies to predict agreeableness and openness and that these would mediate effects of early experience on moral identity. The outcome variable was a 9-item self-report measure of action for the less fortunate. Regressions showed that two personality variables (Agreeableness & Openness) and two moral orientations (Engagement & Imagination) related to action for the less fortunate. Structural Equation Modeling (SEM) further investigated relations. Factor analysis showed attachment-related avoidance, effectance, and humanism formed a latent construct (we called early life effects). Early life effects predicted agreeableness and openness and moral mindsets. Openness and engagement identity predicted action for less fortunate. Figure 3 presents the results.

In a second study, we used ethical identity measures to examine engagement, imagination and two types of safety ethic, bunker and wallflower. We developed measures of how much a person lives their values and prefers their values be imposed on others. We expected that the ethical identities would have different attachment, personality and moral action signatures (engagement ethic predicts mor-

al action and core values enactment; safety ethic predicts value imposition and negatively predicts moral action).

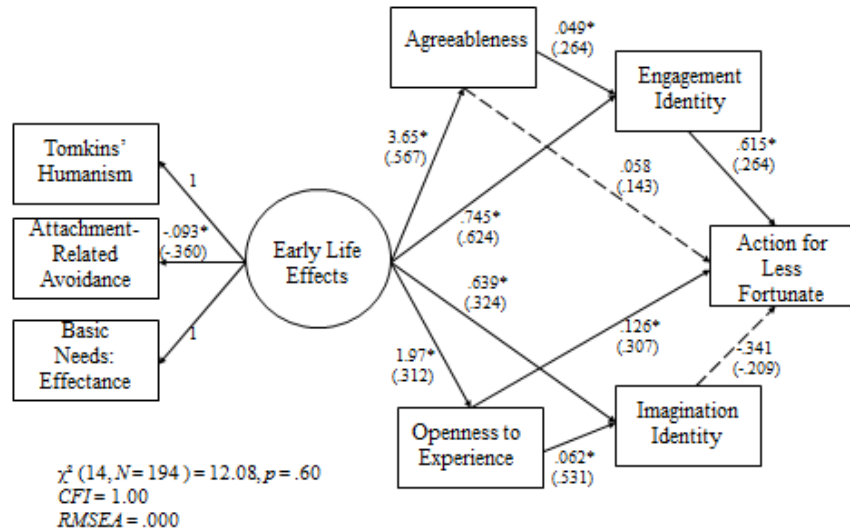


Figure 3. Study 1 Path Model for Helping The Less Fortunate with Unstandardized (Standardized) Factor Loadings. Solid lines represent significant factor/path loadings. * $p < .05$

Study 2 participants were 191 undergraduates. They completed surveys online. We measured subtypes of the Safety Ethic: Bunker (combative and domineering) and Wallflower (withdrawn and timid). We used the Relationship Questionnaire (Bartholomew & Horowitz, 1991) was used to measure attachment style: secure, dismissing, fearful, preoccupied. We developed and factored two measures of value implementation: (a) Core Value Lifestyle (CVL; how much one consciously makes decisions based on core values in certain areas, e.g., “friends I cultivate,” “purchases I make”); (b) Value Intrusion (how much one thinks that others should embrace one’s own values, e.g., “I want authorities to ensure that others live the way I live”).

Bunker safety identity was related to insecure attachment, value intrusion, and lack of core value lifestyle (CVL) while wallflower safety identity was related to insecure and fearful attachment and value intrusion. Engagement identity: related to secure attachment and CVL. Imagination identity: related to non-value intrusion and CVL.

Over both studies, the hypotheses were supported. Morality in college students was influenced by early life experience, affecting identity and moral behaviour. The three ethical mindsets (safety, engagement, imagination) appear to build on attachment orientation, relate to personality factors, and predict moral action, and value implementation. The results provide preliminary evidence that early life

experience shapes brain and body systems for preferred moral functioning as triune ethics theory postulates. Additional evidence is available in Narvaez, Brooks and Hardy (2012).

