The making of mobilities in online work-learning practices

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Abstract

The juxtaposition of new mobilities and web technologies has prompted many social, geographical, economic and political imaginings. However, *mobility* is a contested and rather slippery concept and it is timely to probe some of the assumptions and rhetoric around current practices and consider implications for networked learning. To study how the infusion of mobile technologies are changing work-learning practices, I use a posthuman framing and draw on sociomaterial theorizing to explore how the everyday work and learning practices of 23 self-employed workers and micro-small business entrepreneurs are changing through the infusion of web and mobile technologies. Data was gathered from interviews as well as journals of online learning activities and learning ecology maps. The workers in this study were entangled with multiple mobile devices in multiple assemblages, often overlapping, and at times conflicting. It seemed that each configuration was enacted in particular locales and times to do particular things. Such arrangements could shift quickly, which is consistent with the provisional nature of digital artefacts. Assemblages that embraced a range of devices seemed to be valued. Wanting fewer devices in the mix was not mentioned.

I use Ingold's notions of *becoming* and *meshwork* and Law's work on *collateral realities* to conduct a micro-analysis that examines hierarchies of mobilities, curation of screens, different flows of mobilities and immobilities, and the re-emergence of 'place' in work-learning practices. This study suggests that the making of mobilities is a highly fluid and provisional process that asks for a more thoughtful and critical reckoning with the implications of human-technology interactions on practices. I conclude with the significance and implications of these shifts for workers, those managing such material work practices, and educators. This includes contemplation of how new mobilities of networked work-learning practices are often crowdsourced: a more distributed way of problem solving and circulation of knowledge. And, if such professional learning is increasingly unfolding in ways and spaces described as 'mobile' and characterized by fragmentation, bite-sized learning, distractions, making do, and work arounds, how do educators respond with their networked learning designs? Is it realistic to expect any place—any assemblage of actors—to be a learning space? There is scope to consider new sensibilities for the challenges and possibilities of more mobile and mobilized networked learning.

Keywords: sociomaterial, mobilities, professional learning, meshwork, workspaces, digital devices, online learning

Introduction

The juxtaposition of new mobilities and web technologies has prompted an array of social, geographical, economic and political imaginings. A little over a decade ago, Urry (2004) made reference to the 'electronic and mobile "big bang"' (p. 27). Many day-to-day activities have now been 'm-ed': m-learning, m-government, m-retailing, and so on. Such moves may illustrate what Wilson (2014) describes as the infectious quality of mobile devices: 'despite their relatively recent prominence, many feel they cannot exist without' them (p. 535). However, *mobility* is a contested and rather slippery designation. It is timely to probe some of the assumptions and rhetoric around this notion and to question the implications of new mobilities for networked learning. Recent research offers promising directions for thinking about the fluid spaces and practices of online activities; particularly those labelled *mobile*. Edwards (2012) argues that a focus on mobilities points us towards 'a tracing of the movements, relations and networks of things, people, discourses, information and images, and the ways in which flows are regulated, made possible, and constrained' (p. 214).

This is a paper about the making of mobilities in work-learning practices and spaces. It asks: How are the everyday work-learning practices of the contingent workforce changing through the infusion of mobile

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technologies? Taking a relational view of learning, networked learning focuses on connections among learners, other people, learning resources and technologies (Goodyear et al., 2004). Emphasized is the connectivity between these diverse network elements and the effect of such connectivity on learning. This study suggests that how mobilities come into being in networked learning practices is a highly fluid and provisional process. A process that unfolds as ideas and conversations move across devices and geographically dispersed places, as the digital and physical infuse the other, and as increasingly convoluted connections between actors are navigated. Workers, tasks, digital entourages, knowledges, conversations, ideologies, and infrastructures are variously mobilized and immobilized generating new dilemmas and demanding new fluencies.

I am influenced by theorists who see practices and spaces as enacted by hybrid configurations of people and things. I explore some of these mobilities by bringing the material nature of digital devices to the fore. But not in a technologically deterministic way. Side-stepping deterministic stances leads to questions beyond who or what is actually doing the work to a more entangled "who-what" is enacting learning practices (Thompson, 2015a). As quickly evident in this study, mobility is not inherent in any one device or a web app. Here, sociomaterial theorizing provides a useful framing through its insistence on attending to entanglements of objects and human actors. Of interest is how negotiations between knotty tangles of actors end up enacting multiple practices and spaces as they become, move, mix, and mobilize in their correspondences.

Within the *posthuman* turn more broadly, the human is conceptualized as inseparable from the objects and things of this world and not as the central and predominant actor. And so, the workers *and* web technologies in this study are seen to be *co-constituted* in the work-learning practices described. Drawing on sociomaterial conceptions helps avoid one quagmire in m-learning scholarship about whether such research should focus on the mobile device or the mobile learner. Instead the focus becomes what is happening in the interweaving of human and non-human actors: a questioning of *who-what* is implicated in the making of mobile work-learning practices.

