Ethnography of corporeality: A carnal move in educational technology research
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Abstract

Despite the increasing focus on non-dualistic and materialist approaches in education technology studies, the materiality of the body has not been adequately examined. Because of the heavy orientation towards affordance, interaction, participation, inclusion and access at the interface or between various spatial and liminal settings, the subject's body has been addressed and analysed as a non-corporeal construct, primarily at an abstract, theoretical or textual level. This paper intends to complement existing research by proposing a carnal move that would enact an ethnography of corporeality. It will do so by doing two things: first, by drawing from Don Ihde's human–technology relations to foreground the body in technology use; and secondly, by adapting Marcel Mauss's conceptualisation of body techniques for a carnal methodological move in investigating technology-enhanced learning and digital literacies.

Practitioner Notes
What is already known about this topic
• Sociocultural and materialist approaches in education technology studies have paid little attention to the "real" body.
• Within the climate of increased commodification of education and heavy reliance on the use of various technologies and devices for learning and teaching, our bodies have been neglected. In fact, we have or are expected to be more machine-like as our electronic devices are claimed to extend our cognitive capacities.
• Within the social science as a whole, the body has manifested itself in various ways— social body, collective body, technologised body—however, mostly focused on its representations through discursive thought or analysis.
What this paper adds
• The paper offers a re-examination of the role of the body in educational technology and points to interesting possibilities.
• It proposes the conceptualisation of body techniques as a way to engage with the visible body in human–technology relations based on Don Ihde's work.
Implications for practice and/or policy
• The paper proposes Ihde's body typology as a theoretical and methodological approach that will allow educational technology researchers to engage with bodily practices when investigating human–technology relations.
• It suggests "observant participation" (perhaps alongside participant observation) as a way of doing carnal ethnography.

Introduction

The academic discourse on technology-enhanced learning has paid little attention to the body as a site of experience or practice, except when the perceived natural body has a disability or is involved in sports or art performances. Forging an alliance with poststructuralist, feminist and phenomenologist scholars, albeit loosely, opens up the possibility of undeleting and finding the body in educational technology research. It provides insights into how our discourses and practices may include our bodies in ethnographic studies. Generally, technology-related research in education has taken an instrumental view or rationality, which argues that technologies are as good or as bad according to the ends to which they are used by users. The notion of cyborg in the 1990s has induced people's lives with unwarranted utopian hopes and dystopian fears. Hence, the instrumental view is considered the most informed or balanced sentiment. However, it is still a fundamentally flawed view of the human's bodily, sensory/perceptual capacity for embodied agency.

Broadly speaking, educational technology research has not entertained debates that problematise the body, be they phenomenological, post-structuralist, feminist or others. Sociocultural alongside materialist approaches have successfully shifted from techno-centric and technocratic discourses to critical accounts about gender, equality, participation and inclusion towards democratic and emancipatory politics. However, the persistence of modern categorisations and the depiction of the body as "otherness" (Shilling, 2004, 2007; Turner, 1994) remain. For instance, while actor–network theory approaches have been promoted in educational research (Fenwick & Edwards, 2010, 2012) and current digital literacies literature (eg, Gourlay, 2012; Leander & Lovvorn, 2006; Leander & Rowe, 2006) has informed and influenced the networked sociality of the object–subject and mind–body dualisms where the Cartesianised subject is acted upon by non-human entities in a network of relations, the tendency has been to focus on sociocultural approaches or other issues that maintain a muted body. The post-humanist and materialist approaches in digital literacies or educational technology literature have cast physicality out into mere inscriptions. The social model, in spite of its critique of the technical model, actually concedes the body to textual performances and is only a matter of concern when taken ill or impaired. The biological and cultural are pulled apart as the body is denied of its materiality as methodological practices/approaches ultimately solely acknowledge the disembodied subject, or more precisely a body denied of history, affect, meaning and agency. It is rather a pivotal point that as non-humans take stage in actor–network approaches and are made "actants," the body remains powerless or inanimate. Just like Hughes and Paterson (1997), this paper seeks to attend to the theoretical sidestepping that has resulted from sociocultural approaches with respect to its treatment of embodiment. To recapture the lost corporeal space and body, this paper will argue for the expansion of the sociocultural and relational approaches towards an emphasis of "body-as-flesh," rather than a disembodied "body-as-text" notion read through technical affordances. Becoming up close with bodies could prove to be insightful and capture the impact of spatialities and regimens—revealing ways in which pedagogy or technology disciplines bodies and promotes different dispositions to learning or literacy practices (Watkins, 2011).