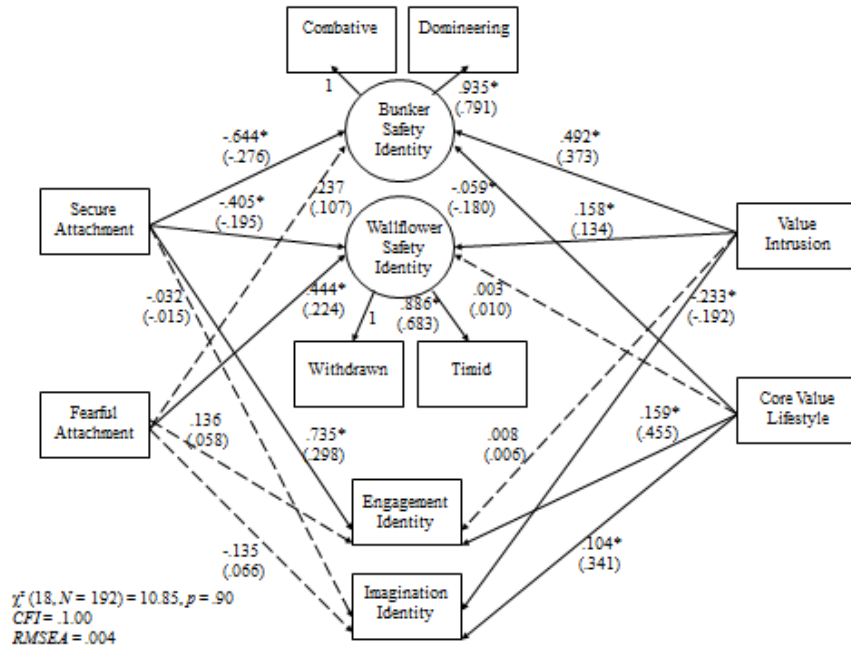


Figure 4. Study 2 Path Model for How Attachment and Values Influence Identity with Unstandardized (Standardized) Factor Loadings. Note: Solid lines represent significant factor/path loadings. $*p < .05$

CONCLUSION

Moral motivation may not be the unitary phenomenon it is often presumed to be. Triune Ethics Theory provides a way to consider the dynamic fluctuations in moral motivation and moral functioning as individuals perceive changes in situations, encounters and relationships. TET also offers a way to understand the importance of initial conditions (early life development) for moral motivational capacities and dispositions. In order to act with situation-appropriate compassion and reflection — the normative heart and mind of morality — individuals must have capabilities for self-regulation (e.g., self-soothing) and connecting to others (e.g., social resonance). These capacities initially rely on good early care (as represented in ancestral parenting practices), which is increasingly absent in modernized societies. Even if neglect is less than profound, its effects on the formation of systems that underlie optimal moral functioning can be long lasting. A child that spends a great deal of time alone in his or her room develops a different social orientation (embodied understanding of the social world) than a child who co-sleeps with parents and siblings and is never isolated. Starting life without the rich soil of mutually responsive caregivers may leave a child with shallow roots in socio-moral func-

tioning, tenuous self-regulation, and a self-oriented neurobiology. Children with these characteristics are less compliant with adults and rules (Kochanska, 2002), more dangerous to themselves and their communities, and must spend a greater amount of more limited energy to self-regulate for life success (Sroufe, Egeland, Carlson & Collins, 2005). Returning to evolved principles for early care may be a place to start to enhance human moral capacities.

Anthropologists and other scientists often remark on the intelligence, sensitivity and moral engagement of nomadic hunter gatherer communities (e.g., Diamond, 1997; Everett, 2009). Although ancestral parenting practices may form a large part of these outcomes, so does culture. Cultures of peace support families and children and build narratives of peaceful character (Fry, 2006). In environments matching assumed ancestral conditions, extrapolating from anthropological reports, a great deal of attention was paid to keeping people from feeling threatened or being aggressive through cultural practices of equality and affection (Fry, 2006; Dentan, 1968), practices that are related to increased wellbeing (Cacioppo & Patrick, 2008; Pickett & Wilkinson, 2010). (For a description of these environments and the application to moral functioning, see Narvaez, in press) Perhaps it is time to pay attention to the types of biologically-supportive environments that promote optimal moral formation and alleviate the maternal and familial stressors that impair moral growth.

