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Expanding Empathic and Perceptive Awareness: The experience of attunement in Contact Improvisation and Body Weather

Sarah Pini and Catherine Deans

Introduction

Dance as a complex human activity is a rich test case for exploring perception in action. In this article we explore a 4E approach (including enactive, extended, embedded, embodied cognition) to perception/action in dance, focusing on the intersubjective and ecological aspects of attunement. One of the wellsprings of creativity, as we see it, is the co-created emergent experience of a confluence of intersubjective and ecological possibility manifesting in an expansion of the perceptive/active experience and enhanced empathy.

In this article we examine the question: what are the ways in which the performance ecology co-created in different dance practices influences empathic and perceptive experience? We adopt an enactive ethnographic (Wacquant 2005, 2015; Pini and Pini, 2019) and phenomenological approach to explore two distinct dance forms (see also Pini and Sutton, 2021; Grant, McNeilly and Wagner 2019; Bleeker, Sherman and Nedelkopoulou 2015; Ravn and Hansen 2013): Contact Improvisation (CI), a duet-system based practice aimed at fostering interkinaesthetic awareness, creativity, and challenging habits of movement (Pini, McIlwain and Sutton 2016; Kimmel, Hristova and Kussmaul, 2018; see also Novack 1988, 1990); and Body Weather (BW), an anti-hierarchical movement practice that cultivates sensitivity to the surrounding environment (Fuller 2014; 2018; Candelario 2019; De Quincey and Maxwell 2019).

Enactive ethnography

According to Wacquant ‘enactive ethnography, the brand of immersive fieldwork based on “performing the phenomenon,” is a fruitful path toward disclosing the cognitive, conative, and cathectic schemata (that is, habitus) that generate the practices and underlie the cosmos under investigation’ (2015: 2). Sarah Pini engaged in an enactive ethnographic immersive fieldwork performing and practicing CI and Body Weather over the course of three years (from 2014 to 2017) in both Italy and Australia.[{note}]¹ This approach was selected as it aligns with the conceptual framework of a 4E approach to cognition—a recent movement in cognitive science that recognizes the central role of the body in shaping the mind (Wilson 2002), which understands cognition as embedded, enactive, extended and embodied.[{note}]² The enactive ethnographic approach was also selected on the basis that it offered a depth and richness of subjective and intersubjective experience from which to draw.

As Noë has emphasized: ‘perceptual content becomes available to experience when perceivers have practical mastery of the ways sensory stimulation varies as a result of movement’ (2004: 119). This enactive view emphasizes the idea that the body is an organic whole that integrates capacities and abilities to perceive and to act, and ‘what people perceive depends upon what they are able to do, and what they do, in time, alters what they perceive’ (Gibbs 2005: 17). Similarly, dance scholar Edward Warburton argues for a phenomenological enactive approach that considers the moving body as the background mode of our consciousness and ‘the foundational role that perception plays in understanding and engaging with the world’ (2011: 65). Consciousness is deeply rooted in our bodily experience, and the way the body relates to the world. Thus, crucial to this approach was engagement in ‘performing the phenomenon’, which Pini engaged in directly in addition to research exploring the experience of other dancers with varying levels of experience in performing CI and Body Weather. Shaun Gallagher emphasizes this through the concept of the ‘body-environment’:

[T]his lived body environment, this elemental ‘flesh’ is neither, as Aristotle had postulated, in between the physical and the psychical, nor, in post-Kantian terms, in between the subject and the object. The lived body is at once physical and psychical. And more fundamental than the ‘distance’ required for the

subject-object distinction is the 'intertwining' and 'communion' of the lived body-environment. (Gallagher 1986: 166)

Gibson's ecological perceptual theory is also relevant here, as it frames perception as a dynamic coupling between the organism and the environment. According to Gibson, perceiving is what allows the organism to move and act, by picking up information from its environment. Researchers in ecological psychology note how 'Gibson terms this reciprocal "action-supportive information" an *affordance*' (Zahorik and Jenison 1998: 85, emphasis in original), i.e. the action-perception loops between the organism and its environment. Action-perception loops between the organism and the environment are bi-directional, in that often 'organisms alter environments so as to better function in them' (Heft 2007: 85). Thus, adopting a phenomenological and enactive approach to ethnography presupposes a direct engagement with the event under study: in this case two different performance practices and the way these two dance methodologies foster intersubjective experience and somatic attention that extends beyond the body of the performer. As cognitive anthropologist Edwin Hutchins has observed, cognition is to be understood as co-constituted by the interaction and interconnection of perception, action and thought across particular social beings and complex environments. According to Hutchins, 'perception, action, and thought will be understood to be inextricably integrated, each with the others. Human cognitive activity will increasingly be seen to be profoundly situated, social, embodied, and richly multimodal' (2010: 712). We hope to contribute to this endeavour through our exploration of these two different dance forms.