Relational materialist approaches have recently been more evident in educational technology studies, particularly in digital literacies. One of the key successes of such studies is the recognition of the material arrangements that affect learning beyond an essentially mental or conscious set of interactions. Despite the materialist focus, the materiality of the body has not been adequately considered. The subject's body has been addressed and analysed as a non-corporeal construct, primarily at an abstract, theoretical and textual level. Moreover, though it may still hold true that dualistic methods are still used in investigating the human–technology relations, this paper is more optimistic and takes the view that the reason for the seemingly absent body in technology-enhanced learning (TEL) research is due to the heavy orientation to meaning-making, interaction, participation, inclusion and access at the interface or between various spatial settings. Hence, this paper's contribution is to complement existing research by proposing a carnal move that would facilitate and explore an ethnography of corporeality. It will do so by doing two things: first, body–technology relations are foregrounded using Don Ihde's human–technology relations (1990); second, Marcel Mauss (1979) body techniques as adapted by Crossley (2007) will be considered for a carnal move in educational technology research. It attempts to bring educational technology research within the purview of discussions of the body and embodiment towards a carnal ethnography.

Missing body in educational technology
The typical academic approach to education technology research examines the users in terms of various social and behaviourist categories as cognitive agents, self-regulated learners, active participants, members of communities of practice, social ties, affinities and so on. All of these categories or social arrangements are non-corporeal constructs. None of them describes, engages

or discusses the user in "bodily terms." In fact, there is hardly any evidence or reference to the body itself in the enhancement of learning or depiction of the learner-user. Very rarely, if at all, do we refer to learners or children as individuals with bodies, except by implication when we are talking about gender or gender-based practices or more significantly when we are talking about cyborgisation. Within the cyborg construct, the body has parts that could be modelled, enhanced or replaced by technology (Ihde, 2002). Moreover, within the increased commodification of education driven by neo-liberal ideologies and policies, individuals are expected to be machine-like, evaluated by performance-based grids based on mechanical strength and for the not so lucky ones, ultimately replaced by machines (Barnacle, 2009).

In educational technology studies, may it be in digital literacies, e-learning, computer-mediated communication, and more recently, in TEL, we have ignored the role of the body in learning with the exception of the works of Barnacle and Dall'Alba (see Barnacle, 2009; Dall'Alba & Barnacle, 2005, 2007). It is seemingly obvious that the dispositions to learning that are acquired are as much corporeal as they are cognitive. This is illustrated in a recently accepted paper in this journal (Enriquez-Gibson, 2014), wherein the bodily positionings of students in relation to a rather old and non-digital technology—paper—are foregrounded. It describes the habituated bodily practice of studying and the mastery of study skills and routines as a bodily skill that remains to be meshed with paper. Yet the bodily aspect of technology-enhanced learning and its impact on cognition receive little attention within educational technology research. The absence of the body in educational technology research is greatly contrasted by the impressive force with which it has been increasingly central in other fields: cultural studies, media studies and human geography. The burgeoning literature on the human body has become central to the postmodern condition and feminist pursuits of deconstructing the male-dominated cultural constructions of the female body (Butler, 1990, 1993). Post-structuralism encourages the promotion of the corporeal and social categories away from essentialist dispositions. However, according to Shakespeare and Watson (1995), under close scrutiny, the nature of the body it promotes is something of a phantom (simulacrum). There have been more materialist approaches that do acknowledge the importance of identity, co-presence, sensoriality, spatiality and mobility—though in such approaches, how corporeality itself affects or is affected by concrete situations or technologies remains unexamined. Instead, most scholars tend to objectify the body within a theoretical structure or present embodiment as a discursive construction (as text) that effaces ultimately its materiality. The point I am making here is not to suggest that "body talk" within textual and sociocultural analyses should be abandoned. I pursue and do value such scholarly pursuits and have made a few attempts of similar nature in my own work. The intent is to consider the somatic alongside the cultural body. In fact, the postmodernist displacement or dissolution of rationality and decentering of a coherent subject is central to how we might understand the process of embodiment and how this could articulate technology-related activities corporeally. Furthermore, the shift from knowledge to experience or practice presupposes the move from cognitive to embodied agency. This also brings into alignment at least in terms of corporeal feminism a critical scrutiny of the role of the body in technology use—that is, a body culture in technology. Everyday human life is marked by corporeal existence. The dualistic approach that has produced a theoretical rigidity has privileged the mind over the body and the relational approach that has promoted theoretical fluidity has replaced the body with text. For a philosophy that puts back essences into existence, it is pertinent to consider, alongside the notion of reversibility, fluidity of being as a useful concept or metaphor.