Examining practices and issues around new mobilities through a sociomaterial lens is one contribution of this paper. I draw on Actor Network Theory (ANT) as well as Tim Ingold's work on the more-than-human. By articulating silent layers, focusing on the unexpected, and adding to one's sensitivities (as Mol (2010, p. 262) suggests ANT can help researchers do), this paper undertakes a micro-analysis of everyday practices of "mobility" in an attempt to draw attention to the often taken-for-granted (and yet sometimes problematic) nature of these practices and raise new considerations for networked pedagogies.

After outlining methodological considerations of this study, I begin to untangle an assortment of actors involved in ostensibly mobile work-learning practices. This includes exploring curation of screens, forces and flows of mobilities and immobilities, and the re-emergence of localities. I draw on Ingold's notions of *becoming* and *meshwork* and Law's work on *collateral realities*. By examining how mobilities are made (or not), a sense of changes in networked work-learning practices and spaces emerges. After unpicking some of the assumptions often made about newfound mobilities, I conclude with the implications of these shifts for workers, those managing such material work-learning practices, and educators.

As Law (2008) reminds, ANT theory is done with empirical data. Data and theory are therefore as entangled as any of the actor-networks examined in a study. At play here, and the approach in this paper, is a more democratic relationship between theory and data (see Thompson, 2015b). Rather than presenting all key theoretical constructs upfront, each comes into being in the analysis woven around data anecdotes. In so doing, I follow a format well-rehearsed by other ANT scholars. Hamilton (2011, p. 56) explains: 'concepts are built and elaborated through application to empirical examples, a conversation between theory and data that is useful for analyzing complex social phenomena'.

Notes About Methodology

Participants in this study were 23 self-employed or contract workers or micro-small entrepreneurs from Kenya, Rwanda, and Canada. Given that online work-learning practices increasingly unfold with local, regional, and global sensibilities, a decision was made to involve participants from different geographies. In-depth interviews were conducted face-to-face (in Africa) and by telephone (Canada). Purposive sampling was used to 'select unique cases that are especially informative' and then snowball sampling as the initial participants either suggested others who might be willing to be interviewed (Neuman, 2011, p. 268) or their data suggested other

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'actors' to be followed. Interviews explored practices of engaging in global online spaces for informal work-related learning and were 90 minutes to three hours in length, audio-recorded, and transcribed. Most participants were interviewed twice.

Data also included journals of online learning activities and learning ecology maps. The purpose of the journal was to encourage participants to become more conscious of their learning work throughout their workday; their messy 'day-to-day lived action' (Gourlay, 2012, p. 101). These journals are form of what Büscher et al. (2011) refer to as time-space diaries, well-suited to studying movements and mobilities. Both the journals and maps were catalysts for directed conversation in the second interview. In this study, mobile devices in use included mobile phones, laptops, and tablet computers. Although not a requirement (but perhaps not surprising), at least one mobile device accompanied participants to the interview. Having these material objects at hand, participants turned to them naturally to demonstrate and further describe their online work-learning practices.

Although an object—such as a mobile device—provides an entry point for a researcher, attention necessarily focuses on the 'connected' object. In other words, the researcher attends to the *sociality* around the object. Mobile devices are complex actor-networks entangled with an array of other actors: data plans, bits of computer code, digital screens, YouTube videos, external hard drives, e-books, roaming charges, mobile hotspots, batteries, keyboards, Bluetooth, and server farms. To encourage these material things of practice speak, I drew on *heuristics* to first attend and attune to the things that matter and then to analyse an object's meshwork (in the spirit of Ingold, 2012) to discern its thingly participation (see Thompson & Adams, 2013).

The Making of Mobilities

Assumptions are often made that the combination of people and mobile devices in work, learning, and everyday life situations, will lead to mobilities of all kinds. But micro-analysis is needed to unpack such assumptions and question what kinds of mobilities might be performed, how this unfolds, and what is actually being mobilized. I begin by untangling some of the thingly gatherings enacting, and enacted by, mobile work-learning practices.

Thingly Gatherings

In Actor Network Theory (ANT) parlance, an assemblage is a gathering of actors somehow intertwined and implicated in a specific practice. An assemblage is a configuration of entities: a juxtaposition, a mingling, a mixture. The workers in this study were entangled with multiple mobile devices in multiple assemblages, often overlapping, and at times conflicting. It seemed that each configuration was enacted in particular locales and times to do particular things. Such arrangements could shift quickly, which is consistent with the provisional nature of digital artefacts. Assemblages that embraced a range of devices seemed to be valued. Wanting fewer devices in the mix was not mentioned.

