

The Music of Dan's Life

Nadia Bruschweiler-Stern, M.D.

ABSTRACT

In a persistent quest for understanding of what animates life and produces human experience, Daniel Stern was able to put the unspeakable into words. Impregnated with the world of childhood, he described the Forms of Vitality, rendering as never before the ubiquity of the music of life that animates and underlies the unfolding of movement and action. This concept opens new horizons for many disciplines.

Examples will describe advances in neuroscience or for the diagnosis of autism, as well as the essential function of human relationships in early development.

It is especially inspiring to live in close contact and collaborate with people who had the intuition and the necessity to explore fuzzy areas of developmental psychology and psychoanalysis. Berry Brazelton, Lou Sander, and especially of course Daniel Stern are among them. Their courage and perseverance in this challenge have brought about a revolution. The baby has become a person, and the mother is not systematically made guilty anymore for everything going wrong with her child. One typical example that comes to mind is the previous reading of the *refrigerator mother* who was responsible for the autistic condition of her child, to a turned around and more actual understanding of a mother who may become like a refrigerator because of her child's autism. She gets depressed to have a nonresponsive child with whom she cannot share her world on the one hand, and on the other hand her emotionally restrained behavior often maximizes the possibility of interactions with him: So, one way or the other, she is led to become a mother who may seem like a refrigerator.

This new understanding of the effect of the infant's characteristics on the caregiver has changed therapy and the life of many families. With his work on infant and early interaction, Dan has largely contributed to this corrective movement.

Where did it begin?

If Dan challenged the notion that a baby's life starts in a symbiotic unit with its mother, it is because he had the opposite experience in his own infancy and childhood. His mother was very beautiful, but emotionally absent. When Dan was a baby, she remained mute for a whole year after the death of her father. Therefore, Dan experienced early on how it felt to be alone and learned that a relationship was not a given but that it had to be built.

Dan had a nanny who could only speak Czech, and he could understand Czech before English. When he was two years old, he was hospitalized for several months and this privileged link with his nanny was abruptly interrupted. He was unable to understand the staff's language and became acutely aware of the behaviors directed towards him; he became an extremely attentive watcher of behavior. This is what he said about his early experience in the hospital, "I became totally attuned to what people were doing, to the shifts of expression on their faces. I would listen to them, but I would listen to the music and not the lyrics, because I didn't understand the lyrics" (Galinsky, 2010, p. 76). See Figure 1.

CONTACT Nadia Bruschweiler-Stern, M.D. ✉ nadia.stern@grangettes.ch 📍 Swiss Brazelton Center, Clinique des Grangettes, 1224 Geneva, Switzerland.

Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/hpsi.

Copyright © Melvin Bornstein, M.D., Joseph Lichtenberg, Donald Silver



Figure 1. Daniel Stern, 2 years old.

This interest continued from reading the gazes and behaviors addressed to him, to the fine observation of interactions and to the phenomenological analysis of people's subjective experience. Such themes have been central in his life and in his work (Stern, 1971, 1977, 1984, 1985, 1990, 1994, 1995, 1999, 2002, 2004, 2010; Stern and Bruschweiler-Stern, 1998).

Dan and I met more than 30 years ago. He didn't speak French and I couldn't speak much English. When he described his impression of me in terms of dance, animal fluidity, vitality, curves, and volumes, I was amazed and won over. His reading was totally unexpected, original, eccentric, and poetic. On the other hand, it felt extremely familiar to me. It was Dan's world, his gaze still infused with the perceptual characteristics of infancy. This primary perception lies beyond words and has the shape of what Dan called later *forms of vitality* (Stern, 2010). It lies beyond words and, therefore, way beyond disciplines.

From then on, everything was good to nurture his mind, which was curious and avid for sensations from all sources. New people with the captivating mobility of their faces, their symmetry or asymmetry; the tremendous power of the ocean in quietness, or anger; the projection and then aspiration of the water into the dancing waves: as chaos and structure working in constant readjustment in nature all around; music, its predictable melodic line, its variations and surprises; dance, the emotion within a gesture, the unfolding of the movement in time producing the sense of grace. . . . He would let himself get rapt or wrapped, rocked or taken away, talked to, soothed, made alive by the experience of these forces. He could immerse himself in the present moment and see in it infinite horizons.