The first bold move in bringing educational technology research within the purview of discussions of the body and embodiment is to attend to the disappeared body and insist that the body make up subjectivity (Merleau-Ponty, 1962) or that the body is "the very 'stuff' of subjectivity" (Grosz, 1994, p. ix). Hence, subjectivity becomes not simply a function of consciousness, but of bodily practice. Furthermore, subjectivity is always intersubjectivity; therefore, it is always intercorporeal (Crossley,

1995b). The body is always a body-with. The human–technology typology introduced by Don Ihde (1990, 2002) is suggested as a theoretical and methodological possibility to restore or recover the body in educational technology research. Secondly, it describes the use of body techniques based on Crossley's "carnal sociology" (1995a) and interpretation of Mauss's (1979) body techniques (see for examples, Crossley, 1995b, 2004) and intercorporeality (Crossley, 1995b, 2001, 2007) as methodologically viable approaches for a productive and expansive research agenda that is attentive to the embodied agency and bodily practices of digital literacies and TEL studies.

Body as other

It is broadly argued that the absence of the body has to do with the western mind–body divide or because mind is privileged over body. However, Crossley (2007) would not entirely agree. For him, citing the work of Leder (1990), it is due to the fact that the body is simply the anchor or point of view on the world. The body gives us a "standpoint" or locates us in the world. In The Absent Body, Leder (1990) refers to experience as embodied or that the body is the site of experience in a way that it is not an experience of the body itself. This, however, could be reversed in what Leder calls "dys-appearance"—an appearance of the body due to some dys-function. We neglect the body when it recedes from awareness, which is most of the time (Crossley, 2007). Only with various forms of corporeal breakdown do we pay attention to the body. At these times, the body appears as "other." The body is defined as the other in terms of ". . . a fixed, material entity subject to the empirical rules of biological science, existing prior to the mutability and flux of cultural change and diversity and characterised by exchangeable inner necessities" (Csordas, 1994, p. 6 cited in Hughes & Paterson, 1997, p. 329). In short, it is treated as a vessel—pre-social, inert, physical object quite distinct from the self. Cartesian dualism is built on this selected reflection of the body. A more reflective phenomenology reveals that the body in the world is both foreground and background. It constitutes our locus, so that we are "here" rather than "there." Yet, at the same time, the body recedes from conscious reflection. The body recedes in activity but is always implicitly present and known. For instance, "to see something as reachable and thereby open to my use is to implicitly experience my body's capacity of reach" (Leder, 1990, p. 22). Scholars like Foster (1992) and Crossley (2001) have provided vivid descriptions of how the dancing or boxing body can be manipulated through training and ultimately defines a meaningful personal (professional) identity—that of a dancer or Thai boxer. Such phenomena, including walking (Ingold & Vergunst, 2008) and surely, talking, suggest the possibility of a manipulable and malleable body—a plastic corporeality. This does not only change body movements, but ways of bodying imbued with embodied meaning. The body becomes different as it acquires different purpose and meaning by way of different techniques of "body-moves." Hence, it is worthwhile to explore educational technology and understand human–technology relations through the concept of body techniques, where the materiality of the body is no longer just "other."