Contact Improvisation

CI's initiator and choreographer Steve Paxton (1975) described how interaction and somatic attention can differ within CI compared to other dance forms:

[B]alance is not defined by stretching along the centre columns of the body, as in traditional dancing, but by the body's relationship to that part which is a useful fulcrum, since in this work a body may as often be on head as feet and relative to the partner as often as to the floor. (Paxton 1975: 40)

CI had been described as ‘an evolving system of movement based on the communication between two moving bodies’ (Koteen and Smith 2008: xiv). Through this practice ‘the body, in order to open to these sensations, learns to release excess muscular tension and abandon a certain quality of wilfulness to experience the natural flow of movement’ (ibid.). Engaging with different groups of Contact Improvisers in Italy allowed Pini to trace some key features of CI, in particular ‘the absence of a judgmental attitude; a potential transformative power; attentiveness towards interkinaesthetic awareness, and a lack of a privileged standpoint’ (Pini, McIlwain and Sutton 2016: D.236). This has been evoked also by Behnke, referring to the peculiar character of CI as a form of dance that enables the shift from an egocentric perceptive standpoint to a ‘multiperspectival meeting of vectors in which I directly experience not only my own mobilized momentum, but that of others with whom I am in contact’ (2003: 52). Skill and expertise in CI thus require a nuanced attunement to interkinaesthetic interaction between and within participants (Deans and Pini forthcoming). Interkinaesthetic attunement is a concept developed by Behnke (2003) and used to describe the intercorporeal kinaesthetic experience at play within this dance form. In our view, interkinaesthetic attunement is a crucial factor in increase self and other oriented empathic experience.

Considering in detail the question of the way in which CI influences the perceptive and empathic experiences of its participants, we present interview data and observations from Pini’s fieldwork below. A number of characteristics emerged as salient, including the cultivation of perceptive awareness through intra- and inter-personal kinaesthetic attunement leading to an expansion of empathy towards the self and others that extends beyond the practice of CI. While the term ‘attunement’ has been used widely across various contexts in the cognitive sciences (Shaw, Turvey and Mace 1982) and ecological psychology (Kurz, Donaghue and Walker 2005), as well as in the humanities, including scholars in performance studies, communication studies and philosophy (see, for example, Lipari 2014), our use of the term is quite specific. In this paper we draw on Daniel Stern’s (1985) use of ‘attunement’ to suggest that there are important parallels between the nature of what emerges between parent and infant in attuned embodied interaction, and what can emerge through the practice of CI and BW. Stern emphasized the notion that it is through the resonance afforded by attuned

interaction of caregivers that we first begin to form our own sense of what we feel—our experience of the world. However, crucially—it is not simply an ‘experiencing with’ in terms of direct reflection of feeling or a ‘joining in’, but instead must also signal to the infant that the parent is not simply caught up in an emotional contagion of their experience, but can instead recognize their own separate centre of subjective experience (Stern 1985; Deans, McIlwain and Geeves, 2015).

Other characteristics that emerged from the fieldwork as salient that we wish to expand upon in this paper included: an expansion of the perception and experience of the felt-possibility of interaction through changes in the way of being in the world—with others, with gravity, with the space around; and an increased capacity to interact with the wholeness of the other participant and with the space, just as it is in the moment. We consider observations and interview responses that led to the emergence of these characteristics below, as well as discussing them in light of select approaches from the philosophical and psychological literature.

Interview participant Caterina Mocciola, international CI teacher and performer, described experiences of her perception changing through engagement in CI and the impact of this on her perception in general: ‘it [CI] became an extremely important part of how I interact with the world, [since I practice CI] I’m aware of so much more than I was before, not just within the dance studio but in my daily life, because you know you take it out with you. It has impacted so much of my life, the way I engage with things, the way I see things, or the way I experience things as well.’ Such responses to CI as a movement practice have a long history; several scholars have emphasized the transformative power of this dance training on the lived experience of its practitioners (Novack 1990; Pallant 2006; Koteen and Smith 2008; Little 2014; Pini, McIlwain and Sutton 2016; Sarco-Thomas 2018).