He was captivated by all of this, long before the world of words. However, and this is part of his genius, Dan not only knew how to grasp this nonverbal world, but he could also make it explicit. He could translate it into words with an exquisite simplicity and precision. He would search for the right form, whatever preexisting theories would say. I keep a vivacious memory of my sense of relief when I heard him talk for the first time. I was no longer hearing about psychological theories that were struggling to make sense. Dan's reading finally made it clear and fall into place. An exalting feeling!

Dan's rich and eclectic culture allowed him to articulate his discoveries in the world of knowledge. Thus, by questioning well-established theories, he has often catalyzed progress in various domains.

Instinctively, Dan dreaded habits, rules, societies, or anything that would bring in formalism or impose any kind of constraints. He would put persistent energy into undoing, ignoring, or getting around them. In the same spirit, whatever he may have said previously was not engraved in stone and would not restrict him: For him, everything was questionable, in evolution and transformation. He could write up to twenty-six drafts for a paper where the writing process would reveal new aspects and would lead him to rethink his subject. He was pleased to not belong to any association and to keep a sense of owing nothing to anyone whatever the price, the contradictions or the complications. He had the absolute urgency to keep a free mind.

I observed with fascination how his intuition pulled his attention into questions where there was either no theory or where it was wrong or confused. His flexibility, his playful mind, and his creativity were always ready to turn around the most well-established notions, and change them sometimes in fundamental ways.

Forms of vitality, closing the circle

In his last book, Dan finally addressed the concept of “forms of vitality,” thus closing the circle by calling attention to an aspect of human experience that he said was “hidden in plain view” (Stern, 2010, p. 3). His last book really came from the very beginning of his life.

How do we know that we are alive? How to grasp the subjective experience of a fleeting moment, a burst of energy or crude emptiness? How does an observer know about the feelings of another person? These questions occupied Dan a great deal.

He thought that we know that we are alive because we move. And any movement unfolds in a certain stretch of time, so it has a temporal contour as it begins, flows through, and ends. Therefore, a sense of time, its shape and duration, is created in the mind, along with the movement. A movement happens in space, with a certain amount of force and it also seems to be going somewhere, so it has directionality, an intention as well. So Dan called time, space, force, and direction the four daughters of movement. These five dynamic events go together to create what he called a “fundamental dynamic pentad” (Stern, 2010, pp. 4–5). Together, they give rise to the experience of vitality, as a natural Gestalt. Words like *exploding, pulsing, fading, surging, accelerating, bouncing, powerful, cresting, gliding, relaxing, floating, gentle, uncertain, effortless, tightly* and many more give a shape and characterize the fundamental dynamic pentad of an action.

According to Dan,

forms of vitality are the felt experience of force-in movement-with a temporal contour and a sense of aliveness of going somewhere. . . . They are more form than content. They concern the *how*, the manner, and the style, not the *what* or the *why*. . . . It constitutes a separate kind of experience. I argue that dynamic forms of vitality are the most fundamental of all felt experience when dealing with other humans in motion. [Stern, 2010, p. 8]

The *how* conveys nuanced information about the inner state of a person. According to Dan,

We live impressions of vitality like we breathe the air, we naturally experience people in terms of their vitality. It will tell us about their emotions, their state of mind, what they are thinking and what they really mean, their authenticity, what they are likely to do next, as well as their health state. All this is expressed in their constant movements. [Stern, 2010, p. 3]

Dan and I had ongoing discussions over the years about the way things are done and what it conveys. The arts and particularly certain artists, a dancer or a musician’s performance, move people by the expressions of vitality that resonate in them, as well as interactions with friends or a mother with her new baby. Dan writes:

As you watch someone smile at you there are micro-shifts in the quality and intensity of the act, and of the feeling evoked in you. These shifts trace a time line. The smile may explode on the other person’s face, giving you an accelerating feeling of surprise and pleasure, a sudden lift. Or it may form slowly, too slowly, even sneakily, evoking a growing wariness. Or it may form spontaneously, but then fade too rapidly, evoking an expanding sense of negatively tinged curiosity. Vitality affects exist in all subjective experience, at all ages, and in all domains and modalities. [Stern, 2010, p. 13]

At the beginning of life, an infant is first and predominantly sensitive to unfolding form, space, rhythm, and force. He is immersed in this world of the forms of vitality. The absence of language allows and obliges him to stay there for many months. It is the opportunity for him to experience and learn a wide scope of relational procedures of what it is like to be with someone” (Stern, 2002, p. 5). Such equipment of implicit relational knowings (IRK) is indispensable to integrate the social life in his specific cultural environment (Stern 1971, 1977, 1985; Boston Change Process Study Group 1998,

2002, 2005, 2007, 2008, 2010; Lyons-Ruth, 1998). IRKs are, for example, what you do with your eyes when you are with someone, the duration of a mutual gaze, the acceptable level of closeness with different people, the efficient way to turn away and how with whom, how to get out of an embarrassing situation, how loud you can laugh, what you do with your face and with whom, how to kiss, how to joke, to negotiate, to dominate, how to read body language, how to get friends, how to solicit to get food or physical contact, the rules for interpersonal games like pee-ka-boo or "I'm gonna get you", etc..

In the mother-infant interactions, the forms of vitality are the underlying theme in the structure of their interactions and their games. The forms of vitality of their exchanges shape a regulatory process, as well as an apprenticeship of implicit relational knowings. For example, mothers use systematically very different melodic phrases, rhythm, and intensity for different messages, questions or orders: "Pay attention!" "Oh, it's okay." Whether an IRK is expressed in a verbal exclamation or a nonverbal expression of body and face, its form of vitality carries distinct information that a baby understands. Indeed, for the baby, the music comes before the lyrics.

Forms of vitality and neuroscience

The forms of vitality, as described by Dan, represent a new concept identified across many disciplines that is similarly new for the neurosciences. Dan was very curious about a possible existence of a neural correlate for his concept. We visited Giacomo Rizzolatti several times, along with his team who do Brain and Behaviour Research at the University of Parma (Rizzolatti et al., 1996; Rizzolatti and Craighero, 2004). Two interesting studies about forms of vitality were designed and published with this group. (Rochat et al., 2013; Di Cesare et al., 2013).

The first study aimed at finding out if typically developing children (TD) and children with Autism (ASD) between 7 and 19 years old differ in distinguishing between the ways an action was executed (Rochat et al., 2013). A short variation in the dynamics of action may let the recipient understand whether the agent is gentle or angry, whether he performs the action willingly, reluctantly, or hesitatingly, and so on.

It has been shown that children with ASD recognize as well as TD children *what* an agent is doing (Boria et al., 2009; Hamilton, Brindley and Frith, 2007). In contrast, they are impaired in understanding *why* an agent is performing a certain action (Boria et al., 2009). [Rochat et al., 2013, p. 1919]

However, to date, there were no experiments that investigated whether individuals with ASD are impaired in understanding the vitality forms, the *how*. See Figure 2.