Body as flesh

A number of feminist scholars, particularly Grosz (1994), Barad (2003) and Wilson (2004), have re-articulated the social body as a sensory (physiological and biological) beyond a cultural construction that excludes its visceral make-up through corporeal feminism. And yet, as Crossley (2007) pointed out, the body is strangely absent from the accounts not because of dualism but because we have not yet found a way to talk about the body as site of experience. Phenomenologists, who have adhered to Merleau-Ponty's (1962) work, have pursued the conception of human embodiment that transcends the Cartesian dualism by grounding perception in the experienced and experiencing body. The world could only be experienced bodily and if at all the virtual is a kind of world, it is only experienced through the body. At this juncture, subjectivity or agency becomes not simply a function or matter of consciousness but of bodily practice. Understanding or learning is both a cognitive and corporeal process.

From Merleau-Ponty's (1968) unfinished, posthumous manuscript, The Visible and the Invisible, his new conception of the body, as a "chiasm" or crossing over, combines subjective experience and objective existence. His term for this new conception of the body is "flesh." It extends his notion of reversibility to both "touching" and "touched" or tangible, and not just perceiving and perceived. Consider an instance when one hand is touching the other. The hand touching the other refers to the lived, subjective body and the other hand being touched is the objective, sensory body. The locus of our attention could easily traverse between the reversibility of the flesh as both subjective and objective. This qualifies Merleau-Ponty's view that gives priority to the "phenomenal" (lived) body over the objective (visceral) body. Furthermore, the notion of reversibility makes the body simultaneously active (touching) and passive (touched). In the flesh, the body is not just a body-object that refers to biological organs. It is simultaneously a body-subject. It is always-already mediated by a range of social and cultural norms and technical means that affect its reception and mobility (Coole, 2007). The latter remains contingent and in-the-making. Digital practices are saturated with corporeal significance and yet the body is usually used or reduced to a dramatic prosthesis in digital or textual performances. The cultural aspects of the body drawn and re-drawn given its plasticity have been criticised by Shakespeare and Watson (1995) as a mere shift from biological essentialism to discursive essentialism. This criticism is further confirmed by the circulation of the "body-as-text" denying the body of its materiality (Brush, 1998; Butler, 1990, 1993). I would argue alongside Bordo (1993) that the shift of focus on the body is not just another version of essentialism, that is, the body is not just a fleshy entity. Though seemingly mundane habits and practices are carnal forms of culture. In short, culture is not just made by "intelligible" body, but also by a "practical" body (Bordo, 1993).

> The "practical" body is not brute biological or material entity. It, too, is a culturally mediated form; its activities are subject to interpretation and description. The shift to the practical dimension is not a turn to biology or nature, but to another "register", as Foucault puts it, of the cultural body, the register of the "useful body" rather than the "intelligible body" (p. 181).

In an attempt to avoid an essentialist position, Ihde's body typology and Mauss's body techniques are proposed as frames or lenses through which the plastic and practical body is not reduced to a cultural medium or text.

Body-tech relations
The experience of technological mediation, from a post-phenomenological viewpoint, recognises the non-neutral capacity of technology use. Ihde (1990), Rosenberg (2013) and Verbeek (2008) are philosophers of technology who highlight how technology changes how the world is approached, understood, perceived and acted on by its user. The effects of technological mediation within the habitual aspects and embodied skills of everyday practice with technologies must be examined. This inter-relational ontology brings it to co-constitution of human and technologies, not simply a matter of mediation but also of body techniques described in the next section.