When asked further about the nature of the change in perception, she emphasized the sense of expanded awareness, and interaction between the elements of awareness, stating:

[I]t was a gradual process... It also altered the way I see things... I look at things in a different way, in the sense that there is always something to discover and something to notice... I can actually look at the shape, the composition, if there

is a line, a perspective, and how the light is getting reflected, and how that impacts my relationship to it and you know, the shadows on the wall, there is a wealth in the richness of details that I wasn't aware of before, and how all of these details are affecting me as I'm sitting here and talking to you... it has truly changed the way I perceive the world around me whether it's within the practice itself [CI] or not, like anything can be an improvisation, the way I speak to you is based on the attention that I bring into my voice and how I use my voice, how I'm sitting on this chair, how that door is, you know.

It is evident from Caterina's comments that the awareness cultivated through the practice of CI has permeated her perceptual-action experiences in her life more broadly. This has included an increase in her capacity for tuning into the nuanced interplay of the elements of person, space and self. Further evidence of this is captured in the cultivation of attention towards the interplay between intra and interpersonal attunement in the form of dual gaze, cultivated in CI:

[B]ecause you work with it, you have this constant dual thing of the internal and external even with the gaze, when you focus ... you go really internal and your eyes are open because you are registering what's around you, you are constantly aware of feet that are flying onto your head, or where is the floor, and you read it through the eyes, and you are reading through your body, through your partner's body mainly if you're doing something aerial, and then you can switch to the external gaze, so you have more presence within the environment around you, and when I was switching from one to the other, I seriously had no idea of where I was in the space.

As Caterina and other dancers described it, the practice of CI influences the 'life practice' in an iterative manner, expanding the capacity to attune to self and other and to flexibly move between (and to integrate) these perspectives such that they are no longer separate. Caterina further specified that

there is this duality, the constant connecting to the self and there is also connecting to the outside, so there is this thing that is innate, with the improvisation or something that you really want to develop through the journey

of an improviser, as a practice, an artistic practice and a life practice as well, because you can't separate them any longer.

We have argued elsewhere that there is a symmetry to the enhancement of self-attunement through first experiencing attunement from others (Stern 1985). The manner in which this capacity is expanded in CI actually mirrors the way in which this capacity forms in infancy through interactions with a caregiver (Deans and Pini forthcoming; Deans, McIlwain and Geeves 2015). What we wish to emphasize here is the expansion in empathy that can ensue. CI is a dance practice in which it is not only the affordances that come into play through the interaction of dancers' bodies in space, but also the attunement between and within dancers that allows a new experience of what-it-is-like to be in this body, in the presence of these dancers and in just-this-space at this moment. What can occur is an emergent unfolding, and at the same time a sense of being attuned to. In this case being 'felt'—a somatically based corollary of 'being seen'—and being felt just-as-you-are in this moment. The internal awareness shifts within the social/bodily/spatial/sound- scape and extends into the world, in ways that reach beyond the self.

Caterina emphasized a heightened awareness and expansiveness to the 'whole' human being and the whole environment together:

[T]he more details I actually manage to include in my awareness, the more choices I can make and the more I'm aware of the choices I make, the more I can include, so there is this... is like this active circle of everything that fits into each other, so then you can expand as a whole, together with the environment, as a whole human being together with the environment that surrounds you.

This notion of expanded perceptive awareness and the simultaneity of expanded action-possibilities fits neatly into an enactive approach. CI expands what it is possible to know and feel within one's own body as well as the body of the other. There is an expansion, a co-creation through kinaesthetic attunement within and between the dancers involved, that allows an increase in empathic awareness. This need not be the case, however, and interestingly CI can also encompass playful interactions that explore contrast, rather than focusing only on attuned interaction. Thus, while attuned interaction can form part of the CI experience, it does not have to.

