Maranan, D. S. (2015). Speculative somatics. Technoetic Arts, 13(3), 291–300. http://doi.org/10.1386/tear.13.3.291_1. **This preprint differs slightly from the published version.**

Speculative somatics

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Abstract

Based on a presentation at The Undivided Mind conference at Plymouth University, this article sketches out speculative applications of somatics, the first person, phenomenological study of sensation, perception and movement. I first introduce the subject of somatics through an experiential exercise for the reader before summarizing theoretical aspects of somatic study. Drawing from the literature in embodied cognition and from personal recollections of embodied experiences, I propose how somatic approaches could potentially be used in working with immigrant communities, living in outer space, and empathizing with non-human animals.

Keywords: *somatics, sensorimotor learning, phenomenology, embodied cognition, physiological empathy, speculative somatics, immigrant somatics, microgravity somatics*

This article sketches speculative applications of somatics, the first person, phenomenological study of sensation, perception and movement. A primary goal of somatic learning processes is to bring aspects of prenoetic, affective experience into consciousness.[1] Since somatics is primarily experiential, it is best to introduce this article by asking you, the reader, to participate in an exercise that I now detail in a set of instructions. To get started, find someone who can read out – over the span of 5 to 10 minutes – the following to you: [2]

- Start by making yourself more comfortable in the current position you are in. If you are sitting, for instance, sit as comfortably as you can.
- Close your eyes. Turn your attention towards yourself.
- Are you aware of your breathing? Which parts of your torso are moving when you inhale? Which parts are moving when you exhale? Don't try to change anything, just lightly direct your attention to your breathing. Throughout this exercise, try simply to observe yourself and resist the temptation to change or 'fix' anything about yourself.
- Notice how your weight is being supported by the chair, table, ground or whatever surfaces you are in contact with. Which parts of you are in contact with

these surfaces? If the parts of yourself that are in contact with these surfaces – for instance, the back of your thighs, your calves, your back – were smeared with ink, can you imagine the sizes and the shapes of the ink blots that you would be making on the surfaces?

- Notice the space between the lower tip of your ear and the top of your shoulder. How far apart are your ears from your shoulders? Is the distance between your right ear and right shoulder the same distance as that between your left ear and left shoulder?
- Notice where your shoulders are relative to your pelvis. Are you leaning forward, or backward? Is your torso balanced on top of your pelvis?
- Notice your fingers. Are they curved inwards towards your palm, or are they extended out flat? Are the fingers of one hand more curved than the other?
- Now open your eyes and bring your attention back to the room.
- Notice if you feel any differences in the way the chair, floor, or table feels to you compared to when you began the exercise. If there is another person in the room with you, notice if anything has changed in the way you feel or think about them. Notice any other differences in what you can sense and feel compared to when you began this exercise.
- Notice if you still feel comfortable in your current position. Would you arrange yourself differently in your current position so that you can feel more comfortable? If so, do it now.

The soma

The exercise that I hope you have just experienced was intended to develop your soma – 'the living, self-sensing, internalized perception of oneself' (Hanna 1988: 20). The soma is contrasted against the externalized, objective, third-person perspective of a body. Because every individual both has a body and is a body (Shusterman 2008: 21), the soma is simultaneously creator, tool, material, product and witness. Somatics is the study of the soma, which places particular emphases on sensation, perception and motor action, and always in the context of the self-sensing self. [3] It does so by training the interoceptive, proprioceptive and kinaesthetic senses (Smyth 2012; Hanna 1988; Schiphorst 2008). Interoception is the 'sense of the physiological condition of the body' with respect to homeostasis (Craig 2003). Proprioception refers to the sense of 'limb position and movement, the sense of tension or force, the sense of effort, and the sense of balance'; kinaesthesia is a related construct that refers more specifically the sense of movement (Proske and Gandevia 2012).

Somatics has many related and subsidiary fields, techniques and approaches, and is closely related to other sets of practices, such as modern and contemporary dance, Eastern meditative traditions, and martial arts (Schiphorst 2008). Somatic practices are generally ameliorative, aiming to heighten awareness of the body – 'somatic connoisseurship' (Schiphorst 2011) – in order to improve the 'use of the self' (Gelb 1990; Shusterman 2008: 8). This is achieved by turning attention inward and using movement as a way to study sensation and perception.

Three speculative applications of somatics

Somatic theories, practices and skills have been extended to and applied in a wide variety of fields, from psychotherapy (Nolan 2014) to the design of new computing technologies (Höök et al. 2015; Lee et al. 2014; Levisohn 2011; Schiphorst 2008). It can also lead to insights in other design disciplines such as urban planning and architecture (see for instance Biggs 2015). In this article, I sketch out further, speculative applications of somatics. Detailed exploration and discussion of each scenario is deferred for the future; my aim in this article is to lay out the foundational arguments for why these scenarios plausibly warrant applications of somatic approaches. My approach builds on Gallagher's (2011) distinction between the body schema (which resides in the cognitive unconscious and is prenoetic) and the body image (which is accessible to awareness and conscious processing). I propose that somatics leverages the plasticity of the nervous system to facilitate the transformation of the body schema, and it does so by making perceptible differentiations in the motor activity and functional organization of the body image (Doidge 2015).

