

Reconsidering Resistance in the Post-Human Era

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ABSTRACT

User resistance to new technology has long been a central concern to the information systems discipline. The current discourse on “sociomateriality” invites us to rethink, in a fundamental way, what resistance means in individual terms. This essay represents a preliminary effort to recast resistance as a phenomenon that reflects the politics of personal boundaries. Sociomateriality figures into the discussion because it challenges distinctions that have customarily been assumed to hold between the human and social, on the one hand, and the material and technological, on the other. Notwithstanding this challenge, however, to make progress in understanding resistance we must recognize that the dissolution of such distinctions is a pragmatic accomplishment. Accordingly, sociomateriality, though currently championed as a starting point for our scholarly inquiries, represents an end point for technology users. Here I propose that it is useful to think about the individual as having personal boundaries that flex with the tasks and technologies that are engaged. In this context, then, resistance arises when new technologies pose disruptive and undesired changes to those boundaries.

Keywords

Sociomateriality, user resistance, IT innovation, phenomenology, ontology.

INTRODUCTION

User resistance to new information systems and technologies has long been a subject of concern to our discipline (Markus, 1983). The practical considerations are manifest. Managers seeking to use information technology in a program of intentional change can find their goals thwarted by a negative and often unexpected user response. By the same token, users sometimes find in various acts of resistance the only means to push back against ill-advised systems initiatives imposed by higher levels of management. Resistance can also arise in situations where system implementation provokes lateral contests of power. A substantial scholarly literature, stretching back years, exists on the subject of resistance, and this body of work has yielded many insights into the sites of resistance, the manner of its expression, its drivers, and possible remedies for it in better design and more effective management. (For a recent review, see Rivard and Lapointe (2012).) Notwithstanding the progress that has been made, however, difficulties with resistance continue in real organizations.¹ Moreover, the catch-all explanation for resistance – that “people just don’t like change” – remains all too ready to hand, when scholars try to account for the substantial unexplained residuum that the theorizing to date leaves behind.

This brief essay in effect responds to that glib catch-all phrase by asking, “Well, why don’t they?” I will propose that the concept of *sociomateriality*, which is currently a significant focus of discussion in the field, can help us say more in answer to this question. Sociomateriality figures into the discussion because it challenges distinctions that have customarily been assumed to hold between the human and social, on the one hand, and the material and technological, on the other. In its relatively more radical form, sociomateriality posits a relational ontology through which the social and the material dynamically emerge in the course of practice. In regard to individual users, then, dissolving the essentialist distinctions in this way can help us to think about the individual as having personal boundaries that flex with the tasks and technologies that are engaged. On the other hand, where it comes to user assimilation of new technology – and here we can read “assimilation” in its full connotation as a process that involves the removal of boundaries and the elimination of distinctions – we are forced to recognize that sociomateriality is a pragmatic accomplishment. Hence, although sociomateriality is currently being championed as a starting point for scholarly inquiries, it represents an end point for technology users. In the meantime, resistance can arise when new technologies pose disruptive and undesired changes to those personal boundaries.

¹ The call for this conference’s mini-track on “User Resistance to Information Technology” cites a recent Society for Information Management survey as identifying resistance as the sixth most important challenge for CIOs.

Drawing on observations by Maurice Merleau-Ponty and phenomenologically oriented field anthropologists, I will suggest that the extension of the working self, through socialization and practical experience, into the tools, spaces, and social relations of labor constitutes an accomplishment that transforms and defines the individual's very nature. The removal of old technologies and/or the imposition of new ones, then, can be an intervention akin to surgery on the identity and being of the system user. At a higher level, the unwelcome introduction of a new technology in the workplace can resemble colonization by a foreign power.²