REFERENCES

- Allman, J.M., Hakeem, A., Erwin, J.M., Ninchinsky, E., & Hof, P. (2001). The anterior cingulate cortex: The evolution of an interface between emotion and cognition. *Annals of the New York Academy of Sciences*, 935, 107-117.
- Anderson, S.W., Bechara, A., Damasio, H., Tranel, D. & Damasio, A.R. (1999). Impairment of social and moral behavior related to early damage in human prefrontal cortex. *Nature Neuroscience*, 2, 1032-1037.
- Aquino, K., & Reed, A., (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83, 1423-1440.
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review*, 3(3), 269 - 275
- Barker, D.J. (1998). In utero programming of chronic disease. *Clinical Science*, 95, 115-128.
- Barker, D.J. (2002). Fetal programming of coronary heart disease. *Trends in Endocrinology and Metabolism*, 13, 364-368.
- Bartholomew, K. & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61, 226-244.
- Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: a neurocognitive perspective. *Nature Neuroscience*, 8, 1458 - 1463.
- Cacioppo, J., & Patrick, W. (2008). *Loneliness: Human nature and the need for social connection*. New York: W.W. Norton.
- Caldji, C., Diorio, J. & Meaney, M.J. (2003). Variations in maternal care alter GABA(A) receptor subunit expression in brain regions associated with fear. *Neuropsychopharmacology*, 28, 1950-1959.
- Calkins, S.D., Smith, C.L., Gill, K.L., & Johnson, M.C. (1998). Maternal interactive style across contexts: Relations to emotional, behavioral and physiological regulation during toddlerhood. *Social Development*, 7(3), 350-369.
- 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.

DARCIA NARVAEZ

- Callahan, D. (2004). *The cheating culture: Why more Americans are doing wrong to get ahead*. New York: Harcourt Harvest.
- Carter, C.S. (1998). Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology*, 23(8), 779-818.
- Cervone, D. (1999). Bottom-up explanation in personality psychology: The case of cross-situational coherence. In D. Cervone & Y. Shoda (Eds.), *The coherence of personality: Social-cognitive bases of personality consistency, variability, and organization* (pp. 303-341). New York: Guilford Press.
- Colby, A., & Damon, W. (1991). *Some do care*. New York: Free Press.
- Damasio, A. (1999). *The feeling of what happens*. London: Heineman.
- Darwin, C. (1871/1981). *The descent of man*. Princeton University Press, Princeton.
- de Waal, F. (1996). *Good-natured: The origins of right and wrong in humans and other animals*. Cambridge, MA: Harvard University Press.
- De Wall, C.N., Pond, R.S., & Bushman, B.J. (2010). Sweet revenge: Diabetic symptoms predict less forgiveness. *Individual Differences and Personality and Individual Differences*, 49(7), 823-826.
- Dentan, R.K. (1968). *The Semai: A nonviolent people of Malaya*. New York: Harcourt Brace College Publishers.
- Diamond, J. (1997). *Guns, germs and steel: The fates of human societies*. New York: W.W. Norton.
- Dodge, K.A. (1985). Attributional bias in aggressive children. In P. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (pp. 75-111). New York: Academic Press.
- Eccles, J., & Gootman, J. A. (2002). *Community programs to promote youth development*. Washington, DC: Committee on Community-Level Programs for Youth. Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences Education, National Research Council and Institute of Medicine.
- Eisenberg L. (1995). The social construction of the human brain. *American Journal of Psychiatry*, 152, 1563-1575.
- Eisenberg, N., & Eggum, N.D. (2008). Empathic responding: Sympathy and personal distress. In B. Sullivan, M. Snyder, & J. Sullivan (Eds.), *Cooperation: The political psychology of effective human interaction* (pp. 53-74). Malden, MA: Blackwell Publishing.
- Eisler, R. & Levine, D.S. (2002). Nurture, nature, and caring: We are not prisoners of our genes. *Brain and Mind*, 3, 9-52.
- Everett, D. (2009). *Don't sleep, there are snakes: Life and language in the Amazonian jungle*. New York: Pantheon.
- Feldman, R., Weller, A., Sirota, L., & Eidelman, A.I. (2002). Skin-to-skin contact (kangaroo care) promotes self-regulation in premature infants: Sleep-wake cyclicity, arousal modulation, and sustained exploration. *Developmental Psychology*, 38, 194-207.
- Field, T., & Reite, M. (1985). *The psychobiology of attachment and separation*. New York: Academic Press.
- Fraley, R. C., Waller, N. G. & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350-365.
- Franken, R. (2006). *Human motivation* (6th ed.). Florence, KY: Wadsworth.
- Frankl, Viktor E., (1963). *Man's search for meaning*. New York: Simon and Schuster.
- Frederickson, B. L. (2002). Positive emotions. In C. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (pp.120-134). New York: Oxford University Press.
- Fry, D. P. (2006). *The human potential for peace: An anthropological challenge to assumptions about war and violence*. New York: Oxford University Press.
- Galliot, M.T. (2008). Unlocking the energy dynamics of executive functioning: Linking executive functioning to brain glycogen. *Perspectives on Psychological Science*, 3(4), 245-263.
- Giedd, J.N., Blumenthal, J, Jeffries, N.O., et al. (1999). Brain development during childhood and adolescence: A longitudinal MRI study. *Nature Neuroscience*, 2(10), 861-3.
- Gilliam, W.S. (2005). *Prekindergarteners left behind: Expulsion rates in state prekindergarten systems*. New Haven, CT: Yale University Child study Center.
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. C. (2006). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40, 84-96.