Some views of empathy require that the subject have an understanding and experience of the wholeness of the other person in their full complexity, rather than relating to them as a part-self or extension of the self (Kohut 1971). In contrast to a utilitarian affordance for movement, this would instead encompass an awareness and appreciation for the specific dancers and the space, however they happen to be in that moment. Such an approach would then cultivate the experience of the boundaries of self/other in contrasting ways, that allow each to be separate. This again has a corollary in the developmental approach to development of the self, as in the work of Tronick (1989, 2007) who argues that it is through mismatch and repair that a greater capacity for empathy and sense of self first arises (Tronick 1989). The second author Catherine Deans has suggested elsewhere that hyper-attunement, which occurs when there is an unusually high degree of attunement between two people, may indeed inhibit full development of the kind of separateness needed for empathy, through inhibiting the capacity to attune to what is being experienced within (Deans, McIlwain and Geeves 2015). CI could be viewed as a kinaesthetic unfolding of mismatch and repair through which dancers come together, fall, roll, intertwine and unravel, all the while allowing themselves to move from their own improvised inclination and responding to the emergent meeting with others and the space around them.

Expansion in the affordances of experience of one's own lived body, as well as in what it feels possible to enact and imagine with others, are features of CI experience. This includes an expansion of the possible, which may encompass a shift in interaction-orientation and a tendency to perceive affordances for interactive possibilities where once this would not have been available. Thus, CI can extend affordances and attunement beyond the actual practice of the form and allow its practitioners an expansion of what feels possible in the social and natural landscape. This includes experimenting with inter-action—a playful exploration and experimentation that may not have felt like an option prior to developing this capacity through the dancing of CI.

Body Weather

Body Weather (BW) is a radical and anti-hierarchical movement ideology stemming from Butoh tradition, a Japanese avant-garde form of dance theatre initiated by

Japanese dancers and choreographers Tatsumi Hijikata and Kazuo Ohno. Body Weather was developed by Japanese performing artist Min Tanaka, who worked with Hijikata during the 1980s, and his Maijuku performance group through the 1970s and also into the 1980s. Fuller (2018) describes BW not as movement training but as a form of research, as a way of acquiring information and understanding with regards to the physical environment. Practitioners of BW say that this practice is informed by an anti-hierarchical approach. According to Fuller (2018), in Tanaka's view, notions of hierarchy and formality are linked because both restrict the body, reducing its potential for experience. Tanaka's ideology was 'to have no teacher, no students, and no physical movement that was better or more important than another' (Fuller 2014: 198).

Fuller emphasizes how for Tanaka 'Body Weather is not simply a training method, but an ideology that informs training, dance, and daily life' (ibid.). BW is a movement method and performance practice that explores interconnected relationships across bodies and their environments. Salient aspects of this methodology consist in understanding the body as a force of nature. BW training involves a mind/body focus where 'an individual's will is engaged in a struggle to expand the capacity to receive multiple stimulations from other individuals and the physical environment' (ibid.). We examine BW in light of changes in perceptive and empathic experience, most notably in altered perceptual sensitivity and attunement to the embodied multi-sensory ecology; an off-centredness that encourages access to a curious, non-judgemental approach; and a greater capacity to be with what is.

Sydney-based visual artist and performer Kirsten Packham described how the practice of BW can lead to

a very fine degree of sensitivity that you are able to access ... an interface between myself and the world that it encompasses an exploration of my corporeal reality beyond the social body and beyond a sort of utilitarian function. It is not outcome oriented. It is a continual exploration; this differentiates it from other styles or martial arts.

Through the practice of BW practitioners describe how a change in perceptive awareness can emerge that then permeates other aspects of life, a change that Kirsten describes as a shift in capacity for 'proprioceptive awareness, the way that senses work together'. This emergent nature of BW can provide the framework for

deep exploration—it is a practice that fosters changes in perception of body, of space and of others through attunement to self and others in the form of a heightened awareness of the interplay between self/other and environment. Interview participant Linda Luke, Sydney-based BW teacher and performer and lecturer in performance at the University of Wollongong, described an example of this:

I'm just looking at the window watching how the trees move, and I see, you know, how the movement of the natural environment, how it moves, sounds like a cliché you know but it is a dance in itself, totally right there in front of you, but the depth of perception from, because of the way you use your imagination in BW and the deep sensitivity to really tune in on this subtle level, it might help you to see the world, or not to see, but to perceive things differently.

As described above, developmentally, attunement allows the infant to begin to experience their internal states as known, as seen by their caregiver and signalled through another sensory register—an experience of what is inside being portrayed on the 'outside' by another (Stern 1985). This kind of resonant communication is fundamental to BW in the interaction between the dancer and particularly the natural environment in which they find themselves—'the sway of the trees' influencing what feels possible within the movement landscape of the dancer themselves, and not separate from it. The empathy with the natural world, and fine-tuned awareness of movement and shape and form within it, is sensitized in this movement practice.