As my intent is not only relational, but also corporeal, I would like to make an explicit discussion about human–technology relations by attending to the body-object or physical body. Once again, I am guided by the work of Ihde (1990, 2002), as I tried to articulate in an earlier paper (Enriquez, 2011). Drawing from the traditions of phenomenology and hermeneutical philosophy, Ihde (1990) proposes a four-way typology based on our phenomenological engagement with technical artefacts. First, embodiment relations occur when a device becomes "incorporated" as a medium of perception. Such technologies characteristically "simultaneously magnify and amplify or reduce or place aside (screen out) what is (and is not) experienced through them" (Introna, 2011, p. 9). Examples would include the blind person's stick and tools like the hammer. Second, hermeneutic

relations provide the body with a representation of the exter nal world or a reference of something beyond itself. GPS and compasses refer to such relations. Third, Ihde recognises alterity relations, in which a technical artefact presents itself as "other." Technological encounters refer to other possible worlds (eg, playing video games) (Introna, 2011). And finally, there are background relations that refer to technologies that fade into the background of conscious experience and do not directly engaged the body (eg, traffic control systems).

Ihde's human–technology relations largely refer to the visible. Verbeek (2008) has proposed two additional relations—cyborg and composite. The suggested extension of Ihde's typology was based on the notion of cyborg intentionality. They may also be considered in terms of invisible mediation. Cyborg relations are defined by unseen technological support, implants or replacements that are rather fixed and permanent in defining a hybrid body. Composite relations, though in my view are rather ill-defined, are still useful in talking about those entities that are invisible because of lack of direct physical or visual encounter. The deciding factor if a human–technology relation is composite or hermeneutic depends on whose body is involved. The astronaut's body has a hermeneutic relationship with the moon even in a body suit, but my bodily encounter would remain hermeneutical—a representation of that reality. With this simple example, I am not entirely convinced that a composite relation constructs (beyond representation) reality. It is merely a representation at a distance or out of the extraordinary. What is important to consider are the visible and invisible relations of the body with technology, though not necessarily experienced as separate entities.

Body techniques
In this section, I rely heavily on Crossley's work (2007) and interpretation of body techniques based on Mauss's (1979) early sociology of the body. Body techniques are defined as "ways from which from society to society men [sic] know how to use their bodies" (1979, p. 97 cited in Crossley, 2007, p. 85). For a more inclusive definition, I would suggest that "men" refers to all gender and ages. As a methodological tool, this concept transcends Cartesian dualism. It pulls into irreducible relations the social, physical and mental aspects of human being. Crossley (2007) elaborates on how these corporeal dimensions are co-constituted and may be elucidated in "observant participation" (Wacquant, 2004, 2011—briefly described below):
1. Social techniques refer to the collective whose properties are not merely the sum of individual skills. They are manifested in and through individual actions and yet they pre-exist and will outlive particular individuals. In short, they are also historical "social f acts" that are communicated and circulated in communities and networks.
2. Physical techniques refer to the ways in which we "use" our bodies within the potentials and constraints of our anatomical structure.
3. Mental techniques refer to practical knowledge and understanding beyond mechanical movements of the body. For instance, swimming is not just the execution of a set of bodily movements in a particular pattern or sequence.

The embodied knowledge or learning that is foregrounded through body techniques is conceptualised as a habitus, that is, forms of practical reason manifested and performed differently in various contexts. In this paper, habitus of a digital kind is foregrounded within Ihde's human–technology relations.

In an ethnography of corporeality, body techniques make "the body" or "embodiment" a tangible concept and researchable format to investigate embodied agency and subjectivity in educational technology research. It allows us to explore a range of practices—digital literacies and TEL—in bodily terms. An ethnographer can observe the process of learning or interaction and immersed his or her body to its techniques using "observant participation." The data that are produced in field notes and

interviews, for instance, will emphasise the point that the materiality of the body is not merely corporeal, but also technical. Body techniques are not obvious to everyone or anyone. They are learned or acquired in practical competence where some are better than others. In particular settings and situations, our body techniques enact particular body language that confers meaning on objects, places and other material things. Therefore, they structure the way in which we act. It must be added that other material elements affect the body, especially when we are dealing with technical artefacts.