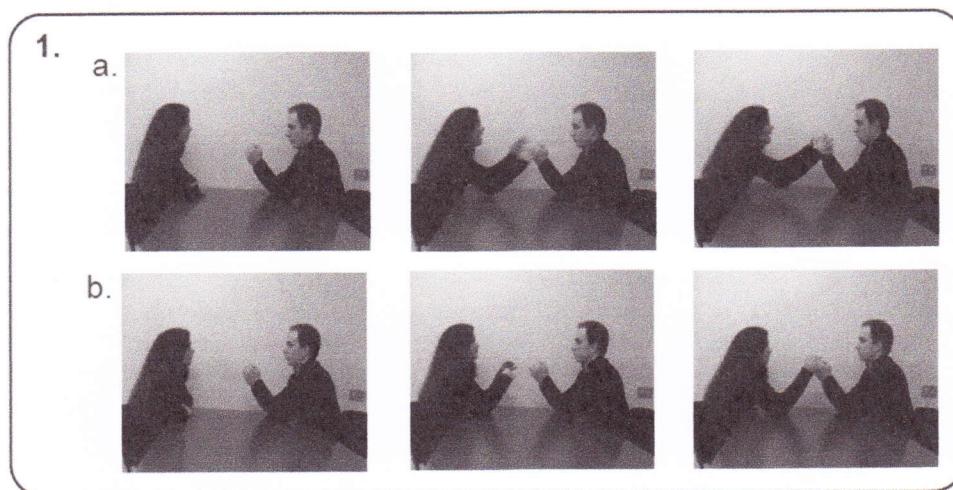


Figure 2. Action: Take the other's hands. Forms of vitality: a) vigorous; b) gentle.

In our study, the participants were presented with pairs of short videos showing interactions between two actors performing actions executed with same or different vitality forms: energetic or gentle. They had to identify either the actions as same or different, or the way the action was performed as same or different. The results showed a clear dissociation between the two tasks. Individuals with ASD did not differ from controls in the *what* task. In contrast, they showed a clear deficit in the *how* task. Our results suggest that the impairment in vitality form recognition is a primary deficit due to difficulty to make sense of other's behavior on the basis of action dynamics.

The data also indicates that this impairment is present not only in children with ASD, but persists through maturation. As Rochat (2013, p. 1922) writes,

This finding is of great interest especially considering that other kinds of action understanding deficiencies, including those indexed by Theories of Mind tests, tend to vanish with age (Frith, 2003; Happé, 1995). This suggests that individuals with ASD may overcome cognitive action-understanding deficits, but not the basic sensory-motor deficits affecting vitality form recognition. This is interesting in light of a number of studies arguing that vitality form recognition is a primordial way of relating to and understanding others, thus representing a core element of social interactions (Rochat, 2009; Stern, 1984, 1985, 2004, 2010; Trevarthen, 1998; Trevarthen and Aitken, 2001).

These results bring new insight on the core social deficits in autism, and may provide a new conceptual platform for clinical interventions with individuals diagnosed with autism.

In the second study, we used functional magnetic resonance imaging (fMRI; Di Cesare et al., 2013) to investigate the neural correlates underpinning the recognition of vitality forms, the *how*. The participants were presented with the same short videos, however the films were cropped to avoid a possible attraction by the face and to facilitate the focus on the vitality form conveyed by the action itself. Again the participants were instructed to focus their attention on either the goal or the vitality form.

The anatomical regions specifically involved in the processing of vitality forms have been highlighted through the comparison between tasks, the *how* versus the *what*. The results showed that both action goal and vitality form recognition recruited the parieto-frontal network typically involved in encoding hand and arm actions (Rizzolatti and Craighero 2004, Caspers et al., 2010; Rizzolatti and Sinigaglia, 2010). And most importantly, the contrast vitality effect vs action recognition, *how* versus *what*, revealed activation of the dorso-central insular cortex.

This region is functionally separated from the anterior insula, which is involved in emotions expression and recognition (Kurth et al., 2010; Caruana et al., 2011). This indicates that the circuitry mediating emotions and vitality forms are anatomically different. These results suggest that there is a region in the brain, the dorso-central insular cortex, which seem to be specifically recruited to identify forms of vitality.

Dan was thrilled with these results. They open the door for more studies to better understand these complex processes of social interactions and clinical situations like autism.

Early learning of forms of vitality

A brief example of a mother and baby interaction will illustrate the early apprenticeship of implicit relational knowing (IRK). Researchers know well that to heighten the arousal and the pleasure in a game, a parent will put in a level of stimulation that will bring the child just under the threshold of overstimulation (Stern, 1977, 1985). When they play face-to-face with their infants, parents constantly regulate their level of arousal in their interactions with a modulation of their form of vitality. *Themes and variations* are the material from which the baby learns what it is like to be with his mother: What can be expected to happen, what usually happens. With regularity and predictability, a sense of security builds up, and the right amount of novelty and surprise triggers interest and pleasure.

