Body Pedagogics: Embodiment, Cognition and Cultural Transmission.

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Abstract

This paper contributes to the growing sociological concern with body pedagogics; an embodied approach to the transmission and acquisition of occupational, sporting, religious and other culturally structured practices. Focused upon the relationship between those social, technological and material *means* through which institutionalized cultures are transmitted, the *experiences* of those involved in this learning, and the embodied *outcomes* of this process, existing research highlights the significance of body work, practical techniques, and the senses to these pedagogic processes. What has yet to be explicated adequately, however, is the embodied importance of cognition to this incorporation of culture. In what follows, I address this lacuna by building on John Dewey's writings in proposing an approach to body pedagogics sympathetic to the prioritization of physical experience but that recognizes the distinctive properties and capacities of thought and reflexivity in these processes.

Keywords: body; pedagogics; embodied; John Dewey; senses, thought/reflexivity.

Introduction

The past decade has been characterized by growing sociological interest in the body pedagogics of occupational, sporting, religious and educational cultures. Studies have ranged

across such areas as the military (Lande, 2007; Hockey, 2009), craftwork (O'Connor, 2007), ballet (Aalton, 2007), religion (Mellor and Shilling, 2011), boxing and martial arts (Wacquant, 2004; Spencer, 2011), sailing (Anderson, Ostman and Ohman, 2013), running/fell running (Hockey, 2006; Nettleton, 2013, 2015), and the health/physical education curricula (Evans et al, 2008a; Cliff and Wright, 2010; Rich, 2011). Despite their differences, these and related analyses all focus on the relationship between those social, technological and material *means* through which cultural practices are transmitted, the varied *experiences* of those involved in this learning, and the embodied *outcomes* of these processes (Shilling, 2007: 13; 2010). Adopting various methods, they enhance our understanding of the self- and inter-corporeal body work identified by Wolkowitz (2006) and Twigg et al (2011) as integral to the caring and service sectors. These studies also engage with anthropological insights into how 'enskillment' involves individual-environment connections that shape sensory 'attention' and 'attunement' (Ingold, 1993, 2001). Highlighting the power inequities associated with the contrasting pedagogic relations involved in teaching and learning body pedagogics, they have sought additionally to analyse the forms of social control/authority, lived experience, and the bodily foundations associated with social reproduction, conflict and transformation (Watkins, 2012).

If body pedagogic studies complement the now well-established sociological interest in embodiment, they have been less interested in explicating the significance of thought and reflexivity to the processes with which they are concerned. This is understandable given their reaction against sociology's traditional view that culture is reproduced through *symbolically* meaningful norms and values, an approach that marginalized the material and physical environment (Parsons, 1968 [1937]). Neither does it mean that body pedagogic analyses ignore cognition: the verbal responses of research subjects often feature as evidence of thinking in empirical accounts. Rarely, however, have they elaborated *theoretically* on the role of thought in embodying culture.

The work that remains to be accomplished here is evidenced by the distinctive approaches adopted by writings that have confronted this issue. Analyses of religious body

pedagogics focused on the ritual 'steering' of embodied subjects, for example, suggest at times that conscious deliberations are *caused by* the shaping of bodies occurring through the incorporation or rejection of particular patterns of socialisation (see Shilling and Mellor, 2007). Elsewhere, theorists concerned to develop Bourdieu's notion of habitus tend to conceptualise thoughts/reflections as developing in unity with physical actions and experiences via a process akin to osmosis (see Noble and Watkins, 2003). Practice and thought are here so interrelated it is impossible to trace clear relations between them.

These empirical, causal and unified approaches towards cognition can be found across and sometimes co-existing within body pedagogic studies. Yet each would benefit from additional explication. Without this, purely empirical uses of interview/ethnographic data may remain of only localized significance. The idea that bodily experience and practice causes reflection, in contrast, could be accused of rendering thinking epiphenomenal. In contrast, the suggestion that physical experience and reflection are unified can assume a monism whereby the sensing flesh and thought constitute an undifferentiated substance; a perspective that makes it difficult to recognize their distinctive properties, or to explain how people can be divided between what they think and feel. Such limitations also render problematic accounting for particular types of learning, a problem that informed Nash's (2005: 15) decision to develop the concept 'cognitive habitus'. Each of these approaches, moreover, can leave us wondering about the processes whereby individuals marked by gender, class and 'race', for example, can become *differently embodied* by the same cultural practice (Woodward, 2008); an embodiment that can also vary biographically and contextually (Lahire, 2010).