NEUROBIOLOGY AND MORAL MINDSET

- Greenspan, S.I., & Shanker, S.I. (2004). *The first idea*. Cambridge, MA: Da Capo Press.
- Grosjean B., & Tsai, G.E. (2007). NMDA neurotransmission as a critical mediator of borderline personality disorder. *Journal of Psychiatry and Neuroscience*, 32(2), 103-115.
- Gross, J. J. (Ed.) (2007). *Handbook of emotion regulation*. New York: Guilford.
- Haley, D.W. & Stansbury, J. (2003). Infant stress and parent responsiveness: Regulation of physiology and behavior during still-face and reunion. *Child Development*, 74, 1534-1546.
- Hart, J., Shaver, P. R., & Goldenberg, J. L. (2005). Attachment, self-esteem, worldviews, and terror management: Evidence for a tripartite security system. *Journal of Personality and Social Psychology*, 88(6), 999-1013.
- Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of human motivations. *Personality and Social Psychology Review*, 10(2), 88-110.
- Henry, J.P., & Wang, S. (1998). Effects of early stress on adult affiliative behavior, *Psychoneuroendocrinology*, 23(8), 863-875.
- Hewlett, B.S., & Lamb, M.E. (2005). *Hunter-gatherer childhoods: evolutionary, developmental and cultural perspectives*. New Brunswick, NJ: Aldine.
- 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.
- Ingold, T. (1999). On the social relations of the hunter-gatherer band. In R.B. Lee & R. Daly (Eds.), *The Cambridge Encyclopedia of hunters and gatherers*. Cambridge: Cambridge University Press.
- Kennedy, A.E., Rubin, K.H., Hastings, P.D., & Maisel, B. (2004). Longitudinal relations between child vagal-tone and parenting behavior: 2 to 4 years. *Developmental Psychobiology*, 45, 10-21.
- Kleinginna, P., Jr., & Kleinginna A. (1981). A categorized list of motivation definitions, with suggestions for a consensual definition. *Motivation and Emotion*, 5, 263-291.
- 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, 191-195.
- Kodituwakku, P.W., Kalberg, W., & May, P.A. (2001). *Effects of prenatal alcohol exposure on executive functioning: Alcohol research and health: Alcohol-related birth defects: An update*, 25 (3) (online document from NIAAA)
- Konner, M. (2000). *The tangled wing*. New York: Owl Books.
- Konrath, S., O'Brien, E. H. & Hsing, C. (in press). Changes in dispositional empathy over time in college students: A meta-analysis. *Personality and Social Psychology Review*.
- Lanius, R.A., Vermetten, E., & Pain, C. (2010). *The impact of early life trauma on health and disease: The hidden epidemic*. New York: Cambridge University Press.
- Lapsley, D. K., & Narvaez, D. (2004). A social-cognitive view of moral character. In D. K. Lapsley & D. Narvaez (Eds.), *Moral development: Self and identity* (pp. 189-212). Mahwah, NJ: Erlbaum.
- Lerner, M. (2002). Pursuing the justice motive. In M. Ross & D.T. Miller (Eds.), *The Justice motive in everyday life*. Cambridge, MA: Cambridge University Press.
- Luna, B., Thulborn, K.R., Munoz, D.P., Merriam, E.P., Garver, K.E., Minshew, N.J. et al., (2001). Maturation of widely distributed brain function subserves cognitive development. *NeuroImage*, 13(5), 786-793.
- MacLean, P.D., 1990: *The triune brain in evolution: Role in Paleocerebral functions*. New York: Plenum.
- Mathews, V.P., Kronenberger, W.G., Wang, Y., Lurito, J.T., Lowe, M.J., & Dunn, D.W. (2005). Media violence exposure and frontal lobe activation measured by functional magnetic resonance imaging in aggressive and nonaggressive adolescents. *Journal of Computer Assisted Tomography*, 29(3), 287-292.
- McGilchrist, I. (2009). *The Master and his emissary*. New Haven, CT: Yale University Press.
- 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.
- Meier, B.P., Robinson, M.D., Wilkowski, B.M. (2006). Turning the other cheek: Agreeableness and the regulation of aggression-related primes. *Psychological Science*, 17(5), 136-142.