USER RESISTANCE IN CONVENTIONAL PERSPECTIVE

As a strategy of inquiry, sociomateriality aims to undo the taken-for-granted Cartesian dualism that tends to inform – and, indeed, dominate – both our everyday thinking and our scholarly reasoning. That familiar dichotomy appears across models offering accounts of why and how user resistance occurs (Ferneley and Sobreperez 2006; Hirschheim and Newman 1988; Joshi 1991; Kim and Kankanhalli 2009; Lapointe and Rivard 2005; Marakas and Hornik 1996; Markus 1983; Martinko et al. 1996). In a synthesis proposed by Rivard and Lapointe (2012), two of five “basic elements of resistance” – which include the *manifestations of resistance*, *subjects of resistance*, *object of resistance*, *perceived threats*, and *initial conditions* – reflect directly on the taken-for-granted delineation of subject from object (2012: 899):

The *subject of resistance* refers to the actors or actors exhibiting resistance behaviors. In some instances, the subject is an individual... but it may also be a group... or an organization.

The *object of resistance* is the target of the resistance behaviors. In some cases, it is the system itself and its features... In other cases, it is associated with the significance that the system has to the user, such as a loss of power... or a loss of status... Finally, the implementers themselves may become an object of resistance when a situation has been politicized to the point where the system becomes a pawn in a power struggle between the users and the implementers...

Our particular interest here is in the kind of resistance that arises from the users' engagement with the system and its features during the course of work. Secondary effects of new system implementations, like changes in status or power, are certainly important, but outside the scope of this essay.

RESISTANCE, OR THE CYBORG PROTESTS

The innovations of interest to our field are conventionally spoken about as if they are discrete entities that are subject to “adoption” by human actors and larger social aggregations, such as groups and organizations. Of course, it has long been recognized that these innovations are never merely technological in character, and so a sophisticated view of “adoption” identifies this act, process, and accomplishment as deeply socio-technical, engaging a heterogeneous array of human, organizational, and technological elements.

However, in relation to *technology-in-use* even a socio-technical perspective might not capture fully what is truly going on. Having separated the technological innovation from the human actor(s), the *object* from the *subject* in the way just characterized, when we then evaluate the interaction between the two we are limited to characterizing those actors in terms of developments in such attributes as knowledge, skills, attitudes, and intentions. While these changes do point toward the impact of technology-in-use on the people involved, the underlying dualism of innovation vs. human can cause us to miss other aspects of the transformation involved in “adoption.” This, in turn, can make it difficult to account fully for the deeper causes of resistance to new IT innovations – or, indeed, to understand clearly what has happened when users successfully embrace technology and absorb it into their work.

Champions of the “sociomaterial” perspective in information-technology studies have given us a starting-point for thinking about resistance in a new way. They argue for an ontology that challenges the conventional distinction between the human and social, on the one hand, and the material and technological, on the other (Orlikowski, 2007, 2009; Orlikowski and Scott, 2008). The central ontological question in the sociomateriality discourse is whether what we normally distinguish as human and technological are really independent and predetermined, or whether they emerge dynamically from practice. The sociomaterial position holds for the latter (Orlikowski and Scott, 2008: 456):

² This essay will far from exhaust the range of factors behind resistance, notably its economic foundations as epitomized historically by the Luddites.

... entities (whether humans or technologies) have no inherent properties, but acquire form, attributes, and capabilities through their interpenetration. This is a relational ontology that presumes the social and the material are inherently inseparable.³

The briefest consideration of everyday life will testify to the deep, mutual insinuation of humans and technologies (Orlikowski and Scott, 2008: 455):

As a thought experiment, consider doing anything in the world... that does not in some way or another entail material means (e.g., bodies, clothes, food, spectacles, buildings, classrooms, devices, water pipes, paper, telephones, email, etc.). Furthermore, these material means are not so much tools to be used to accomplish some tasks, but they are constitutive of both activities and identities.