The need to explicate further the importance of cognition to body pedagogics can be reinforced via two of the major theoretical sources drawn on by scholars of this area. Mauss's (1973 [1934]) writings on 'techniques of the body' have been extremely influential in analysing the embodied incorporation of cultural practices (e.g. Crossley, 2006; 2007). Yet while Mauss identifies the social, biological and psychological dimensions of techniques that enculturate individual organisms, he says little about cognitive knowledge not instantiated in

practical techniques or about the importance of reflection to experience. Again, the significance of cognition to the incorporation/rejection of cultural practices is excluded from the prime positive categories of this approach.

Finally, a growing number of authors have utilized Merleau-Ponty's existential phenomenology in exploring how embodied consciousness is manifest, learnt and at times re-learnt within occupational, sporting and other settings (e.g. Young, 1998; Kupers, 2005; Morley, 2008; Hockey and Allen-Collinson, 2009; Allen-Collinson and Hockey, 2011). They represent something of an exception to the general neglect of this area, identifying Merleau-Ponty's writings as especially useful in focusing on the essential structures of embodied being, and the perceptual nature of all consciousness. Despite this, concerns about the universal notion of body experience and thought underpinning his formulations (Butler, 1989), and the perceived need to supplement the generalities of his approach via a 'sociological phenomenology' or 'phenomenological sociology' sensitive to cultural differences in thought and behaviour (Allen-Collinson, 2011), indicate that serious challenges remain in using Merleau-Ponty to explore cognition's significance to body pedagogics.

Instead of engaging further with the limitations of these approaches, I want to advance our understanding of thought and body pedagogics by building creatively on the pragmatist writings of John Dewey. Influenced profoundly by Hegel, Dewey nevertheless came to reject idealist conceptions of experience, as well as those monadic and subjective versions characteristic of British philosophy (Dewey, 1939; Levine, 1995). His analyses contain affinities with those of Merleau-Ponty and other phenomenologists, especially in emphasising lived experience and the interweaving of the sensory body with the environment. Yet Dewey's (2005 [1916]) concern with human inquiry as involving distinctive cognitive and pre-reflective transactions with the social and material environment to which people belong - processes integral to the development of diverse experiences - sets his work apart as especially suited to understanding how cultural practices are transmitted, encountered and result in contrasting bodily outcomes (Dewey, 2005 [1916]; Anderrson and Östman, 2015). The suitability of Dewey's work for *sociological* studies of body pedagogics is evidenced

historically, moreover, by its broader influence on the wide-ranging empirically informed agendas of the Chicago School (Shilling, 2008: 26-43).

In relation to the specific significance of cognition, Dewey (2011) insists that thinking relies upon intentionally oriented and environmentally situated physical existence, and that our bodies possess pre-reflective sensory routes through which knowledge is acquired as we move through our world. Yet he also recognises that cognitive deliberation facilitates learning, guides action, and possesses emergent qualities *irreducible* to other dimensions of embodied being. By identifying the distinctive properties of (conscious) thinking and (immanent) sensing, Dewey recognises that these may develop in alignment during cultural learning, yet can be distanced from each other and in need of 'translation' before they can be reflected on or deployed in action. His approach usefully acknowledges that there may also exist tension between what we know at the level of thought, and what we can sense and accomplish in practical action.

These issues are key to the transmission and acquisition of institutionalised cultural practices, and can be explored with reference to body pedagogic case-studies. I focus here on three contrasting analyses of the 'switched on' military (Hockey, 2009), the promotion of 'diagnostic sensibility' in medicine (Maslen, 2015), and 'kinaesthetic unity' in dance (Potter, 2008), yet supplement these with related analyses. While few case-studies explicate theoretically the relationship between cognition and other aspects of practical sensory knowing and doing, these examples contain particularly valuable observations that help demonstrate the potential of the theoretical account I develop in this paper.

Embodied Learning

In wide-ranging writings on the subject, Dewey emphasised that education was life-long, crucial to the inter-generational transmission of cultural practices, and occurred within and outside of educational institutions and the workplace. He also insisted learning was an embodied process – making his work directly relevant to scholars of body pedagogics – while acknowledging that it occurred at distinctive sensory, kinaesthetic, pre-reflective and

conscious ‘levels’ within individuals. In so doing, he helps us explicate the relationship between physical experience and reflexivity.