In 1990 and 1991, Dan and I went to Romania with a program aimed at training the health practitioners to do research in the orphanages to lead them to change their own institutions. René Spitz demonstrated in the '40s how dreadfully damaging these institutions are for young children. During our trips, I made a study with Dan's collaboration to investigate more specifically the social availability left in the babies abandoned in the orphanages (Bruschweiler-Stern, 1995). Mihail, an 8-month-old baby who spent his life there, was a participant. A short piece of interaction with him illustrates the consequence of a lack of early exposure to another engaged human caregiver and the resulting gap in the early acquisition of IRK.

Mihail was lying on his back with his eyes wide open in an expression of surprise, his body laid stiff with his arms up to the side and close fists. Except for his eyes, he was almost immobile. After a gentle approach and three stimulations in different modalities (visual, auditory and tactile) that didn't trigger much of the positive emotional response expected, I started the game with him "I'm gonna get you," which combines all three modalities. The game plays on the timing with an increased interval between three "I'm gonna get you" stimulations and finally a violation of the progression with a shortened interval: "Got you!" Usually, the rupture in the progression of the delay provokes a surprise and laughter.

The point here is that Mihail and I were very poorly adjusted for most of the game. He was looking around, unfocused, and I was searching very hard a way to capture his attention. It felt like he was not very concerned. I was modulating all possible parameters along the way: the tone of my voice, its intensity, the rhythm of the stimulations, the pressure and the continuity of the tactile contact, my expression, and the distance of my face. I wanted to see if we could meet in some kind of shared joy. But his attention was all over the place. After the first "I'm gonna get you," wondering if he might need a higher level of stimulation to be captured, I tried it. But it was a wrong hypothesis: He had a startle and then he pulled out his tongue as a way to regulate himself after a surprise that seemed to have been intense for him. For the following steps of the game, I tried to remain softer and, especially, I kept my hands on him more. More gentleness and continuity in touch helped to progress up to a touching moment; finally Mihail had a little smile. Not huge, but real. Dan and I wondered if this wasn't the very first smile of his life. See Figure 3.

This brief interaction reveals how little experience Mihail had, at 8 months old, of interacting with other human beings. Actually, he has experienced so little social interaction with an engaged other, seeking for him as a social partner, as a person, that he seems not to have much interest or much of a repertoire for it. He doesn't know that a story unfolds, that this is a pleasant game ending up with a joint laughter. He certainly does not show any anticipation of pleasure.

However, he reaches a pleasant place at the end, with a mutual gaze and a little smile. As Dan would say, a whole minidrama happened there, for both of us: Mihail and me.

The quality of Mihail's hectic engagement demonstrates the effect of severe deprivation of social interaction. This is at an age when a baby should be recognized as the partner of a dialogue and be immersed in frequent "sound and light shows" with loving caregivers to learn a whole range of IRK with their form of vitality, the basics of becoming a social human being (Bruschweiler-Stern, 2009, pp. 536, 540, 543). Conversely, one can measure how much a baby who lives with an engaged caregiver has already learned at this age in all domains of development, and especially in his sense of self and of self with others.

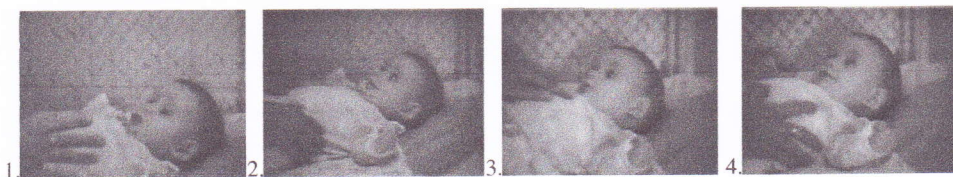


Figure 3. Mihail.