At the level of the individual, then, the socio-materialists' insight calls for transcending the Cartesian subject-object dualism by regarding humans and the technologies they use as *hybrid organisms*. To be human, by its very nature, involves integral, cybernetic relationships to a great variety of technologies in a large number of situated domains of action, including our homes, our vehicles, and our workplaces. In fact, in doing something as "simple" as walking along an established path between buildings, our engagement with the surfaces and objects around us qualifies for the label of "cyborg" as readily as the title character in the movie *Terminator*. Add texting on a smartphone to this scenario and the impression becomes even more pronounced.

Taking the long view of what it means to be human points to the validity of this reframing of the human-material connection. Humans have always lived, at least in part, in a world of their own making, a world that in turn defines what and how and who they are (Introna and Hayes, 2011: 109):

... any talk of humans and non-humans in ways that would suggest that they are separately already what they are – as 'social' and 'technical' – and then we 'add' them together to 'make' a sociomaterial network is simply wrong. ... both humans and non-humans share a common constitutive history... More than that, they do not merely share a common history; they are each other's common history.

And so as Introna remarks (2009: 26), "We are the beings that we are through our entanglement with things – we are thoroughly hybrid beings, cyborgs through and through." That we are, indeed, cyborgs of this kind is a matter of fundamental evolutionary development (Ramiller, 2001: 19):

Consider a very old technology – the stone hand-ax. Its contours reflect ancient observations and judgments and choices. The knowledge of how to make one and the knowledge of how to use one were captured in memory and reproduced both by practice and by communication. When taken in a sufficiently broad frame of reference, then, the stone ax was already a "complex" technology. Even while its design encoded the intelligence of its makers, the stone ax did not "know" enough, by itself, to accomplish meaningful work. It needed a person, informed by the appropriate culture, to complete it and give it purpose – to make it truly an ax, and not just an oddly shaped rock.

At the same time, the stone ax did not provide a mere technological amplification of its user's existing, biologically-based capabilities. When this tool arrived on the scene and in our hands, it literally changed our minds. We became, in that very instance, "cyborgs."

It is an incidental and largely uninteresting point that the stone ax was in our hands and not physiologically embedded within our skin. The stone ax was inside us in a much more profound way: As it sat in our hands, so too it simultaneously occupied our minds. It changed how we think about our capabilities, about how we might make a living, how we might defend ourselves, how we might express ourselves. It changed our very concept of ourselves.

In short, to be human is to be technological, and technology is by its nature inherently human. And so when it comes to resistance to technology, or for that matter "technology acceptance" (for example, as conceptualized in TAM research), we

³ Among scholars currently interested in matters of materiality and practice there is variation in the degree of commitment to this ontology of non-separation. Discussions of sociomateriality inevitably demand the use of vocabulary that divides the human from the material, and the social from the technological (Orlikowski and Scott, 2008: 468). But whereas some scholars assert that such usage entails "analytical" distinctions only (Nyberg, 2009: 1181; Orlikowski & Scott, 2008: 456; Styhre, 2010: 65), others hew to a more essential separation that calls, instead, for seeing socio-material relations as a matter of "imbrication" (e.g., see Leonardi and Barley, 2008, 2010). I will, in some sense, try to argue both sides in this essay.

begin to see that our customary grasp of what is happening is too superficial. The challenge of working with the newest generation of smartphone, Microsoft's latest redesign of Windows software, or a new enterprise-system interface at work depends on our willingness to allow our very natures to be changed.

In this light, the imposition of new technology in work practices can turn assimilation into a form of violence, a direct assault on the user's constitution. This is where "acceptance" vs. "resistance" takes on a more profound character than a simplistic, psychological depiction of response along the lines of "this is okay or not" or "this makes me feel uneasy and insecure or not."