Immigrant somatics

Somatics has been criticized, as Rouhiainen writes, 'for invoking a self-centeredness and for not offering the means of applying the knowledge retrieved from the body to everyday life and social interaction' (2008). In response, researchers in the field have defending the value of somatics in informing social movements, particularly gender and body politics in the West (Curtis 2015; Green 2003). Yet it remains a compelling challenge to somatics. While somatic practices often emphasize the uniqueness of experience, and how embodied experience can differ radically from one person to another, contemporary choreographer and somatics researcher Isabelle Ginot argues that there is an implicit corporeal ontology embedded in many somatic practices and research:

> Somatic discourses are mobilized by thoughts of the universal. They are freighted with innumerable ideologies: the natural…, the transcendent …, the biological difference of the sexes, and cultural hierarchies. … Behind the insistence on the singularity of each corporeality, most somatic methods have as a backdrop a homogenous, universal, ahistorical, and occidental body… Is the somatic body so universal that it transcends this issue?

> Thought to respond to culturally and historically determined ills, somatics has not conceptualized the social changes that accompanied its development; instead, it has remained fixated on the concepts of body and culture current at the time of its advent. How can somatics respond to the needs of a non-Western public, in a time of globalization and massive immigration?... Can somatics help us understand the unique corporality of migrant peoples and contribute to reducing their suffering? In other words, what would somatic knowledge look like when applied to issues of postcolonialism? (2010)

Positionality (England 1994) is relevant here: I am a non-white immigrant to Anglo-American geography and culture, having migrated on my own from the Philippines to the West Coast of Canada in the mid-1990s while I was in my late teens. I encountered somatic practices in my mid-20s in the course of studying contemporary dance. My narrative is, admittedly, markedly different from those of immigrants fleeing war-torn countries. Nevertheless, I suggest that there is still value in foregrounding my subjective experience through autobiographical narrative. Building on this, I offer a tentative, speculative response to Ginot's questions in the form of three potential approaches for how somatics might possibly be applied to immigrant contexts. It relies on embodied ontologies that presuppose precisely the kind of homogenous and ahistoric body that Ginot cautions against; however, these ontologies made sense from both within my own embodied day-to-day experiences, as well as during experience of exploring heightened sensation and awareness through movement in a studio. Moreover, these assertions are consonant with arguments from the embodied cognition perspective within the cognitive sciences (Wilson 2002).[4]

Weber-Fechner law and bodies under stress

The Weber-Fechner Law (Hargrove 2010; Latash 2008; Smyth 2012) is a psychophysical principle that describes the relationship between the perceptibility of a change in stimulus. If the initial stimulus is low, then a small change (call it d) in the stimulus level will be detected; if the initial stimulus is high, then a change by the same amount d will not be as perceptible. This principle applies to the observation of sensory-motor action; it is easier to discern to sense changes in structure and function during movement if the movement is small and gentle, creating what is known in the somatic practice of the Feldenkrais Method® as a differentiation (Feldenkrais 2005). Cortical representations of body parts correspond to how intensely, complexly and finely differentiated those body parts are used (Doidge 2015; Elbert et al. 1995). Hence, deliberate application of the Weber-Fechner law to sensory-motor action (through gentle and slow motion) facilitates increased and more finely differentiated use of those body parts and correspondingly changes cortical representations of those parts in the brain.

In high stress situations, the flight-or-fight response is activated, resulting in an increase in muscle tone. I suggest that the ability to make kinaesthetic differentiations is reduced

during stressful periods. Moreover, following the Weber-Fechner Law, the amount of change in one's posture or movements must increase in magnitude in order for proprioceptive and kinaesthetic sensory information to be perceptible. I suggest that individuals who report the feeling of tension in specific areas in their bodies are less able to make kinaesthetic and proprioceptive distinctions in those areas. If there is widespread increase in muscle tonus for an individual, due for instance to constant and high-intensity stress, then strategies for facilitating somatic knowledge must be planned accordingly, as the individual may not be able to sense very small changes as when tonus is less and muscles are closer to their resting state. I suggest that while this is true for most people regardless of their place of origin, this is worth bearing in mind when working with non-western publics, and particularly with immigrant communities for whom the process of relocation can be traumatic.