A further way in which BW can expand perceptive and empathic awareness is through the cultivation of a different way of relating to experiences that arise within the perceptual field. Kirsten described how a BW practice fostered a transcendent experience and shift in this domain:

I discovered those moments, you can place your attention there or you can just observe what's the pathway for me now, like using my imagination to... it's kind of a liberating moment if you can stick with it, like an extended example might be like in bisoku: descend down the wall 1mm/sec and it gets to this point where everything is going 'ahhhh', but in 1mm/sec there are so many pathways you can go in any direction... all these things are available to you, micro spaces open up and imagination on top of that can support you... I had sort of

transcendence experience but that's what I was talking about before as stepping away, getting out the way of yourself. [{note}]3

This way of being-with is akin to the kinds of non-judgemental empathy offered in practices such as Eugene Gendlin's (1978) Focusing—an embodied empathic practice developed to assist its practitioners in stepping around dominant narratives to connect instead with the freshness of experience arising in the moment. Similarly, access to fresh emergent perspective occurs in BW through 'working outside the normal scales and speeds of human body, of habit, and it's like examining of habits or becoming aware of habits, and then, trying to let go', as Kirsten emphasized.

This altered experience of time and unfolding also allows for the cultivation of and transformation in the way that participants can be-with what arises. 'I think BW allow things to sit and it breaks down borders... it helps me to keep, to hold a bigger view of things' is how Kirsten put it.

These components of empathy that BW fosters in its participants can then alter the experience of whatever arises. One example described by Kirsten that captures the altered experience of attunement, curiosity and exploration occurred in relation to an injury she experienced:

[N]ow that I got an injury, I feel I'm in a space of unfamiliarity and that can be disorienting, however it is a rich opportunity, my injury enables me... it's kind of a matter of scale, I can use it to my advantage, it offers me ways of looking, like zooming in, looking at my hip joint and shifting my scale of movement to... using it in a positive way.

This shift in perspective and possibility for curious non-judgemental engagement with her bodily experience and being-in-the-world is continually fostered through this practice of shifting perceptive awareness.

Conclusions

The two dance forms CI and BW share the common attribute of co-creation of an expanded perception and experience of empathy. While this is cultivated through different practices in each dance form, commonalities include increased sensitivity and

attunement towards the interpersonal/natural environmental ecology, and cultivation of an openness and exploratory attentiveness that fosters fine-grained perceptive awareness and increased resonance and empathy.

With this work we emphasized how the cultivation of each dance practice allows for an increased sensitivity towards the environment and can change the way its practitioners perceive the world. We argued that through intersubjective kinaesthetic attunement (Behnke 2003, 2008) CI scaffolds the development of perceptive awareness of subtle shifts within ourselves and others, allowing for the cultivation of a capacity for flexibly traversing between conscious initiation of action, attuned responding and the intersection between the two. This process also allows a greater comfort with experiences of disorientation, a wholesome not-knowing in which there is just enough inward trust in balance, gravity and one's capacity to fall to allow the movement to unfold (Deans and Pini forthcoming).

We also investigated the expansion of perceptive and empathic experience through attunement in Body Weather [BW] through the practice of ecologically oriented broadening of awareness. We suggested that the capacity for empathy is enhanced in BW through drawing attention to, and perception of, the subtleties of being-with self and others in the natural world in a way that we do not typically have access to. Places that we might just pass through instead become an embodied multisensory ecology—our perceptive/active possibilities are expanded and with it our empathic capacity is enlarged.

By focusing on the variations in which embodied perceptual skills are enacted in specific dance forms and the expansion of perceptive experience through attunement, we stress the potential of the performing arts to cultivate and create new ways of empathic engagement with, and perceptual experience of, this fascinating world in which we find ourselves.

Notes

1 The ethnographic material presented in this paper was collected during Pini's doctoral research project at Macquarie University in Sydney. The project received formal ethics approval by the Faculty of Human Sciences Human Research Ethics

Sub-Committee on 20 July 2016. The interviewees mentioned in this paper gave consent to disclose their names. This research was made possible by a Macquarie Research Excellence Scholarship awarded to Pini, linked to the Australian Research Council Discovery Project 'Mindful bodies in action: A philosophical study of skilled movement' awarded to Doris McIlwain and John Sutton, and through Higher Degree Research Funding from the Faculty of Human Sciences and the Department of Cognitive Science at Macquarie University, Sydney, Australia.