DARCIA NARVAEZ

- Mikulincer, M., & Shaver, P. R. (2001). Attachment theory and intergroup bias: Evidence that priming the secure base schema attenuates negative reactions to out-groups. *Journal of Personality and Social Psychology, 81*, 97-115.
- Mikulincer, M., & Shaver, P. R. (2007). *Handbook of adult attachment*. New York: Guilford.
- Mikulincer, M., & Shaver, P. R. (2005). Attachment security, compassion, and altruism. *Current Directions in Psychological Science, 14*, 34-38.
- Mikulincer, M., Shaver, P.R., Gillath, O. & Nitzberg, R.A. (2005). Attachment, caregiving, and altruism: boosting attachment security increases compassion and helping. *Journal of Personality and Social Psychology, 89* (5), 817-839.
- Mischel, W. (1973). Towards a cognitive social learning theory reconceptualization of personality. *Psychological Review, 80*, 252-283.
- Moll, J., de Oliveira-Souza, R., Eslinger, P. J., Bramati, I. E., Mourao-Miranda, J., Andreiulo, P. A., et al. (2002). The neural correlates of moral sensitivity: A functional magnetic resonance imaging investigation of basic and moral emotions. *Journal of Neuroscience, 22*, 2730-2736.
- Moll, J., Zahn, R., de Oliveira-Souza, R., Krueger, F., & Grafman, J. (2005). The neural basis of human moral cognition. *Nature Reviews: Neuroscience, 6*, 799-809.
- Narvaez, D. (2006). Integrative ethical education. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp. 703-733). Mahwah, NJ: Erlbaum.
- Narvaez, D. (2007). How cognitive and neurobiological sciences inform values education for creatures like us. In D. Aspin & J. Chapman (Eds.), *Values education and lifelong learning: Philosophy, policy, practices* (pp. 127-159). Dordrecht: Springer Press International.
- Narvaez, D. (2008a). Human flourishing and moral development: Cognitive science and neurobiological perspectives on virtue development. In L. Nucci & D. Narvaez (Eds.), *Handbook of moral and character education* (pp. 310-327). Mahwah, NJ: Erlbaum.
- Narvaez, D. (2008b). 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: 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. (2013). 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. 341-357). New York: Oxford University Press.
- Narvaez, D. (14 May 2011). Moral neuroeducation from early life through the lifespan. *Neuroethics, 1-13*. doi:10.1007/s12152-011-9117-5
- Narvaez, D., Brooks, J., & Hardy, S. (2012). *Early Experience, Prosocial Personality, Moral Identity and Moral Values*. Manuscript under review.
- Narvaez, D., Brooks, J., & Mattan, B. (January, 2011). *Triune ethics Moral Identities are Shaped by Attachment, Personality Factors and Influence Moral Behavior*. Annual meeting of the Society for Personality and Social Psychology, San Antonio.
- Narvaez, D., & Gleason, T. (2013). Developmental optimization. In D. Narvaez, J., Panksepp, A. Schore, & T. Gleason (Eds.), *Human nature, early experience and the environment of evolutionary adaptedness* (pp. 307-325). New York: Oxford University Press.
- Narvaez, D., Gleason, T., Brooks, J. Wang, L., Lefever, J., Cheng, A., & Centers for the Prevention of Child Neglect (2012). *Longitudinal effects of ancestral parenting practices on early childhood outcomes*. Manuscript under review.
- Narvaez, D. Wang, L., Deng, L., Cheng, A., & Gleason, T. (2012). *Ancestral Parenting Practices and Child Outcomes in Chinese Three-Year-Olds*. Manuscript under review.
- Narvaez, D., Panksepp, J., Schore, A., & Gleason, T. (2013). The value of the environment of evolutionary adaptedness for gauging children's well-being. In D. Narvaez, J. Panksepp, A. Schore, & T. Gleason (Eds.), *Human nature, early experience and the environment of evolutionary adaptedness* (pp. 3-30). New York: Oxford University Press.