Embodying self-confidence

As an immigrant to a new country, I found the ability to feel secure and confident within an unfamiliar culture a critical skill to develop. Somatics has played a hand in this. As part of my training as a dancer, I studied a variety of embodied practices, including yoga, Pilates, the Feldenkrais Method® (Feldenkrais 1990), the Alexander Technique (Gelb 1990), Laban Movement Analysis (Davies 2001; Laban 1974; Lamb et al. 2011; McCaw and Laban 2011), and the Franklin Method® (Franklin 1996), either as part of a formally taught curriculum or through self-study. It was my study of these practices that led to me to certain discoveries, which came as anatomically based Eureka moments. For instance, while walking down the street and practicing 'actively pushing against the ground from the balls my feet', I realized that this allowed the front of my pelvis to 'open' and my hip flexors to lengthen. The back of my legs – my calves, hamstrings and my gluteal muscles – also participated more actively in the movement. I could more clearly feel the heft of my pelvis. My stride became longer and I remember clearly registering shock when I realized what I was doing. I was swaggering. Or perhaps more accurately, I was walking the walk of someone who knew exactly what they wanted and was making a beeline towards it with unstoppable determination.

A similarly powerful experience happened in the middle of a Pilates class. I discovered the muscles that pull my shoulder blades down ('scapular depression') and I could feel a concomitant expansion across my collarbone and an upward lengthening of my head, neck and thorax. And I remember suddenly feeling – for what seemed like the first time in my life – utterly powerful. It was both a vulnerable and an empowering sensation, and it was nothing short of a revelation.

It is worth noting that my experiences resonate with studies in experimental psychology, which have suggested a relationship between actively adopting a body posture and feelings of self-confidence and positive mood (Briñol et al. 2011; Zabetipour et al. 2015). Posture has also been found to mediate the content of existing thoughts (Halper 2012), in a process that Briñol and colleagues (2012) have called 'embodied validation'.

Another way in which I have developed self-confidence as an immigrant was to understand that people moved differently in my host culture, and that I had choices on how I could mobilize my physical self either to fit into my host culture with or differentiate myself. I suggest that individuals within a sociocultural group might share not only gestural preferences (Moore and Yamamoto 2012), but also habitual patterns of muscular tonus and other non-gestural movement behaviour that is influenced by similarities in their body schema and body image. If groups and entire societies can share a common language distinguished by variations in dialects and accents, as well as share common sensitivities to spoken phonemes, it is not unreasonable to propose that groups and entire societies can also share common sensory-motor patterns: similar ways of walking, sitting and generally mobilizing the physical self in relationship to the world. The ability to make fine discriminations in movement habits – through observing others and one's self – might lead to the ability for immigrant communities to form strategies for physically relating with their host culture. These strategies might include not just cultural 'integration' but also opposition and counterpoint.

Microgravity somatics

Proprioceptive, vestibular and exteroceptive sensory information are integrated in order to allow humans to shape themselves into functional postures and to navigate through the environment (Feldenkrais 2005; Imai et al. 2001; Latash 2008; McNeill et al. 2010). In microgravity environments such as in outer space, however, the absence of gravity presents major challenges to locomotion and spatial orientation. There is evidence to suggest that the proprioceptive system eventually adapts to these conditions, but slowly (Roll et al. 1998). Research is underway on how to intervene in these situations. For instance, the built environment (i.e., space shuttle interiors) can be designed to provide tactile cues that can aid spatial orientation through stimulating cutaneous and vestibular receptors (Saradjian et al. 2014). I suggest here that somatic training – with its emphasis on increasing proprioceptive and interoceptive sensitivity, and improved kinaesthetic awareness – can potentially be of tremendous benefit to astronauts.[5] Another productive strategy might be to equip astronauts with other interfaces that afford (in the Gibsonian sense of affordance; see Gibson 1979) increased proprioceptive awareness.

Physiological empathy with animals

There has been an increasing interest in understanding the phenomenology of non-human animals (Martinelli 2010), particularly since a compelling case can be made for their sentience (Bekoff and Goodall 2008). Indeed, the conveners of the Cambridge Declaration on Consciousness are certain of it (Low et al. 2012). Other than relying on objective measures and external descriptions of cognitive activity – such as brain imaging data representing neural activity in animals – how can we understand what animals might be experiencing? I suggest that refined somatic capability in sensing subtle muscular and

physiological activity can be combined with mental imagery to phenomenologically map animal affective experience into our own bodies. This phenomenological remapping is probably easier done the closer the animal is to humans, taxonomically and structurally. That is to say, an embodied imagining of animal experience is feasible with a chimpanzee, less so with a dog, and significantly even less so with a starfish. While playing with a pet dog in the past and actively imagining what it might like to be in their body, for instance, I have personally experienced muscular sensations in the areas around my sacrum and coccyx (the tailbone) that seemed to me related to the experience of wagging a tail.