Looking more broadly at the social and organizational contexts of technology implementation, new technologies appear to users in situations of considerable personal constraint – computer vendors install the latest Microsoft operating system on consumers' new machines (no choice), management dictates to employees the use of a new self-service HR package (no choice), and so on. The exercises in power reflected in such impositions go beyond mere outward coercion, because the uptake of the technologies will demand the kind of deeply personal transformation we have just noted. Where unbidden and unwanted, the infliction of technology on users is tantamount to colonization, with impacts on users akin to the changes in culture, thought, and identity that have been documented for colonial subjects (Lo, 2002). Corporate interests thus come to command and, indeed, hold ownership over the *cognitive landscape* of the technology's users, exerting a kind of governmentality based in great part on user self-control (Foucault, 1991; Gordon, 1991).

KNOWLEDGE IN PRACTICE

In developing their arguments to date, sociomateriality scholars have tended to offer illustrations that focus on the mutual entanglement of humans and technologies in situations that involve established and relatively stable practices. By contrast, resistance appears most commonly in situations where practices are being changed. If "the ax" of new technology is to occupy our minds (see above), or its assimilation is to be prevented, then the acquisition of knowledge is in play, and we must bring cognition into the picture.

Scholars of sociomateriality have tread cautiously around cognition. Positing a *knowing subject* presents a problem, because its resuscitation tends to reinvigorate the subject/object distinction which sociomateriality is struggling to overcome. Accordingly, much as the sociomaterialists have called for replacing interaction with practice (Feldman and Orlikowski, 2001; Nyberg, 2009), so too have they promoted a shift in focus from human knowledge to practice (Nicolini, 2010). It is only within the context of real occasions of practice, then, that distinguishable actors take their form and can be said to "know" what they know.

Practice scholars posit an undifferentiated mind/matter field from which the boundaries between human and technology are emergent through practice (Nyberg, 2009; Barad, 2003; Suchman, 2007). They are inclined to see not that predetermined actors or agents produce practices, but rather that "it is the intra-actions within practices that produce actors and categories" (Nyberg, 2009: 1193). The categories tend to differentiate themselves most clearly when people struggle with technology, because we then witness the "assembly of actors... in a state beyond the human and non-human mode of 'interaction' ... cut into pieces" (Nyberg, 2009: 1193).

On the other hand, when novice users confront a new technology, and acceptance or resistance hangs in the balance, such "cuts" necessarily represent the starting point. Moreover, it remains unclear how the sociomaterial unity of a new practice gets created in the first place. In short, the practice position leaves us to wonder how actors come to know in the first place. When and how do they learn?

A way to preserve the entanglement of the human and the material in processes of nascent (rather than established) practice is to recognize that knowing itself is inherently material. Grasping this *materiality of knowledge* in a dynamic way can reveal that the mind/matter unity favored by the sociomaterial position, while not illusory or misguided, is an accomplishment, rather than a given.

That accomplishment, which occurs in relation to situation-specific technologies, spaces, persons, and other "materials," is based on certain intrinsic foundations. The philosopher Mark Johnson has argued that the structures of the mind are configured fundamentally in reference to the body. This leads him to conclude that "any adequate account of meaning and rationality must give a central place to embodied and imaginative structures of understanding by which we grasp our world" (Johnson, 1997: xiii). He concludes that we must recognize "how *the body is in the mind* – how it is possible, and necessary, after all, for abstract meanings, and for reason and imagination, to have a bodily basis" (Johnson, 1997: xvi; emphasis added.) Johnson's position is directly contrary to the Cartesian separation of "a mindful self independent of the body and nature at large... [which] is essential to the 'view from nowhere' characteristic of a post-Enlightenment approach to knowledge" (Lock, 1993: 138).

Merleau-Ponty carries this relationship beyond the body into the environment itself, and identifies in the cognitive foundations that Johnson has identified the platform for indefinite extensibility. Not just the body, but the world, too, is in the mind, always in particular ways for particular people in particular situations. Visualizing a soccer player, Merleau-Ponty writes (1963: 168-169; emphases added):

For the player in action the football field is not an ‘object’... The field itself is *not given to him*, but present as the immanent term of his practical intentions; the player *becomes one with it* and feels the direction of the ‘goal,’ for example, just as immediately as the vertical and the horizontal planes of his own body. It would not be sufficient to say that consciousness inhabits this milieu. At this moment *consciousness is nothing other than the dialectic of milieu and action*. Each maneuver undertaken by the player modifies the character of the field and establishes in it new lines of force in which the action in turn unfolds and is accomplished, again altering the phenomenal field.