If to learn to see colours is to acquire a certain style of seeing, then to learn how to use technology of any kind or application is to acquire a certain style of communicating/doing. It is not just a matter of sight or technological affordances but a matter of body techniques. "Perception therefore involves body techniques and perceptual meaning is shaped by such techniques" (Crossley, 2007, p. 91). As the non-humans' (eg, artefacts) materiality and agency are integral to a relational ontology for the multiple possibilities of educational projects, body techniques have widespread symbolic and material connotation within individualised and collective context of social interaction. Body techniques are not things unto themselves acted out by a single individual. They are collectives that are both performative and co-productive, whether consciously or unconsciously to *some-body*.

Observant participation
Body techniques translate the body or embodiment into researchable format in body–technology relations both quantitatively and qualitatively (Crossley, 2007). To study body techniques is to engage in embodied ethnography and "observant participation" (Wacquant, 2004, 2011) must be considered. Observant participation means active membership that encourages bodily immersion. Body movements manifest particular patterns of body techniques. Ethnographic research by way of observant participation can be used to note down or record aspects of how body techniques are developed and acquired through social diffusion (Crossley, 2007). As a starting point, one of the key mechanisms to access embodied practice is to attend to the following:
   1. Technical aspect refers to what is actually passed on through the body in relation to a particular technology in terms of Ihde's basic typology identified above.
   2. Cognitive/perceptual aspect refers to what meanings are attached to body techniques; these may be clarified and further explored in interviews.
   3. Social aspect refers to what diffusion or network patterns are necessary to establish body techniques in human–technology relations.
To survey patterns of body techniques and the process of diffusion, Crossley (2007) suggests that quantitative approaches are employed and that observation data include their frequencies and duration within social networks.

To illustrate the value of the ethnography of corporeality, I would briefly mention Mangen's (2010) work on children's reading and literacy development. Her work refers to the key mechanisms above in terms of the manner in which the use of digital technologies and touchscreens challenges the associated bodily habits of children as these are challenged by new physical ergonomic, perceptual and cognitive processes and actions. Two key features that Mangen have highlighted in her work that are useful phenomenological consideration when investigating the evolution of body techniques in relation to body–technology relations are the tangibility of the physical versus the intangibility of digital displays of technological platforms and the multisensory nature of the interaction or human–technology relation.

At the level of Ihde's embodiment relations, body techniques can shed light on the embodied relationship between bodily sensorimotor, perceptual and cognitive features, and various technological interfaces. To make this point more poignant, touch at the interface reveals that the hands have a role to play in teaching and learning, particularly in teaching young children how to

read. Hands are not only used for gestural purposes or non-verbal communication, but more specifically in the haptic and tactile interactions with different objects and technological devices. In short, doing research on the pedagogical potential of touchscreens, in terms of body techniques, the changing role of the hands must be considered.

So, bodily speaking . . .
The importance of the body in human–technology relations has been largely ignored in educational technology research. Even when its importance is acknowledged, its corporeal and perceptual dimensions tend to be neglected. Building on Don Ihde's typology of human–technology relations, I have argued for carnal ethnography to retrain our corporeal sensibility and sensitivity in technology-related fields of technology-enhanced learning and digital literacies.

A practicable methodological approach based on Crossley's (2007) adaptation of Mauss's conceptualisation of body techniques becomes an important ethnographic consideration when exploring the transformation of user experience and diffusion of technology use in material, bodily terms. For instance, "point-and-click" on the screen allows for the evolution of body techniques in relation to literacy development in children. Body techniques are not just mechanical and external manipulations on the material world (Ingold, 1997). They are properties of systems of relations constituted by both human and non-human elements.

The proposed carnal ethnography does not intend to shift the focus on the body at the expense of the mind. To do so, as Watkins (2011) pointed out, is a mere reversal and would still allow for a continued disconnect between mind and body. Moreover, the new research agenda of corporeal persuasions must not simply move from technological to corporeal determinism. Therefore, it is important to avoid Mauss's mistake of de-contextualising body techniques and habits and ignoring the question of why there are multiple ways of "doing the body" in a diffused system of human–technology relations (Crossley, 2007).

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