Embodied knowledge and sensory information: Theoretical roots and inspirations

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Abstract

This review paper examines some of the main theoretical influences prompting a re-appreciation of the importance of the body and how it may be conceived as relevant to Information Studies (IS). It starts by placing this increased recognition of the body in its historical and social context. It then examines, in turn, how the body is viewed in the phenomenology of Merleau-Ponty; practice theory; embodied cognition; and sensory studies. Existing and potential influences in Information Studies are discussed. Most work that reexamines the place of the body reflects the influence of Merleau-Ponty, but he has had relatively little direct impact on IS. Practice theory does deal with the body and this has already been picked up quite strongly in IS Work in the area of embodied cognition has the potential to fundamentally change our view of the relation of the mind and the body, and information as an aspect of that. Sensory studies offers a powerful framework for examining the cultural shaping of the senses as a source of information. The implications of the bodily turn for methodology are briefly discussed.

The bodily and sensory turns

In the 1980s and 1990s in a number of academic disciplines, such as sociology, geography, history and anthropology, it began to be recognised that the body had been neglected and under-theorised (Shilling, 2007; Pink, 2015; Howes, 2013b). This neglect seemed to reflect the longstanding Cartesian mind-body dualism in Western culture that privileges thought over the supposedly separate and lower functions of the body. Such a depreciation of the body must also reflect the influence of strands in Christianity that tend to view the body as base and sinful. These assumptions could also be seen as shaping the way that in Information Studies (IS) we have generally privileged textual information and rationalistic approaches to gathering and using information (Lloyd, 2010).

As these assumptions came under challenge socially and intellectually during the Twentieth Century, scholars in a number of subjects began to re-evaluate the importance of the body in their field. Yet to date, such a re-evaluation has only been reflected in a rather limited way in IS (Lloyd, 2010; Cox, Griffin and Hartel 2017). This is not altogether surprising given IS's starting point in the study of library users and the information behaviour of academics and scientists and its deep engagement with the study of the supposedly disembodied "virtual" experiences of the

internet. But as we enter a post-digital world the timing for a reconsideration in IS may be right. As the digital comes to be ubiquitously woven into the fabric of the everyday material and embodied world, the value and meaning of an exclusive focus on the purely digital collapses. Everyday information gathering and use has become more central to IS. These issues of Library Trends are dedicated to exploring what IS can gain through a greater recognition of the role of the body in our field.

The bodily turn in social sciences and the humanities from the 1980s has been recognised to arise from a number of social and intellectual trends (Shilling, 2007; Nettleton and Watson, 1998). Jütte (2005) traces a rediscovery of the senses throughout the Twentieth Century: the arrival of a "haptic age" apparent in an interest in body therapies and changing sexual mores; the revalorisation of the sense of taste in a growing culinary pluralism; and the increasing cultural significance of sound through the centrality of music within popular culture. There is clearly a link to consumer culture: marketing often focuses on the sensual and affective appeal of a product on the assumption that this bypasses reasoned choice (Howes and Classen, 2014). Equally the 1960s reaction against consumerism included various movements exploring new experiences of the body, e.g. through diet and exercise or even through experimenting with drugs. The body is central to the modern project of reflexive identity (Shilling, 2007).The greying of the population, increasing experiences of living with chronic health conditions, new perspectives on disability, and new medical technologies have all brought into question our assumptions about the body. Another very important strand in the rethinking of the body, is how second wave feminism has challenged the gendered constructions of the body underlying patriarchy, with its links to definitions of sexuality and race. As such a renewed focus on the body is an important critical turn.

However, not all social currents point towards a greater importance being given to the body. For example, the shift in the character of work in Western societies away from manual and craft labour towards "knowledge work" is a major reason why the body might be considered to be of decreasing theoretical importance. Similarly, the rise of the digital seems to reinforce disembodiment. These two trends are specifically central for IS's on-going blindness to the body.

Furthermore, within a re-theorisation of the body, there are a number of very divergent intellectual currents (Gärtner, 2013). Often the concern has primarily been with the way the body is shaped and controlled by structures of power, but neglecting embodied being and sensory experience (Vannini et al., 2012; Hockey and Allen-Collinson, 2009). Foucault's thought has been an obvious influence on this emphasis. A further "sensory turn" would move away from the "inscribed socialised (passive) body" and do "justice to its active, sensuous, productive nature" recognising the body as "a feeling, thinking, desiring, willing, vital, material agent" (O'Loughlin, 2006: 10, 6, 11).