2 For further elucidations on the 4E approach to cognition see also Menary (2010).

3 Bisoku refers to a component of BW methodology where practitioners train their capacity for moving at an extremely slow pace (see also Fuller 2014: 199). According to Fuller (2017), Tanaka's work with bisoku enables the manipulation of time in the form of slow movement (Fuller 2017: 82).

References

Behnke, Elizabeth A. (2003) 'Contact improvisation and the lived world', Studia Phaenomenologica 3: 39–61.

Behnke, Elizabeth A. (2008) 'Interkinaesthetic affectivity: A phenomenological approach', Continental Philosophy Review 41(2): 143–61.

Bleeker, Maaïke, Sherman, Jon Foley and Nedelkopoulou, Eirini, eds (2015) Performance and Phenomenology: Traditions and transformations, Routledge.

Candelario, Rosemary (2019) 'Dancing the space: Butoh and Body Weather as training for ecological consciousness', in Helen Thomas and Stacey Prickett (eds) The Routledge Companion to Dance Studies, London: Routledge, pp. 11–21.

Deans, Catherine, McIlwain, Doris and Geeves, Andrew (2015) 'The interpersonal development of an embodied sense of agency', Psychology of Consciousness: Theory, research, and practice 2(3): 315–25. DOI: 10.1037/cns0000071

Deans, Catherine and Pini, Sarah. (forthcoming) 'Skilled performance in Contact Improvisation: The importance of interkinaesthetic sense of agency', Synthese.

Fuller, Zack (2014) 'Seeds of an anti-hierarchic ideal: Summer training at Body Weather Farm', Theatre, Dance and Performance Training 5(2): 197–203. DOI: 10.1080/19443927.2014.910542

Fuller, John (Zack) (2017) One Endless Dance: Tanaka Min's experimental practice, CUNY Academic Works. https://academicworks.cuny.edu/gc_etds/2379

Fuller, Zack (2018) 'Tanaka Min', in Bruce Baird and Rosemary Candelario. (eds) The Routledge Companion to Butoh Performance. London: Routledge, pp. 483–490.

Gallagher, Shaun (1986) 'Lived body and environment', Research in Phenomenology 16: 139–70.

Gendlin, Eugene T. (2003). Focusing. Sydney: Random House.

Gibbs, Raymond W. (2005) Embodiment and Cognitive Science, Cambridge: Cambridge University Press.

Grant, Stuart, McNeilly, Jodie and Wagner, Matthew (2019) Performance phenomenology: To the thing itself. Cham, Switzerland: Palgrave Macmillan. DOI: 10.1007/978-3-319-98059-1.

Heft, Harry (2007) 'The social constitution of perceiver-environment reciprocity', Ecological Psychology 19(2): 85–105. DOI: 10.1080/10407410701331934

Hutchins, Edwin (2010) 'Cognitive ecology', Topics in Cognitive Science 2(4): 705–15.

Kimmel, Michael, Hristova, Dayana and Kussmaul, Kerstin (2018) 'Sources of embodied creativity: Interactivity and ideation in Contact Improvisation', Behavioral Sciences, 8(6), 52. DOI: 10.3390/bs8060052.

Kohut, Heinz (1971) The Analysis of the Self: A systematic approach to the psychoanalytic treatment of narcissistic personality disorders, New York, NY: International Universities Press.

Koteen, David and Smith, Nancy S. (2008) Caught Falling: The confluence of Contact Improvisation, Nancy Stark Smith, and other moving ideas, Northampton,

MA: Contact Editions.

Kurz, Tim, Donaghue, Ngaire. and Walker, Iain (2005) 'Utilizing a social-ecological framework to promote water and energy conservation: A field experiment', Journal of Applied Social Psychology 35(6): 1,281–300. DOI: 10.1111/j.1559-1816.2005.tb02171.x.

Lipari, Lisbeth (2014) Listening, Thinking, Being: Toward an ethics of attunement, University Park: Pennsylvania State University Press.

Little, Nita (2014) 'Restructuring the self-sensing: Attention training in contact improvisation', Journal of Dance & Somatic Practices 6(2): 247–60.