Though I have suggested that human qualia is closer to some animal qualia than others, and that phenomenological distance is linked to taxonomical distance, I cannot discount the possibility that through somatic enquiry we might be able to sense vestiges of sensorial experiences of invertebrates. As Grant (2014) suggests, perhaps there is a 'lingering presence or trace of … early sensory systems carried in our [own] nervous and sensory systems'.[6]

Conclusion: From within to between

In this article, I have described three scenarios wherein somatic study and practice is not typically applied but perhaps could be: working with non-western publics; dealing with the effects of microgravity on the body; and empathizing with non-human animals. I have discussed these scenarios in increasing order of speculation. The most speculative of the three, the last scenario also has the most potential to transform our understanding of cognition and consciousness.

These scenarios might appear to be very different from each other. But they are ultimately linked by a common theme: that there is a deep interconnectedness in all lived experience, and that these connections are likely inscribed in our sensory experience (Hackney 2004). Somatics, I propose, might offer approaches for discerning not just what is within but also what is between. It is through somatic methodologies' deep and systematic application of awareness to interoceptive, proprioceptive and kinaesthetic sensation that we might potentially come to understand these connections not just through externalized models and linguistic description, but also through felt experience.

Acknowledgements

This research was funded by the Marie Curie Initial Training Network, FP7-PEOPLE-2013-ITN, grant number 604764.

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[1] Vocabularies for describing the inner landscape of embodied experience are either imprecise, precariously narrow, or at odds with each other. This is to be expected; models – which vocabularies are – necessarily simplify that which they represent, and this is no less true for models of somatic knowledge. I take affect, feelings and emotions to be related but distinct (Shouse 2005). In psychology, affect has been used in the past synonymously with 'mood', which, like the psychological definition of emotion, has an associated valence ranging from positive to negative, and is only partly characterized by patterns of physiological arousal (Bernstein 2006: 429). Other psychologists have distinguished affect from mood; whereas mood is 'saturated in cognitions, especially evaluations', affect is automatic, and can be 'conscious or non-conscious' (Baumeister et al. 2007). Above all, affect is a physiological experience: the heart rate quickening, the 'thousands of stimuli [that] impinge upon the human body' but also the way in which the body's way of 'infolding them all at once and registering them as an intensity' (Shouse 2005). In his notes on his translation of Deleuze and Guattari's *A Thousand Plateaus,* Brian Massumi offers an embodied definition – following Spinoza – of affect; it is not 'a personal feeling' but rather 'the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act' (Deleuze and Guattari 1987: xvi). Affect is 'pre-reflective' (Shear and Varela 1999: 135) and 'precognitive' (Thrift 2008).

[2] An audio recording of the exercise instructions is available on https://archive.org/details/speculative-somatics. Borrowing from various somatic practices, particularly the Feldenkrais Method® (Feldenkrais 1990; Rywerant 2003) – this exercise is inspired by one given by Emilyn Claid at a keynote talk at the 2015 Dance and Somatic Practices Conference in Coventry, UK.

[3] The term 'somatic' is used within other disciplines to signify different concepts. In biology, for instance, somatic is used to refer to particular cells and structures of an organism; additionally, the somatic nervous system refers to the part of the nervous system that is concerned with motor action. Neuroscientist Antonio Damasio's somatic marker hypothesis describes how emotion and affect influence cognitive processes (2004). Other uses of the term abound. In this article, I use it exclusively to refer to the phenomenological study of physiological experience.

[4] Embodied cognition is an approach to the study of the mind that stands in contrast to positivist, disembodied and reductionist models of human consciousness. Two types of arguments are often advanced in the embodied cognition framework: the first is that the body shapes the mind (Gallagher 2011); the second is that the material world shapes the mind (Ingold 2000; Malafouris 2013).

[5] Ideas for how this might be possible could take inspiration from the case of Ian Waterman (McNeill et al. 2010; BBC 1997). Mr Waterman lost all his proprioceptive abilities from the neck down, and successfully trained himself to use his other senses – such as vision, equilibrioception (perception of balance), and thermoception (perception of heat) – intensely as a way to replace his lost proprioception and subsequently close the sensory-motor feedback loop. The closest that typically functioning humans can experience to Mr Waterman's loss of experience is being in microgravity (BBC 1997).

[6] Ventrella has opined on possible implications for our shared neurology with other mammals:

> If we had tails, we'd be wagging them for our dogs when they are being good … It would not be easy to add a tail to the base of a human spine and wire up the nerves and muscles. But if it could be done, our brains would easily and happily adapt, employing some appropriate system of neurons to the purpose of wagging the tail—perhaps re-adapting a system of neurons normally dedicated to doing 'The Twist'. While it may not be easy to adapt our bodies to acquire such organs of expression, our brains can easily adapt. (2014)