Dan's music

Whatever he went through in his early life, Dan made the best out of it in his work. With his creative mind, his rich and complex vitality, he shed light on a world that is so intimately part of us that we hardly see it. At times, while he was writing his book, Dan would get discouraged: "There is nothing there, it's only air". It would just take for me to convey my enthusiasm and confidence to strengthen the wind, revitalize his momentum to reveal further to us the music of this air, so transparent but so dynamic.

Nothing can illustrate his talent better than his own words. Here are a few lines from *Diary of a Baby* (Stern, 1990, p. 59) to reexperience Dan's music. Joey is 4.5 months old and has a morning face-to-face duet with his mother:

Gradually life flows back into her face.
The sea and sky are transformed.
The surface now shimmers with light.
New spaces open out. Arcs rise and float.
Volumes and planes begin their slower dance.
Her face becomes a light breeze that reaches across to touch
Me. It caresses me. I quicken. My sails fill with her.
The dance within me is set free.

Notes on contributor

Nadia Bruschiweiler-Stern, M.D., paediatrician and child psychiatrist, is the Director of the Brazelton Centre of Switzerland and a supervisor in Psychiatry and Obstetrics at the University Hospital of Geneva. She received the Swiss Prize for Scientific Research for Prevention in Psychiatry and Psychotherapy. She is a co-author with Daniel Stern of the book *The Birth of a Mother* and a member of the Boston Change Process Study Group who published *Change in Psychotherapy*. She was Daniel Stern's wife for almost 30 years, until he died.

References

- Boria, S., M. Fabbri-Destro, L. Cattaneo, L. Sparaci, C. Sinigaglia, E. Santelli, et al. (2009), Intention understanding in autism. *PLoS One*, 4(5): e5596.
- The Boston Change Process Study Group (1998), Non-interpretative mechanisms in psychoanalytic therapy: The "Something more" than interpretation. *Internat. J. Psycho-Anal.*, 79(5): 903–921.
- _____. (2002), Explicating the implicit: The local level and the microprocess of change in the analytic situation. *Internat. J. Psycho-Anal.*, 83: 1051–1062.
- _____. (2005), The "Something more" than interpretation revisited: Sloppiness and co-creativity in the psychoanalytic encounter. *J. Amer. Psychoanal. Assn.*, 53(3): 693–729.
- _____. (2007), The foundational level of psychodynamic meaning: Implicit process in relation to conflict, defense, and the dynamic unconscious. *Internat. J. Psycho-Anal.*, 88: 1–16.
- _____. (2008), Forms of relational meaning: Issues in the relations between the implicit and reflective-verbal domains. *Psychoanal. Dial.*, 18: 125–148.
- _____. (2010), *Change in Psychotherapy – A Unifying Paradigm*. New York, W. W. Norton & Company.
- Bruschiweiler-Stern, N. (1995), La disponibilité socio-affective des bébés abandonnés dans deux orphelinats roumains. *Doctoral dissertation, Medical School, University of Geneva*, n° 9612.
- _____. (2009), The neonatal moment of meeting—Building the dialogue, strengthening the bond. *Child Adol. Psych. Clinics N. Amer.*, 18(3): 533–544.
- Caruana, F., A. Jezzini, B. Sbriscia Fioretti, G. Rizzolatti, & V. Gallese. (2011), Emotional and social behaviors elicited by electrical stimulation of the insula in the macaque monkey. *Current Biol.*, 21(3): 195–199.
- Caspers, S., K. Zilles, A. R. Laird, & S. B. Eickhoff. (2010), ALE meta-analysis of action observation and imitation in the human brain. *Neuroimage*, 50: 1148–1167.
- Di Cesare, G., C. Di Dio, M. J. Rochat, C. Sinigaglia, N. Bruschiweiler-Stern, D. N. Stern, & G. Rizzolatti. (2013), The neural correlates of "vitality form" recognition: An fMRI study. *Soc. Cog. and Affect. Neurosci.*, 9(7): 951–960. doi: 10.1093/scan/nst068. Epub 2013 Jun 5
- Frith, U. (2003), *Autism. Explaining the Enigma* (2nd ed.). Oxford, UK: Blackwell.
- Galinsky, E. (2010), *Meaning in the Making*. New York: Harper Collins.