Menary, Richard (2010) 'Introduction to the special issue on 4E cognition', Phenomenology and the Cognitive Sciences 9(4): 459–63.

Noë, Alva (2004) Action in Perception, Cambridge, MA and London: The MIT Press.

Novack, Cynthia J. (1988) 'Contact Improvisation: A photo essay and summary movement analysis', The Drama Review 32(4): 120–35.

Novack, Cynthia J. (1990) Sharing the Dance: Contact Improvisation and American culture, Madison, WI: University of Wisconsin Press.

Pallant, Cheryl (2006) Contact Improvisation: An introduction to a vitalizing dance form, Jefferson: McFarland & Company, Inc.

Paxton, Steve (1975) 'Contact Improvisation', The Drama Review: TDR 19(1): 40–2.

Pini, Sarah, McIlwain, Doris and Sutton, John (2016) 'Re-tracing the encounter: Interkinaesthetic forms of knowledge in Contact Improvisation', Antropologia e teatro. Rivista di studi 7: D.226–D.243. DOI: 10.6092/issn.2039-2281/6268.

Pini, Sarah and Pini, Ruggero (2019) 'Resisting the "Patient" Body: A Phenomenological Account', Journal of Embodied Research, 2.1(2), p. (20:05). DOI: <http://doi.org/10.16995/jer.11>.

Pini, Sarah and Sutton, John (2021) 'Transmitting *Passione*: Emio Greco and the Ballet National de Marseille', in Kathrina Farrugia-Kriel. and Jill Nunes Jensen (eds) The Oxford Handbook of Contemporary Ballet. Oxford University Press. pp. 594-612. DOI: 10.1093/oxfordhb/9780190871499.013.51.

De Quincey, Tess and Maxwell, Ian (2019) 'Tess de Quincey: A future body', in Teresa Brayshaw, Anna Fenemore and Noel Witts (eds) The Twenty-First Century Performance Reader, Routledge.

Ravn, Susanne and Hansen, Helle Ploug (2013) 'How to explore dancers' sense experiences? A study of how multi-sited fieldwork and phenomenology can be combined', Qualitative Research in Sport, Exercise and Health 5(2): 196–213. DOI: 10.1080/2159676X.2012.712991

Sarco-Thomas, Malaika(2018) 'Momentum, gravity, and "sensational facts": Attending to interdisciplinary materiality through Contact Improvisation', in Stefan Aquilina and Malaika Sarco-Thomas (eds) Interdisciplinarity in the Performing Arts: Contemporary Perspectives, Malta University Press, pp. 291–321.

Shaw, Robert E. , Turvey, M. T. and Mace, William M. (1982) 'Ecological psychology: The consequence of a commitment to realism', in Walter B. Weimer and David S.Palermo (eds) Cognition and the Symbolic Processes, 2nd edn, Hillsdale, NJ: Lawrence Erlbaum Associates, p. 416.

Stern, Daniel (1985). *The interpersonal world of the infant*. New York, NY: Basic Books

Tronick, Edward Z. (1989) 'Emotions and emotional communication in infants', American Psychologist 44(2): 112–19.

Tronick, Edward Z. (2007). Interactive mismatch and repair: Challenges to the coping infant. In *The neurobehavioral and social-emotional development of infants and children* (pp. 155–164). New York, NY: W.W. Norton

Wacquant, Loïc (2005) 'Carnal connections: On embodiment, apprenticeship, and membership', Qualitative Sociology 28(4): 445–74. DOI: <https://doi.org/10.1007/s11133-005-8367-0>

Wacquant, Loïc (2015) 'For a sociology of flesh and blood', Qualitative Sociology 38(1): 1–11. DOI: <https://doi.org/10.1007/s11133-014-9291-y>

Warburton, Edward. C. (2011) 'Of meanings and movements: Re-languaging embodiment in dance phenomenology and cognition', Dance Research Journal 43(02): 65–84. DOI:10.1017/S0149767711000064

Wilson, Margaret (2002) 'Six views of embodied cognition', Psychonomic Bulletin & Review 9(4): 625–36. DOI: 10.3758/bf03196322

Zahorik, Pavel and Jenison, Rick L. (1998) 'Presence as being-in-the-world', PRESENCE: Teleoperators and virtual environments 7(1): 78–89.

<https://doi.org/10.1162/105474698565541>