These special issues of Library Trends bring together work by IS scholars who are beginning to explore the productive role of the body in information activities. They come from a variety of metatheoretical and methodological traditions; encompass a wide range of study settings; and

often explore new methods. This introduction analyses some of the wider intellectual context for their work, without attempting to do so comprehensively. It seeks to chart the linkages and discontinuities between some of the major influences that are shaping this bodily and sensory turn, and to map at a high level what may be a gathering influence on IS.

The phenomenology of Merleau-Ponty

An important reference point for any revaluation of the body and its relation to the mind is the work of the French Twentieth Century phenomenological philosopher, Maurice Merleau-Ponty. Phenomenology is a philosophical movement concerned with the study of how phenomena appear to us: the structure and nature of consciousness. A complex body of thought, it has a number of strands or “trails” (Allen-Collinson, 2009; Cibangu and Hepworth, 2016). Allen-Collinson (2009) positions Merleau-Ponty within existential phenomenology, the branch concerned with what it is to be human; Cibangu and Hepworth (2016) locate him in a tradition of embodied phenomenology.

For Merleau-Ponty (2012) in his major work originally published at the end of the second world war Phenomenology of Perception, perception is not the passive receipt of atomistic sensory signals (as often pictured in cognitive psychology), rather a process of active intentional interpreting (Romdenh-Romluc, 2011a). Our attention to the world is directed to doing something in a particular situation. We perceive the world as opportunities to act (an idea Merleau Ponty took from Gestalt psychology).This is not necessarily conscious intention: Merleau-Ponty is concerned with a pre-reflective, motor intentionality. Such potential actions are implicitly defined by one’s body in relation to an object, not just by the objects themselves. Thus how one sees a chair, as something to sit on, is influenced by the nature of the human body shape, for which sitting is a relevant action. “What a perceiver sees on any particular occasion is the result of what she can do” (Romdenh-Romluc, 2011a). Since perceptions are opportunities to act, and actions bodily, the subject of perception/action is embodied. The term the “lived body” refers to the notion that we are a body, rather than that we “have” one. It also follows that people (and other beings) can see the same thing differently. Since perception is interactive and linked to action, there is not an objective, correct perception of an object. Rather Merleau-Ponty proposes the notion of “Maximum grip” as a positioning of an optimal relation between perceiver and perceived object. He suggest that one feels a tension until one has moved into this position of maximum grip, and then when one has found the right place one attains a sense of equilibrium. “Flow” is skilled positioning.

Once a motor skill has been learned the body knows it and can act appropriately without thought (Romdenh-Romluc, 2011a). This is not mere habit, marked by unthinking repetition of the same action, it is a “dynamic trait” that is adjusted appropriately to the context (Annas, 2012). It is “practical expertise” (Annas, 2012).

> “According to Merleau-Ponty, in everyday, absorbed, skillful coping, acting is experienced as a steady flow of skillful activity in response to one's sense of the situation. Part of that experience is a sense that when one's situation deviates from some optimal body-environment relationship, one's motion takes one closer to that optimum and thereby relieves the "tension" of the deviation. One does not need a goal

> or intention to act. One's body is simply solicited by the situation to get into equilibrium with it." (Dreyfus, 1996).

To illustrate this Dreyfus (1996) quotes a basketball player reflecting that often it is only after playing the ball, that he realises consciously that he has acted. In this view the body rather than the mind is the primary site of knowing about the world. The body knows. The typist has "knowledge in the hands" (Merleau-Ponty 2012 quoted Romdenh-Romluc, 2011b:82). One can know how to do things without being able to state the principles that underlie them; equally one can state the principles without being able to know how to actually do the activity (Keat, 1984). We have a non-representational, non-propositional, pre-linguistic experience of the world.