- Hamilton, A. F., R. M. Brindley, & U. Frith. (2007), Imitation and action understanding in autistic spectrum disorders: How valid is the hypothesis of a deficit in the mirror neuron system? *Neuropsychologia*, 45: 1859–1868.
- Happé, F. (1995), The role of age and verbal ability in the Theory of Mind task performance of subjects with autism. *Child Develop.*, 66: 843–855.
- Kurth, F., K. Zilles, P. T. Fox, A. R. Laird, & S. B. Eickhoff. (2010), A link between the systems: Functional differentiation and integration within the human insula revealed by meta-analysis. *Brain Structure Function*, 214: 519–534.
- Lyons-Ruth, K. (1998), Implicit relational knowing: Its role in development and psychoanalytic treatment. *Infant Ment. Health J.*, 19(3): 282–289.
- Rizzolatti, G., & L. Craighero. (2004), The mirror-neuron system. *Annual Rev. Neurosci.*, 27: 169–192.
- _____, L. Fadiga, V. Gallese, & L. Fogassi. (1996), Premotor cortex and the recognition of motor actions. *Cogn. Brain Res.*, 3: 131–141.
- _____, & C. Sinigaglia. (2010), The functional role of the parieto-frontal mirror circuit: Interpretations and misinterpretations. *Nature Neuroscience*, 11: 264–274.
- Rochat, M. J., V. Veroni, N. Bruschweiler-Stern, C. Pieraccini, F. Bonnet-Brilhault, C. Barthélémy, et al. (2013), Impaired vitality form recognition in Autism. *Neuropsychologia*, 51(10): 1918–1924. doi: 10.1016/j.neuropsychologia.2013.06.002. Epub 2013 Jun 20.
- Rochat, P. (2009), *Others in Mind: The Origins of Self-Consciousness*. New York: Cambridge University Press.
- Stern, D. N. (1971), A micro-analysis of mother–infant interaction: Behaviour regulating social contact between a mother and her three- and-a half month old twins. *J. Amer. Acad. Child Psych.*, 10: 501–517.
- _____. (1977), *The First Relationship: Infant and Mother*. Cambridge, MA: Harvard University Press.
- _____. (1984), Affect attunement. In: *Frontiers of Infant Psychiatry*, ed. J. D. Call, E. Galenson, & R. Tyson. New York: Basic Books.
- _____. (1985), *The Interpersonal World of the Infant*. New York: Basic Books.
- _____. (1990), *Diary of a Baby*. New York: Basic Books.
- _____. (1994), One way to build a clinically relevant baby. *Infant Ment. Health J.*, 15: 9–25.
- _____. (1995), *The Motherhood Constellation*. New York: Basic Books.
- _____. (1999), Vitality contours: The temporal contour of feelings as a basic unit for constructing the infant's social experience. In: *Early Social Cognition: Understanding Others in the First Year of Life*, ed. P. Rochat. London: Erlbaum, pp. 67–90.
- _____. (2002), *The First Relationship: Infant and Mother*. Cambridge, MA: Harvard University Press.
- _____. (2004), *The Present Moment in Psychotherapy and Everyday Life*. New York: W. W. Norton.
- _____. (2010), *Forms of Vitality: Exploring Dynamic Experience in Psychology, the Arts, Psychotherapy, and Development*. New York: Oxford University Press.
- _____, & N. Bruschweiler-Stern. (1998), *The Birth of a Mother*. New York: Basic Books.
- Trevarthen, C. (1998), The concept and foundations of infant intersubjectivity. In: *Intersubjective Communication and Emotion in Early Ontogeny*, ed. S. Braten. Cambridge, UK: Cambridge University Press. pp. 15–46.
- _____, & K. J. Aitken. (2001), Infant intersubjectivity: Research, theory and clinical applications. *J. Child Psychol. and Psych.*, 42(1): 3–48.