Cognitive Thought

Dewey insists that if cultural practices are to adapt to new conditions, the capacity of individuals to learn through thought and reflection is vital. Coherent thinking here does not refer to ‘anything that comes into our heads’ or the ‘calling to mind’ of dogmatic beliefs, but involves scrutinising the grounds for expectations, and deliberating upon oneself, others and the wider environment in relation to specific tasks and goals (Dewey, 2011: 2). Systematic thought organises subject matter, reflects upon its ‘various aspects’ and ‘lights’ so that ‘nothing significant about it shall be overlooked’, and results in the studied evaluation of alternative courses of action (Dewey, 2011: 14-16, 57).

Dewey’s conception of thinking is anti-Cartesian: thought, reflection and communication are *always* grounded in our existence as embodied actors situated within and intentionally oriented towards our environment. Nevertheless, Dewey also attributes thinking with specific properties that are to a degree ‘abstracted’ from the immediate situation. In this context, the advantage of thought for Dewey, as well as others such as Elias (1991), is that it enables individuals to contemplate problems and solutions by manipulating *symbols* that represent the environment virtually. This provides humans with a degree of freedom from the present, enabling them to explore phenomena that cannot always be immediately seen, touched, tasted, smelt or heard. Architects, engineers, graphic designers and surgeons all work with specific physical materials, for example, but symbolic thought enables them to reflect on them, and hypothesise solutions to dilemmas without being entirely dependent on physical manipulations or details ‘directly accessible to perception’ (Dewey, 2011: 150). Marx (1954: 174) makes a similar point when locating the distinctiveness of human labour in the capacity of individuals to think about constructions before producing them. The transmission of occupational cultures is, indeed, dependent on training individuals to think in ways that *accommodate* but are *not confined to* the materials with which they work.

Dewey's approach to thought's properties can be complemented further by Elias's (1991:16) suggestion that its symbolic character has historically enabled individuals to store and convey information, passing on 'collective wisdom' inter-generationally in guilds, professional organisations and, indeed, any culture. This observation highlights how symbols are not only used to think with but also underpin speech, are written down and read, and can provide individuals with crucial information. It is also relevant to issues regarding the transmission of collective memory, and to the recollection of information that may have been forgotten by individuals (Halbwachs, 1992 [1925]). Verbal instruction is even key, moreover, to occupational cultures dedicated to instilling automatic responses in recruits. As Hockey's (2009) explanation of 'the ocular of patrol' notes, army instructors go to considerable lengths to explain the light, reflection and geometry to look for in order to spot enemy danger in forests. Cognitive understanding is here a *prerequisite* for developing 'instinctive' recognition.

Thinking provides humans with another advantage according to Dewey. As well as enabling people to experiment reflexively with alternatives without exploring them physically, it helps individuals scrutinise their *own* desires and habits. This provides embodied subjects with the possibility of freeing themselves 'from servile subjection to instinct, appetite and routine' as well as wider social norms (Dewey, 2011: 19). It is this capacity that informs Archer's (2012) argument that reflection enables individuals to forge a route through bodily impulses, on the one hand, and educational and work demands, on the other. Both army recruits and ballerinas, for example, are taught to resist automatic responses to pain, and think of it as an accompaniment to their work qualitatively different from injuries that would threaten their performances (Aalton, 2007; Lande, 2007).

Despite symbolic thought's utility, however, its distance from the material environment brings with it 'possibilit[ies] of error', 'fantasy knowledge' (Dewey, 2011: 18; Elias, 1991: 72), and consequent disappointments and practical failures. This is why *physical* experience is vital to thought and learning. In opposing philosophies that conceptualise humans as monads – sealed within their skin, grappling with how to think about an 'outside'

world – Dewey highlights the sensory and affective elements of knowledge and cultural transmission. As Garrison (2015) argues, while educated thought is key to conscious knowledge, the quality of thinking itself *relies* on the soundness of the sensory, experiential, bodily basis upon which it rests. Garrison's comments also direct us to the distinctive pre-reflective level at which learning often occurs. They do so in a way that complements the insistence of body pedagogic studies that cognitively held knowledge is itself never sufficient for the transmission of cultural practices.

The Experiential Foundations of Thought.