Some aspects of this are familiar in IS through the notion of tacit knowledge. But since for Merleau-Ponty our experience of the world is primarily embodied, the central concern in IS with codification of tacit knowledge seems misdirected. In Merleau-Ponty the embodiment of the subject is core and human life is fundamentally corporeal. O'Loughlin (2006:12) suggests that "reasoning and cognition are in fact specialised functions of our basic bodily 'drives' distilled and refined over time." This would seem to justify giving emphasis to the way the body itself takes on and uses information, less exclusive focus on self conscious information gathering.

Influentially, Merleau-Ponty also sees sensory experiences as integrated, and affect as part of perception. Thus we experience the senses in a holistic way, not as a series of discrete signals (Romdenh-Romluc, 2011b). When a dog barks we see a barking dog, not an image of a dog opening and shutting its mouth and separately some sounds. We also directly perceive the barking dog as frightening. We do not somehow process the information and draw a deduction that the combination of signals indicates a threat (Romdenh-Romluc, 2011a).

Merleau-Ponty's arguments are referenced widely across literatures of the body. Inevitably, they are not without their problems. Howes and Classen (2014) mock the wordiness of phenomenology, which purports to be about human fleshly experience but ends up expressed in long-winded textual accounts. Critically its method of reflecting on individual subjectivity potentially neglects how cultural influences might shape such experiences. Thus some of Merleau-Ponty's characterisation of experience neglects modalities of perception that were arguably less available to him as a male, e.g. experiences of vulnerability (Keat, 2013). However, there have been applications of phenomenology in general by later authors that acknowledge bodies as "socially- and historically-located, socially related and interacting from particular structural standpoints" (Allen-Collinson, 2009).

The relevance of phenomenology as a whole to IS is summarised by Budd (2004) and Cibangu and Hepworth (2016) - though these accounts do not give much weight to Merleau-Ponty because there are more obviously relevant approaches to the study of documents (Trace, 2017). Yet in re-evaluations of the role of the body Merleau-Ponty's influence is pervasive, and he is an important influence on the authors in this special issue. It prompts us to place the body as central to human experience, and so also information activities; it breaks down the separation of cognition, motive, perception and emotion; it recognises the importance of the knowledge the body itself has. The gap between this and the typically rationalistic models of

information seeking we are used to using seem to demand a rethinking of our assumptions in IS.

Practice theory

Another potential starting point for revising our understanding of the role of the body is practice theory. The centrality of the body for practice theorists is clear from Schatzki's (2002) definition of practices as "bodily doings and sayings" or Reckwitz's (2002: 251) description of them as "routinized bodily activities...regular skillful performance of (human) bodies… mental and emotional activities which are - on a certain level - bodily as well." But if practice theory does recognise the importance of the body in a general way, there is typically a lack of detail about what this means in its theorising, as a number of authors have pointed out (e.g. Maller, 2017; Yakhlef, 2010; Gärtner, 2011). Practice theory's emphasis is often on such matters as the social nature of learning or on the active character of artefacts in the context of materiality, rather than on the lived body. Thus in a major work such as The Site of the Social Schatzki (2002) says little specific about the embodied; it is not greatly differentiated from other materiality (though see Schatzki, 1996). Nicolini's (2013) comprehensive summary of practice theories, similarly, reveals that artefacts have been a lot more of interest than sensing or knowing bodies.

Some notable exceptions to this relative neglect or lack of detail among practice theorists are in the work of Bourdieu, and also in some later authors, such as Strati and Yakhlef. One of Bourdieu's most important concepts is habitus: deeply internalised, durable motivational and thought structures, derived from wider social (class) structures which are dispositions that shape individual action (Throop and Murphy, 2002). Body hexis is Bourdieu's term for where these structures are written onto bodies (Throop and Murphy, 2002). Habitus is linked to the routinisation of behaviour and tacit knowledge, though such knowledge is probably tacit because it never was conscious knowledge. What makes habitus such an interesting idea is the way that social assumptions are inscribed onto bodies or internalised into minds, creating apparently spontaneous responses, as the influences on us disappear from view as bodily habits and common sense assumptions. But the problem here for modern sensibilities is that habitus as thus conceived could be seen as rather deterministic, static and outside consciousness (Noble and Watkins, 2003). It lacks a sense of the complex way habitus shapes action, how it can change and also be actively reflected upon. Illustrating this critique through the learning of sporting skills, Noble and Watkins (2003) suggest Bourdieu mistakes a growing automaticity through habituation, with lack of access to consciousness. In that sense Merleau-Ponty's concept of the routinisation of practical expertise is probably more attractive.