NEUROBIOLOGY AND MORAL MINDSET

- Neisser, U. (1976). *Cognition and reality*. New York: W.H. Freeman and Company.
- Nelson, E.E., & Panksepp, J. (1998). Brain substrates of infant-mother attachment: Contributions of opioids, oxytocin, and norepinephrine. *Neuroscience and Biobehavioral Reviews*, 22, 437-452.
- Newman, M.L., Holden, G.W., & Delville, Y. (2005). Isolation and the stress of being bullied. *Journal of Adolescence*, 28, 343-357.
- Oliner, S. P. (2002). Extraordinary acts of ordinary people: Faces of heroism and altruism. In S. G. Post, L.G. Underwood, J.P. Schloss, & W.B. Hurlbut (Eds.), *Altruistic love: Science, philosophy, and religion in dialogue*. (pp. 123-139) New York: Oxford University Press.
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. New York: Oxford University Press.
- Perry, B.D., Pollard, R.A., Blakely, T.L., Baker, W.L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and “use-dependent” development of the brain: How “states” become “traits.” *Infant Mental Health Journal*, 16, 271-291.
- Pickett, K., & Wilkinson, R. (2010). *The spirit level: Why greater equality makes societies stronger*. New York: Bloomsbury 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.
- Pollak, S.D. & Perry, B. (2005). Early neglect can hinder child’s relationships. *Proceedings of the National Academy of Sciences*, Nov. 21-25.
- Porges, S.W. (1996). Physiological regulation in high-risk infants: A model for assessment and potential intervention. *Development and Psychopathology*, 8, 43-58.
- Porter, C.L. (2003). Coregulation in mother-infant dyads: Links to infants’ cardia vagal tone. *Psychological Reports*, 92, 307-319.
- Powell, D., Fixen, D., & Dunlop, G. (2003). *Pathways to service utilization: A synthesis of evidence relevant to young children with challenging behavior*. University of South Florida: Center for Evidence-based Practice: Young Children with Challenging Behavior.
- Schanberg, S. (1995). The genetic basis for touch effects. In T. Field (Ed.), *Touch in early development* (pp. 89-104). Mahwah, NJ: Erlbaum.
- Schore, A. (2003a). *Affect regulation and the repair of the self*. New York: Norton.
- Schore, A. (2003b). *Affect dysregulation and disorders of the self*. New York: Norton.
- Schore, A.N. (2001). The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22, 201-269.
- Schwartz, J.M., & Begley, S. (2003). *The mind and the brain: Neuroplasticity and the power of mental force*. New York: HarperCollins.
- Shaver, P.R., & Mikulincer, M. (2007). Adult attachment strategies and the regulation of emotion. In J.J. Gross (Ed.), *Handbook of emotion regulation* (pp. 446-465). New York: Guilford Press.
- Siegel, D.J. (1999). *The developing mind: How relationships and the brain interact to shape who we are*. New York: Guilford.
- Solomon, D., Watson, M.S., & Battistich, V.A., (2002). Teaching and school effects on moral/prosocial development. In V. Richardson (Ed.), *Handbook for research on teaching* (pp. 566-633). Washington, D.C.: American Educational Research Association.
- Sroufe, L.A., Egeland, B., Carlson, E.A., & Collins, W.A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford.
- Tomkins, S. S. (1965). Affect and the psychology of knowledge. In S. S. Tomkins & C. E. Izard (Eds.), *Affect, cognition, and personality* (pp. 72-97). New York: Springer.
- U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (1999). *Mental Health: A Report of the Surgeon General*. Rockville, MD: Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.
- Vroom, V. (1964). *Work and motivation*. New York: Wiley.
- Wilson, T.D., Lisle, D.J., Kraft, D., & Wetzel, C.G. (1989). Preferences as expectation-driven inferences: Effects of affective expectations on affective experience. *Journal of Personality and Social Psychology*, 56(4), 519-530.

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