Identifying cognition's significance for embodied subjects, Dewey (2011: 11) emphasises that the need for thought arises when individuals confront novelty or problems in the material/social environment. In these circumstances, habits are challenged, experiments required, and it is impossible to maintain a 'business as usual' approach to life. This is common for those seeking to acquire new cultural skills, as evident in body pedagogic studies that highlight gaps between lay knowledge and medical expertise (Maslen, 2015). New entrants to medicine discover that they are 'out of kilter' with themselves and their now 'unbalanced' surroundings (Dewey, 1980 [1934]). Such 'disturbances' between individual and environment do not, however, entail dualism: while thinking is irreducible to the environment it occurs within, it possesses experiential foundations.

The key point here is that humans do not interact with their environment as separate beings, but engage in a constant process of what Dewey refers to as *transaction* with it. Most basically, this observation points out that since individuals are sustained and partly constituted by air, water, food and other features of their milieu, existing, knowing and acting necessarily involves ongoing 'organism-environment transactions' (Dewey and Bentley, 1946: 74, 129-30; 1991). Relatedly, the environments associated with any occupational/other cultural practice provide their own knowledge, technologies and practices that are involved in transactions with and can become embodied within those engaged with them. These fundamental conditions mean that while thought possesses symbolic properties, it occurs

within embodied subjects whose abstraction from the environments in and about which they deliberate is never total. Several aspects of cognitive thought entail resonance with, and even saturation by, those material and social practices central to cultural reproduction.

First, the linguistic symbols through which reflection occurs emerge within specific cultural milieux that impart specific meaning to objects, events, and relationships that can be sensed and experienced, or at least 'make sense', because they can be imagined as *encountered*. Military training, for example, encourages recruits to think of sounds including rustling leaves not as natural to walking in a forest, but saturated with the possibility of threat (Hockey, 2009). Elsewhere, contemporary dance teachers employ verbal communication to stimulate particular experiences. Phrases including 'melt into the floor', 'feel the weight of the head' and 'anchor the [heavy] pelvis into the ground' prompt dancers to re-centre on the 'body's relationship with gravity' (Potter, 2008: 450). In so doing, they illustrate how concepts possess ties to the cultural and wider 'external' environment.

The link between symbols and their bodily/environmental referents also applies to those gestures, visual images, noises and other signs we use to supplement thought and speech; signs often more directly connected with their referent in pointing to or resembling what they signify (Dewey, 2011: 170-1; see also Peirce, 1998). In boxing, it is the bell's reverberations that govern the rhythms of activity, effort and release, signifying cognitively and viscerally to participants that another intense three minutes of sparring, skipping, or hitting the bags has begun/ended.

These connections prompt Ingold (2000: 286) to note that discursive thought and communication constitute 'a narrative interweaving of experience born of practical, perceptual activity.' They also suggest, I argue, that we should analyse the *affective weight* of concepts and symbols: linked to the material world, thought is often steered by the gravity ideas possess as a result of physical experience. While thinking allows people to explore future scenarios without having to navigate them physically, the real world referents they 'bring to mind' provoke bodily responses that help make these options appear feasible, desirable or unacceptable.

In this context, thought and reflection *incorporate* the 'outside' world into the embodied subject via not only symbolic representations but also bodily sensations (Torok, 1994 [1968]). An example of this is a girl, highly self-conscious of her body image, who feels sick thinking about an impending physical education lesson as she recalls past difficulties when attempting to complete an obstacle course (Evans et al., 2008b). Such incorporation involves the idea *and* an emotional resonance with previous experience in navigating cultural practices involving ideals of physical performance and perfection.

Incorporation does not involve exact replications of previous experiences brought to mind (thought is not restricted to the past, is selective, and can involve exaggeration, embellishment and speculation). Future oriented speculation is illustrated when Waquant (2004: 4) contemplates returning to academia following immersion in the cultural environment of boxing. Shaped by his transactions with the routines and *esprit de corps* integral to the body pedagogics of boxing, the prospect of returning to the physically sedentary, isolated business of translating thoughts on paper proved depressing. Contemplating cognitively the future, academia weighed on his mood, affecting his sleep and producing thoughts of career change. Concerned with future possibilities as Wacquant was or with past experience, however, thought and communication inevitably involves transactions between sensations and the wider environment.

The second way cognitive thought resonates with bodily-environment transactions involves the social processes through which symbols are learnt. As Garrison (2015) argues, even self-reflection involves socially shaped concepts and ideas passed onto each new generation via various relationships, while communicating requires social transaction between at least two communicants capable of taking the attitude of the other toward a third thing. The symbols individuals think with are thus connected to the *social* as well as the material world, with cultural practices dependent on specific concepts/ways of thinking passing from experts to initiates.