A number of later authors within the practice tradition have drawn on Merleau-Ponty to say more about the role of the body in knowledge, notably Strati (2007) and Yakhlef (2010). Strati (2007), for example, writes about the "sensible" nature of knowing. Showing a strong influence from Merleau-Ponty, he demonstrates that the body learns to know some things through doing rather than through reasoning. He ties this knowing to emotion and aesthetics. He draws on examples of how within specific practices we learn to know how to interpret certain forms of sensory data in very particular types of way. His examples are taken from physical activity/skills and see what

the body knows as existing as well as what the mind knows. A further leap is possible if, as Gärtner (2011) argues, we recognise that our abstract cognitive representations might also draw on bodily experience. At this point the dualism between cognition and the body collapses, a point developed in the next section.

Practice theory has been adopted by a number of authors in IS, but most notably and influentially, by Lloyd (2009, 2010). Lloyd (2010) emphasises the importance of the body in information literacy, again drawing on Merleau-Ponty, among other influences.
Her empirical work reveals the importance of learning to interpret information from the different senses to achieve competence in practices such as ambulance work (Lloyd, 2009). Skills learned in the classroom or through reading texts need to be translated to embodied understanding. In the field it is vital that the practitioner acquires an understanding for the subtle sensory information that helps interpret the situation. She also points to the way patterns of practice inscribed on bodies can be read by others, as a source of information. In identifying corporeal information as an important modality of information, and exploring its dynamic relation in learning to textual and social modalities of information, she has produced what is already an influential framework for examining information landscapes and competencies within practices (Lloyd, 2009). Several authors in this collection take Lloyd's work as a starting point.

Embodied cognition

Somewhat influenced by Merleau-Ponty, as well as other strands of philosophical thinking (Leitan and Chaffey, 2014), another important area of work reevaluating the importance of the body is around the notion of "embodied cognition," which is being developed in the fields of the philosophy of the mind, cognitive science, but also artificial intelligence, neuroscience and linguistics. Traditionally reasoning was often seen as happening in a centralised way in the brain, working at an abstract level, consciously, through language, and rather removed from the processes of immediate perception. Embodied cognition represents a range of work that in contrast points to the way that parts of the body other than the brain are involved in cognition and working at an unconscious level, are bound up with perception, movement and action. Thus the "Embodiment Thesis" is that "many features of cognition are embodied in that they are deeply dependent upon characteristics of the physical body of an agent, such that the agent's beyond-the-brain body plays a significant causal role, or a physically constitutive role, in that agent's cognitive processing." (Wilson & Foglia, 2015). It is one of a number of interrelated theories that challenge the notion that cognition happens purely in the brain.

One form of the thesis refers to the way we think by actively engaging with the world. So we do not think separately from the state of our body. Experimental examples show that responses to a question differ depending on what physical tasks the body is performing when the question is posed. For example, evaluations of something are more positive if we are asked to do the evaluation while pushing upwards on a table (Robbins and Aydede, 2009). Thus in real time the rest of our body beyond our brain is involved in thinking. "Gestural cognition" refers to the way that our physical gestures while talking and thinking are part of our thought (Johnson, 2017). Gesture is not solely about communicating ideas to others, it would appear it is an active part of the cognitive process (Goldin-Meadow, 1999; Pouw et al. 2014). This is one example of the way

that rather than thinking being centralised in the brain, it is distributed around the body. It works partly unconsciously, and not just through symbolic systems. The characteristics and capabilities of the body thus shape reasoning.