In this way, “Man does not end with the limits of his body or the area comprising his immediate activity. Rather is the range of the person constituted by the sum of effects emanating from him temporally and spatially” (Georg Simmel, quoted in Borden, 2005: 97).

This ranging of the self beyond the confines of the physical body (see also Ihde on “extended embodiment” (2003: 135)) was central to Merleau-Ponty’s deconstruction of the subject/object dualism in Western philosophical thought. For Merleau-Ponty, “... the constitution of the body as an ‘object’ is... a pivotal moment in the construction of the idea of an objective world which exists ‘out there’... Once this concept of the body is problematized, so too, according to Merleau-Ponty, is the whole idea of an outside world that is entirely distinguishable from the thinking subject” (Reynolds, 2010).

Phenomenologically-minded anthropologists continue to take a similar view (Downey, 2005: 32):

A person’s possibilities for action help generate the primary qualities of things in the sensed world. ... The ways we can interact with the lived world color it even when we don’t actually act. Tools offer possibilities to those who know how to use them, printed texts for those who can read them; even when we choose not to take advantage of these options, they define objects for us in an immediate sense.

Such embodiment of the physical “has as a principal characteristic the collapse of dualities between mind and body, subject and object” (Csordas, 1990: 7).

Those anthropologists, however, also acknowledge that this state of affairs is not a given but comes about through socialization, hard work, and disciplined experience in the practices that employ these objects and things. The dualities, then, are the starting point. Ethnographers of sporting disciplines who have studied, as participant-observers, the training practices required to bring novices up to the level of masters have documented the emerging unity of mind with body and also with the implements and spaces of these sports (e.g., Borden, 2005; Downey, 2005; Wacquant, 2004). Whether engagement or alienation prevails in the end (after all, not all novices succeed) is a contingent matter, but one in which the actor’s own agency is central. Reflecting on these studies, Ramiller (2012) recently argued that sociomaterial “entanglement,” while integral to human existence, is in any particular area of practice – including the use of information technologies in work – not ontologically given but a nascent possibility that must be realized in part as a cognitive accomplishment.

RESISTANCE AND HUMANITY IN THE ‘POST-HUMAN’ ERA

We can agree with the champions of the sociomaterial perspective that material “entanglement” may in general be integral to the human condition, but we also need to recognize that its realization in any particular setting is not a foregone conclusion. A unity of mind, body, technology, and space characterizes neither the practice of the athletic novice nor the changing activities of the employee confronting new and unfamiliar applications on her desktop.

Along with arguments for positioning practice at the center of our field’s inquiry (e.g., Nicolini, 2010), we are these days witnessing a certain fondness for declaring that the era of *post-humanity* is upon us (Barad, 2003). Where the material and the human are defined by, and emergent in, on-going practice, we can see how a de-centered humanity might take its subordinated place in a network of heterogeneous actors. On the other hand, resistance and its contrary, adoption – with all that the latter implies about accomplishment – suggest that we can still find human commitments that are distinct from the mere recalcitrance of material objects and devices (Callon, 1986). Humans, it seems, continue to stubbornly populate the post-human landscape.

New practices emerge and existing practices are reproduced because the ontological unity that is central to sociomaterial thinking is both a condition and an accomplishment of human actors. Knowing subjects play essential roles in producing and reproducing patterns of order. Meanwhile, grasping the fact that *how* they know is material in nature can keep us from backsliding into Descartes’ world of mind and matter, subject and object. And we can, in the context of organizations,

provide accounts of the movement from novice to master based on the unification of the worker with her tools, materials, and spaces of work. We can also better understand the profound personal stakes to be found in resistance.

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