Against this background, we can speak of social *identification* needing to occur if cultural practices are to be acquired, a process wherein novices need to seek to emulate - or

engage in what Mauss (1973 [1934]) terms 'prestigious imitation' - those possessing authority in the cognitive knowledge validated by particular groups. This emulation is implied by Hockey's (2009) account of how recruits aspired to the proficient performances of patrol leaders by 'thinking on their feet', and Lande's (2007) analysis of learning to shoot when cadets approach the trainer's example by reflecting on whether their elbows are planted sufficiently firmly to stabilise rifles. Relatedly, junior doctors do not just seek to learn diagnostic techniques when accompanying consultants on rounds or in multi-disciplinary meetings, but aspire to *become like them* in terms of their authority and proficiency (Roepstorff, 2007; Sanders, 2007; Maslen, 2015).

The third way cognitive thinking resonates and transacts with our bodily location within a wider environment returns us to Dewey's concern with the interruption of routine. Crucial for Dewey (2011: 11) is that thought provoking interruptions are prompted by problems related to survival: cognitive deliberation has as its 'steadying and guiding factor' the search for solutions to issues associated with individual 'destiny'. Thus, while every human 'mind' with which we are empirically acquainted 'is found in connection with some organised body', every such body exists in a cultural and material medium to which it must sustain some 'adaptive connection' (Dewey, 1981 [1925]: 212).

This adaptivity is evident in all body pedagogic studies, irrespective of whether they are concerned with learning to sail by sustaining functional alignment with boat and water (Anderson, Ostman and Ohman, 2013), or avoiding the obstacles in fell running that can fracture an ankle (Nettleton, 2015). Even at high levels of expertise, occasions arise when acquired habits fail to respond adequately to choppy seas or saturated ground, when individuals must process new information quickly, thinking through alternative possibilities. The capacity to forge adaptive connections can, indeed, become a matter of life and death.

The adaptive importance of thought is evident even in the military dedication to creating 'switched on' recruits able to respond *automatically* to the environment (Hockey, 2009: 481). Despite habit's importance, combat situations often involve unexpected events, and army training treats as important problem solving in circumstances where instinctual

responses fail to connect efficiently soldier and circumstance. Similarly, while medics are trained into the habit of associating certain symptoms with particular illnesses, there are numerous occasions when they have to think abstractly and creatively to identify potentially fatal disease.

Utilising the thought/habit distinction in the above examples is not intended to erase the connections between symbolic deliberation, communication and physical experience. Medics think through diagnostic problems in the context of professional knowledge and past experience that tends to steer reflection in certain directions, while soldiers cut off from their unit will deliberate upon strategic options via the imperatives of survival instilled in them habitually (see also Burkitt, 2012). As Merleau-Ponty (1962: 24) notes, it is our social and material surroundings that constitute 'the seat and as it were the homeland of our thoughts'.

The adaptive connection linking cognition to intentional embodied subjects located within wider environments makes it possible to talk of the quality of thought promoting a bodily experience of equilibrium or, alternatively, consternation (Dewey, 1980 [1934]: 35-7). Confronted with the need to solve a complex problem involving an assembly line, for example, the project manager may feel she is wrestling with ideas that 'clash' and confuse when 'out of kilter' with an answer, yet which promote a feeling of relief and harmony when pointing to a solution (Baldamus, 1961). Adapting Leder's (1991) terms, I suggest we can speak here of the experience of *ease* or *dys-ease* depending on whether cognitive effort and experimental thinking points to an acceptable way of adapting to the environment or leaves us adrift from anticipating functional alignment. For Dewey (1980 [1934]: 35-57), it is only when individuals share 'in the ordered relations' of their environment that they can sense and 'secure the stability essential to living'.

The capacity of thought to resonate with its referents does not entail material or social determinism: reflection's symbolic properties provide possibilities for flexibility and creativity. Individual differences in thinking are also to be expected because of how people orientate themselves towards, or are positioned by others within, their environments on the basis of gender, class and other distinctions (Nash, 2005). These differences are, moreover,

crucial in accounting for how certain individuals assimilate cultural practices, facilitating their reproduction, while others reject and/or cannot achieve proficiency in them, facilitating potential change. Either way, incorporation, identification or the variable sense of ease or dys-ease people experience when wrestling intellectually with problems helps us understand key transactions occurring between individuals and cultural practices.