Even more fundamental is the notion that the representations used in mental cognition are ultimately grounded in our embodied experience of the world. A key source of this idea are Lakoff and Johnson's (1980, 1999) claims that bodily metaphors underlie most reasoning ("embodied realism"). Wilson (2002) sees this as the least discussed but potentially most powerful version of the notion of embodied cognition, for it asserts that the concepts we use in abstract thinking are actually founded on bodily experience. Abstract concepts are understood through metaphors of embodied experience, and so based on how we as humans interact with the environment. For example, our abstract understanding of the concept of balance or equilibrium, ultimately is as a metaphor drawing on the physical experience of balancing our body (Gärtner, 2011). This claim solves the longstanding philosophical conundrum of how it is possible that we can attach meaning to mental representations, by suggesting that we derive them from our bodily understanding of things (Robbins and Aydede, 2009). Thus while much of the work from Merleau-Ponty is about motor skills, here all the working of cognition, including high order abstract reasoning are seen to be founded on bodily experience. Such a view should have a radical impact on how we view mental thought processes, including those implicated in information.

Embodied cognition is one of a number of theoretical strands that challenge the view that cognition happens purely in the brain, such as embedded and extended (or distributed) cognition, and which collectively are sometimes labelled situated cognition. Embedded cognition suggests that cognitive activity cannot be understood separately from the given structures of the physical or social environment. We partly think by offloading some of the effort onto the environment. Examples of these are epistemic actions, which are actions that help someone think about a problem (Robbins and Aydede, 2009). For example, in trying to pack a suitcase, organising items in some sort of order on the floor helps work out how to fit them in, rather than trying to work out how to organise them purely in one's mind. The notion of extended cognition suggests that thinking involves things beyond the individual organism, including others: socially distributed cognition (Hollan, Hutchins and Kirsh, 2000). The cognitive process of navigating a ship is coordinated across a number of individuals and tools, rather than happening within an individual mind. Collectively embodied, embedded and extended cognition are sometimes referred to as situated cognition. By virtue of their embodied, embedded and extended nature, cognitive processes are dependent on the situation. We might have different thought processes depending on our bodily/other situation. Moving around a room to think about how the furniture might be laid out.

In the light of the notion of embodied cognition IS's relative neglect of the body seems increasingly problematic. Some of the work in the area of situated and distributed cognition will be familiar to those working in IS, eg through the work of authors such as Suchman (1987), Lave (1988) and Hutchins (1995). Collectively it seems to offer an interesting perspective on the context of information behaviour. Another area where these theories have had a marked

influence in the broad field of IS is in the understanding of the embodied aspects of reading (McLaughlin, 2015) and especially how reading changes when digital devices replace the printed book (Glenberg, 2011; Mangen, 2008, 2014; Mangen and Schilhab, 2012). Lueg (2014,2015) is one of the few authors who have begun to directly think through the implications of embodied cognition for information behaviour. He draws out the impact of the fact that human bodies are different from each other and this can affect information experience. Even something as simple as body height impacts what is perceived. Our perceptions are also influenced by the situation, including the task. Some sensory information is simply ignored. The peculiarities of the processes of perception need to be considered in how people gather information.

The implications of embodied cognition are profound, for example consider the importance of the body to learning (Rambusch and Ziemke, 2005). We learn through movement and gesture. Many authors have noted the way that walking changes thought patterns and aid creativity (Clughen, 2014; Keinänen, 2016). Learning may be enhanced by certain physical practices that promote bodily awareness (Claxton, 2015). This suggests the body and its movement are likely to integral to collecting and interpreting information. In turn this could impact on our view of how space as part of the environment shapes information use, as it does reading and learning. Different spaces engender different styles of reading (McLaughlin, 2015). For example, the sensory experience of libraries is central to their role as places to read and undertake other informal learning tasks (Cox, 2017). Indeed, from this perspective the embodied nature of learning is applicable to traditional academic tasks and the traditional domains of information literacy, as it is to the context of professional practice so emphasized by Lloyd.

Sensory Studies

Gärtner (2011) offers a useful recent synthesis of the thought of Merleau-Ponty, practice theory and embodied cognition. Nevertheless, his account of bodily experience remains at a high level of abstraction. An alternative starting point might be Sensory Studies: “a cultural approach to the study of the senses and a sensory approach to the study of culture” (Howes, 2013b). In contrast to the mainstream treatment of perception in psychology that focuses on descriptions of supposedly universal mechanisms by which sensory information is processed, Sensory Studies reveals how in different societies different meanings are attached to the senses and the cultural significance of the way that the senses are placed in different positions in a hierarchy of importance.