Immanent Sensory Understanding

Having identified the properties of cognitive thought, as well as its embodied 'emplacement' within a wider environment (Pink, 2011), Dewey also emphasises that people learn *directly* from sensory activity. The most basic features of embodiment enable people to acquire information about their environment that is irreducible to cognitive symbols and exists outside the topographical boundaries of their bodies. As Dewey (1980 [1934]: 13) puts it, no creature lives within the confines of its skin: our senses are a 'means of connection' with 'what lies beyond [our] bodily frame'. The material qualities of those objects onto which our senses entwine, furthermore, can become so significant that they not only saturate our thoughts but at times short-cut reflexive deliberations and prompt direct action (Tilley, 2006: 312). Dewey illustrates this in the case of an experienced sailor who, hearing a crack in the masts during a storm, intuitively knows she is dealing with a sail 'blown out of its bolt ropes' and moves to repair the break in her environment without conscious thought (Garrison, 2015). As the neuroscientist Damasio (2012) notes, such pre-reflective 'mapping' of the environment is vital for survival, and is facilitated by sensory receptors (such as the retina, the cochlea in the inner ear, and nerve terminals on our skin) that shape and receive stimuli, initiating a chain of signals to our brain. Where Dewey would differ from most neuroscientists, however, is in emphasising that sensory receptors are *themselves* affected by the social as well as the material environment (Garrison, 2003).

The capacity of individuals to learn pre-reflectively through their senses and actions is illustrated by body pedagogic studies that emphasise the practical elements in cultural transmission. Hockey (2009) discusses how much military training is structured around

people's sensory capacity to learn directly from being placed in pressurised environments that foreground the demands of survival. Repeated drilling in how to disassemble/reassemble weapons, for example, is facilitated by transactions between hands and armaments that become incorporated into the body schema to the extent they can be conducted in darkness.

Contemporary dance training is also often oriented towards direct sensory learning, with exercises designed to intertwine 'inner' and 'outer' dimensions of bodily sensation (Potter, 2008). In Potter's (2008: 451) study, trainees were tasked with the 'seemingly simple' challenge of navigating the room by alternating contact with the floor between hands and feet while maintaining a 'feeling of easiness'. Here, the sensations of resisting and being undermined by gravity, as participants wobbled and crashed to the floor, provided immanent lessons in how *not* to succeed. The inter-corporeal exercise of contact improvisation, in contrast, switched focus to movement experienced 'through the shifting physical contact of one body with another' (Potter, 2008: 458). Paired with other dancers, this was designed to promote the sense of bodies merging, a pedagogy associated with the emergence of movements from interactional trust rather than monadic self-control.

Wacquant's (2004) analysis of body pedagogics also highlights immanent sensory learning. For Waquant it was the physically exhausting demands of boxing, as much as the complexities of balanced movement within the ring, that taught individuals invaluable lessons. Boxers learn directly from their bodies, as well as from those of others, that the strict pursuance of diet and physical training enhances the chances of sporting success. They come to know through the physically demanding culture of the gym that late-nights and alcohol increase their chances of getting hurt.

These studies highlight the distinctiveness of bodily sensing and cognitive thought as routes to learning. Our understanding of their differences can be enhanced further, however, by Dewey's discussion of noetic knowledge (manifest in and available to consciousness through reason and reflexivity), and anoetic knowledge (existing independently of conscious thought, embodied at a pre-conscious level as an awareness, intuition or practical ability) (Garrison, 2015). Exploring these routes, Dewey is clear that thinking and sensing, noetic and

anoetic knowledge, can complement each other, but can also be uneven and compartmentalised. Continuing with the earlier nautical theme, an example of the latter is provided by an inexperienced sailor who hears a crack in the masts, realises something is wrong, but has to think through what may have occurred in the absence of the anoetic knowledge that would illuminate their inquiries.

This recognition of the fracture that can occur between noetic and anoetic knowledge is crucially important to the body pedagogic concern with the cultural transmission. To be effective, and even survive, occupational, sporting, religious and other institutionalised cultures depend upon achieving convergence within their initiates between those forms of conscious thought, habitual techniques and sensory orientations to the environment central to their operation.

Synchronicities and Fractures in Occupational Body Pedagogics

The potential for noetic and anoetic knowing to remain fractured poses challenges to any occupation concerned with structuring the environment. This is highlighted by the lengths professionals go in promoting diagnostic sensibilities in medics, 'switched on' infantry patrols, and kinaesthetic unity in contemporary dancers. Each of these otherwise contrasting occupations seeks to coordinate webs of sensory and cognitive capacities by directing the complete attention of initiates to particular ways of engaging with the world (Potter, 2008).

Maslen's (2015) ethnographic study of the 'soundscapes' informing medical diagnoses demonstrates how aural knowledge provides technologically mediated information possessed of qualities irreducible to cognitive thought. Key here is the stethoscope, an enduring technology of medical practice (Maslen, 2015: 59). The importance of the senses to medical diagnosis is reinforced by Roepstorff's (2007) and Saunders' (2007) studies of 'medical seeing'. These body techniques of educated seeing are guided by habits and intuitive jumps acceptable to the medical community, producing information incomprehensible to many lay people. Yet cognitive knowledge is also crucial to these diagnostic guides if sounds and images are to become medically meaningful. Learning to see medically involves hours of

exposure to case conferences and verbal instruction in which images gradually assume conceptual meaning as physical evidence and thought are harmonized. So does learning to hear medically. Consultants describe sounds through aurally rich metaphors (which students replicate), but layer these with theoretical meaning by identifying them as symptoms of illness.

If synchronicity between distinctive aspects of embodied learning is vital for occupational cultures, it does not always occur. Hockey (2009) explores how the creation of effective patrols require cognitive and sensory education that instills in recruits alert stature and motility associated with 'a particular set of feelings emanating from organs, ligaments, tendons and muscles' that provide 'information and feedback' about balance, movement and readiness (Hockey, 2009: 482). Yet Hockey (2009) also states that verbal instruction, 'the ocular of patrol' and the 'auditory of patrol' can remain unsynchronised. Recruits who understand cognitively the importance of silence when patrolling dangerous areas may lack the self-scrutiny or control to ensure that they do not 'give off' sounds that betray their position and endanger lives, experiencing acute dys-ease when realising their mistakes. It is recruits who place their team in danger, indeed, who are berated and threatened by others demanding that they 'shape up' (Hockey, 2009: 485).

A final example of efforts to achieve synchronicity and overcome fracture in learning is evident in Potter's (2008) study of contemporary dance. Verbal prompts and instruction are again vital, even if cognitive knowledge is here subordinated to the demands of facilitating feeling-within-movement. Yet what is especially interesting about Potter's analysis is how synchronicity between each aspect of learning was most effectively accomplished via the 'organising sense' of heat. Warming up exercises that increase the body's temperature are necessary for effective performance, with the phenomenal sense of ease growing as the sweat and energy of dancers creates an emergent atmosphere in which 'the entire studio buzzes with rising heat' (Potter, 2008: 454-6; see also Allen-Collinson and Owton, 2015). It is in this sensory milieu that dancers are most likely to find themselves minimising unproductive 'cross talk' between the senses and thought, experiencing 'flow' in which the idea and ideal of what

they aspire to emerges through movement (Howes, 2006).

Despite their differences, these body pedagogics each promote synchronicity between distinctive types of learning. The relative importance of cognition, sensory awareness, and practical techniques is of course occupationally variable. Movement, sight, sound, touch and other sensations combine in distinctive ways, as demonstrated further by studies of learning in craft work, the steel industry, and service employment (O'Connor, 2007; Slavishak, 2008; McDowell, 2009). These occupations direct people's sensory pathways towards specific immersions within the particular environments in which they operate (Ingold, 2000: 3). In so doing, they cultivate dispositions possessing 'special sensitiveness' to 'certain classes of stimuli' and 'a potential energy needing only opportunity to become kinetic and overt' (James, 1900: 134; Dewey, 2002 [1922]: 44). Nevertheless, these and other cultural practices remain dependent for their longevity on *individuals* internalising and synchronising the forms of learning to which they are exposed.

Conclusion

This paper has built creatively on Dewey's writings in explicating the relationship between cognition, practical and sensory knowledge in the transmission of culturally informed body pedagogics. In so doing I emphasised the distinctive properties of thought and reflexivity while exploring how the symbols people use resonate with the environment in which they are intentionally oriented. In conclusion, I want to identify some broader sociological implications of this approach.

First, Dewey's distinction between noetic/conscious and anoetic/pre-conscious knowledge has widespread sociological utility –facilitating recognition of different levels and depths of cultural transmission and learning – but is not absolute. The mutual permeability of these forms of knowing, indeed, has implications for debates on 'tacit knowledge' (Polanyi, 2009; Gascoigne and Thornton, 2014). Tacit knowledge is generally viewed as 'know how' resistant to conscious explication. Yet the fact occupational body pedagogics can be designed explicitly to structure the tacit – even in terms of how people stand or move - illustrates that it

can be translated into prompts/exercises designed to teach others specific ways of knowing and acting. The power relationships implicated in whom is able to direct consciously the pre-conscious cultural learning of others is an important sociological issue.