The roots of Sensory Studies lie in a sensory turn in history and social anthropology in the 1980s and 1990s, though the term was not coined till 2006, associated with the founding of the journal The Senses and Society. Among historians it can be traced back to scholars in the Annales school, in particular to the work of Alain Corbin, and has been notably taken forward by Constance Classen (1993, 1994, 2012). Now there is a substantial body of historical work sharing these preoccupations, as reviewed by such authors such as Jütte (2005) and Smith (2007) and in the six volume Cultural history of the senses, edited by Classen (2014). Sensory anthropology emerged at the same time, challenging the tendency to over-emphasise cultures as texts. Anthropologists have explored the way different cultures attach different meanings and

value to sensations such as smell, balance, hearing or heat (Classen, 1993; Howes and Classen, 2014). The method of “participant sensation” displaces participant observation’s privileging of sight (Howes, 2013a). Subsequently these interests have been picked up in other fields, such as geography and sociology (Howes, 2013a).

The Sensory Formations series of monographs, which are interdisciplinary anthologies for example on auditory cultures (Bull et al., 2015), smell culture (Drobnick, 2006) and touch (Classen, 2005) are a useful entry point to this perspective on the study of the senses. Without universalising how these senses are experienced (or indeed how they are differentiated and named), they explore the range of meanings attached to particular sensory experiences in different historical and cultural settings. Porteus’ (2006) analysis of smellscapes reprinted in Drobnick (2006), for example, captures certain unique features of the sense, such as the difficulty of locating smell, but also the variation in its meaning in different spaces and time. Such richness is lacking in the philosophical generalisations of phenomenology. It also challenges psychological explanations of perception or our tendency to interpret these sensations as purely private, subjective experiences. Rather these readings sensitise us to the precise cultural meanings attached to the senses in different contexts; and challenge the privileging of the visual as a means of knowing. Such exploration of the meaning of the senses is important to IS if ultimately the senses are an immediate, essential, if mundane source of information.

The title of Howes and Classen’s (2014) introductory text, “Ways of sensing”, refers to the plural ways in which senses as processes are experienced across societies and contexts. A central tenet of Sensory Studies it that it challenges the traditional categorisation of five senses. There are different categorisations at different historical periods or in different societies (Howes, 2013b). For example, the very dimensions of touch or the haptic are multiple. Touching with hands is different from touching with other parts of the body; and also might not necessarily be differentiated from senses of the internal organs. Thus the very categorisation of the senses we take for granted is a cultural construct. The relation and interplay between the senses, “intersensoriality” is also important for these authors (Howes, 2013b), as it was for Merleau-Ponty. The senses can be arranged ”a) more or less synergetically, b) more or less hierarchically, and c) more or less interconnectedly” or d) more or less simultaneously or sequentially. Senses can collaborate but may also conflict (Howes, 2013b). Exploring how meaning exists relationally between the senses is central to such studies.

Another central concern is how the social ranking of the senses is linked to structures of power in society: “Every ordering of the senses is at the same time a social ordering” (Howes, 2013b). Usually higher social groups become symbolically associated with what are deemed higher senses. Marginal groups resist such ordering. For example, Smith (2007) charts the changing meaning of touch in Western societies. Historically, touch has often been seen as a means of authentic access to knowledge. But there was a gradual denigration of the sense in the Enlightenment, as touch became associated with disease and the “base” drive of sexuality. Sight became increasingly associated with reason, detachment, objectivity; touch with instinct. There were strong links between this sensory order and patriarchy (e.g. through medical

practices), class divisions and the racist assumptions underlying imperialism. But these are not necessary associations. Indeed, something as close to reasoning as writing is itself tactile in nature (Classen, 2005). Thus in examining the experience of the senses we need to have a critical awareness of the power structures that shape them.

Indeed a central debate in the field has been around the proposition that historical and cross cultural comparison reveal an “ocularcentrism” - a privileging of the visual - in Western thinking. McLuhan and Ong thought that shifts in communication media had made a major impact on the experience of the senses, creating a deeply significant split between oral societies, privileging speech, and visual societies, privileged the printed word. Hence printed text comes to be linked to vision and to reason, objectivity. This “Great divide” thesis now appears too simplistic a binary, but has structured much of the debate (Smith, 2007). There may be many practices of looking; not all are modelled on detached observation.