Second, the challenges and obstacles associated with learning cognitively, sensorily and practically, *and* with aligning these forms of knowing, warn us against oversocialised conceptions of the embodied actor. There is no guarantee initiates will be successful in embodying particular techniques. For dancers who clatter to the floor, for soldiers incapable of coordinating their body during drill instructions, and for trainee medics who fail to get to grips with visually reading scans, the combinations of thought, reflexivity and techniques for proficiency can remain above, beyond and out of reach. Socialisation involves material and social processes that are *contingent*; characterised by uncertainties associated with the incorporation of objects and ideas into the embodied individual - 'bodily auxiliaries' as Merleau-Ponty (1962: 152) refers to them - and sensorily resonant cognitive patterns of identification with experts/authority figures. These contingencies also raise the issue of social transformation. While the traditional sociological concern with the 'problem of order' often identifies conflict as the prime source of social change (Wrong, 1995), we should not underestimate the potential for transformation initiated by present patterns of education and training simply failing to transmit previously dominant cultural practices (see Watkins, 2012).

Third, the study of body pedagogics highlights how those who internalise techniques associated with occupational pedagogics find their deliberative patterns and sensory reactions changed in ways that can cross over into other aspects of their lives. This was evident in Hockey's (2009) study when one respondent talked about how the smell of burning in civilian life involuntarily returned him to incidents in active service involving high explosives. A related example is provided by the 2015 terrorist shootings in Sousse, Tunisia. Having served in the armed forces, the British holiday-maker Tony Callaghan recounted how he alerted those around him at the pool: 'I know the sound of gunfire. I shouted to everyone, "This isn't a firework display, you need to get yourself to safety, now"' (Bchir and Trew, 2015). Embodied knowledge, in short, does not necessarily respect divisions between social sectors

or the public/private divide, a factor that also has implications for protest and change. Continuing with the military theme, Vietnam Veterans Against the War (founded in 1967) provides us with one example of an influential group formed by former soldiers whose experience of combat influenced profoundly their views as citizens who campaigned for change in US foreign policy (Nicosia, 2001).

Fourth, the complexities involved in internalising cultural practices raise issues regarding the expertise and training necessary for their efficient deployment. The body may be our 'first and most natural instrument' (Mauss, 1973 [1934]), but the challenges involved in high-level skill acquisition may restrict success to those with the means to undergo prolonged apprenticeships (a variable related to the opportunity structures of society). Becoming a surgeon or professional musician, for example, necessitates that the senses and muscular responses are mutually adjusted to the relevant task before expertise can be achieved (Sennett, 2008). A finer appreciation of the types of learning involved in developing expertise or cultural competence can complement sociological investigations into social change and reproduction. In relation to social change, the time it takes to embody skills has historically been one important variable in determining investment into, acceptance of, and protest against technological innovation (Mackenzie, 1998). In relation to social reproduction, sociologists of education have long suggested that those from the least privileged backgrounds confront a disproportionate fracturing between school-based cognitive knowledge, and informal processes of learning that shape the senses, tastes and pre-conscious habits and dispositions of those subject to them inside and outside of formal educational institutions (Bernstein, 1971).

Finally, this point about inequality raises general issues of social differentiation. Embodying the knowledge and skills key to a culture or occupation involves 'pouring the bodily self' - reflexively and practically - into external objects. Consequent alignments are not necessarily permanant, however, and sometimes have to be relearnt (Hockey and Allen-Collinson, 2007). Yet when accomplished there emerges distance between the previous and present bodily self, knowledge and capabilities, and new distinctions between those with

whom one now shares this skill and thought patterns and those bereft of such abilities. As Bourdieu (1977: 2) argues, this can result in within-group communalities of experience and solidarity. It can also lead to opposition, conflict and social change involving groups who have absorbed different cultural practices and who view and relate to the world in fundamentally different ways (see Mellor and Shilling, 2014). Sociologists have often talked about how social class, professional and state ideologies reinforce the interests of the privileged, but what is at stake here in the study of body pedagogics are the embodied foundations for collectivities, differentiations and social change that arise when people develop *cognitive*, *sensory* and *dispositional* ways of knowing the world that bonds them to or separates them from others.

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