The text based methods of historical scholars could well have value in reconstructing the meaning of the relation of the information and the senses for IS. Some have been critical, however, of the way Howes sees the senses as essentially culturally formed allowing little room for individuality and creativity (Pink, 2015).

If we are more concerned with contemporary sensory order, Vannini et al. (2012) offer a more sociological account of Sensory Studies. They coin a number of terms that provide a useful lexicon for those working in the field, including:

- “Somatic work” which they define as “the range of linguistic and alinguistic reflexive experiences and activities by which individuals interpret create, extinguish, maintain, interrupt, and/or communicate somatic sensations that are congruent with personal, interpersonal, and/or cultural notions of moral, aesthetic, and/or logical desirability” (Vannini et al., 2012: 19). On the surface this concept is quite hard to understand, but it emphasises the active nature of the senses as well as the combination of pre-linguistic and cultural elements that make up sensory experience. The notion that the “senses are skills” is a helpful way into this (Vannini et al., 2012: 15).
- The “Sensory order” or “the sensorium” (Vannini et al., 2012: 59) is a cultural model of the meaning of the senses. We have already seen this in the work of Classen and Howes, but what Vannini et al. (2012) add is that this can exist at the level of a whole civilisation, one society or a small group, like their example of wine-tasters. Perhaps within specific practices the senses are experienced differently. That is the logic of Grasseni (2009) who writes about how the senses are trained eg in farming communities in the Alps. A community of practice could be a sensory community; a landscape of practice, could be a sensory landscape.
- “Sensory communities” - “groups of people who share common ways of using their senses and making sense of their senses” (Vannini et al., 2012: 7).
- “Sensory socialisation” (Vannini et al., 2012: 49) which would be the way one would learn the meaning attached to sensory experiences in a particular context.

- “A sensuous self: a performative, reflexive, perceptive, intentional, indeterminate, emergent, embodied being-in-the-world” (Vannini et al., 2012: 85). This concept refers to the way sense of self emerges from sensory experiences, shaped within a wider culture.
- The “Somatic career” (Vannini et al., 2012: 85), tied to the sensuous self, is the history or biography of sensuous experiences that constitute an important aspect of identity.

As yet there have been few authors who have borrowed from this body of theory for IS. Yet there is significant potential in Vannini et al.’s (2012) terminology to inspire a much closer investigation of the precise meaning and inter-relation of the meaning of sensory information in particular contexts, communities and practices, and how these relate to wider cultural identities.

Vanini et al. (2012) call for a “sensuous scholarship” (a term first used by Stoller (1997)): for research about, through and for the senses (Vannini et al., 2012: 63). This implies new methods to examine the senses, as well as investigating new types of activities. This is challenging given the ephemeral, unconscious and tacit qualities of much sensory experience (Borer, 2013). Pink’s (2015) Sensory Ethnography is an influential guide to such methods. Interviewing and observation may still be important within such research practices. However, it might not be simply an interview taking place outside the context of interest: thus practices such as interviews walking with participants could be a valuable data collection tools to explore, soundscapes, smellscapes and touchscapes (Borer, 2013). Interviews could well involve elicitation, using photos or drawing (methods already of interest in IS (Hartel, 2014)) but also potentially sounds or smells (Pink, 2015). It is probably important to engage all the senses, given the intersensoriality of experience (Mason and Davies, 2009). Participant produced video and journaling have also been used. In terms of participant observation, auto-ethnographic methods could be important but the researcher may also need to take a “sensory apprenticeship” into the sensorium of a particular sensory community (Pink, 2015). The sensory focus also implies new ways of presenting research outputs, be that through exhibitions, olfactory books or guided walks (Pink, 2015).

Conclusion

A number of very different streams of thought are flowing together to influence how the body is seen (Gärtner, 2013). This review has attempted to chart some of these, helping to map them out for readers. It has been far from comprehensive. There are many other potential influences from educational theorists such as Dewey through to feminist and critical theory. All prompt us to consider further the role of the body in information activities. Fully exploring the ramifications of these influences on information theory promises to be a rich area of work for some years. It is to be hoped that the collection of papers in this double issue will be a landmark in further stimulating such work.

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