The complex choreography in, and between, assemblages is striking. Makori, an ICT consultant in Kenya, shares:

> I have a desktop computer, a laptop, and the phone. I don't use the desktop; it just sits in my office. I carry my phone always. My laptop is only if I'm working in a work environment. I am figuring out which device is the authoritative source for specific information. For telephone calls and numbers, my phone is the authoritative source. Although I have several contact lists, the source of that information is the phone. For email, even if it comes through the phone I never download it there, only read. I download emails on my laptop so that is the authoritative source. The laptop is also now the backup, which I do at the end of every day. I will synchronize with the laptop. I'm getting pressure from friends to buy an iPad. But the iPad doesn't fit. It does not work with my phone or the laptop and would just become a point of conflict.

Here the achievement of mobility—the ability to work and learn in multiple locales—reflects a complex choreography of devices with flexibility, gaps, and susceptibilities carefully considered. This is not unusual. However, the tussle between devices provides insight into how negotiations of different material relations begin to surface more powerful actors. Ruppert et al. (2013) write that material devices compete and 'those that assemble and summarize can become "centres of calculation"' (p. 40). It seems Makori's phone and laptop have become centres of calculation: vital and powerful actors that assemble other actors such as contact lists and backup software. The iPad remains marginalized (for now).

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In contrast, Claire's iPad has carved out an irreplaceable niche. The CEO of a mobile applications start-up in Rwanda, Claire describes her digital entourage:

> It depends on what I'm doing, where I am. I can do almost everything on my mobile phone. But I always carry my iPad because it could have some information I want to share. Before my iPad I carried my PC with me. Sometimes I meet a client at a restaurant. I'll have my PowerPoint slides on my iPad and I'll make a presentation right there. If it's online I can find it on my phone. If it's a document that's not anywhere online, it's on my iPad. My iPad has replaced my iPod and e-reader and I use it to watch podcasts, read books, and take notes. When I'm traveling my iPad is the most amazing device I could have, partly because there is always some kind of Wi-Fi network I can access so I can do my work on the go, which is important for me. Sadly, it's an old version and I don't have the accessories. I don't do a lot of typing, which I really wish I could do as well. So I do a lot of typing on my phone: mostly e-mail.

When the iPad is aligned with PowerPoint slides, podcasts, ebooks, note taking apps, and Wi-Fi networks it seems to work anywhere: a powerful actor because of its ability to enrol (and be enrolled by) others, digital or otherwise. Although new devices may replace existing ones, in this study, more often they augmented existing practices: offering slightly different options albeit introducing more complex choreographies. Elsewhere (Thompson, 2015b) I have explored how learning ecologies are enacted through practices of curating: a piecing together, mobilizing, and tethering of the tracings and flows of digital objects and people. Here, the curation of different screens (aka devices) seems to attune to the circulations and movements of multiple materialities; a feat that demands more work as the number of digital devices aligned with worker-learners increases. How different screens are actively curated in learning practices is still a new area of scholarship.

Some of these assemblages in this study are carefully thought through: digital and human actors in purposeful alignment. Others reflect a more opportunistic hodgepodge of actors. So, how does this ordering unfold: who-what is doing this work? Vincent is a software tester in Kenya. The digital entourage in his surround seems to make these decisions in a way that is less directed: 'I don't decide what device to use where. It just comes automatically. I just use the nearest.' Here, the phone or laptop comes to hand when needed: anticipating and ready.

Ingold's work offers insight into how humans do more than just interact with objects. Signalling a departure from ANT, Ingold (2012b) argues for less focus on the 'objectness' of things and more attention to the 'material flows and formative processes wherein they come into being' (p. 431). He explains that practitioners do not merely interact with their materials but rather co-respond with them: 'In the act of production, the artisan couples his own movements and gestures—indeed, his very life—with the becoming of his materials, joining with them and following the forces and flows that bring his work to fruition' (Ingold, 2012b, p. 435).

Co-responding with one's materials became evident in the way workers in this study seemed to couple their learning and work movements with the threads and pathways of mobile devices. For example, as a consultant co-responding with mobile technologies, Makori can keep his ideas close at hand, it is portable and can go everywhere with him, he can download a myriad of apps which enable him to do the things he needs to do, and it enables freedom to work outside the confines of his office. Makori's phone *becomes* and is a mobile device because of such forces. But his mobile phone brings flows of dependencies and vulnerabilities as well. It is only as good as its apps and power supply. It can be lost or damaged. And like most technologies, obsolescence is just around the corner. Indeed, once Makori sees a new (affordable) version with the "scribble" feature he stated that he will be onto the next device. A kind of digital ageism in play.

Such interplay of forces make the achievement of mobile work-learning practices a rather remarkable occurrence rather than a given affordance of any one device. Enacting mobile practices cannot be ascribed to singular devices, however powerful, and instead implicates a mish-mash of actors. Ingold's (2012b) notion of practitioners co-responding with their materials—following their forces and flows—becomes more complicated when one considers the complexity of the movements and gestures required to co-respond with an *array* of mobile materialities, often simultaneously. It is this inter-play between many "things" that pushes and muddies Ingold's (2012b) idea of co-response. And there are still questions to answer about what is actually being mobilized—or immobilized.

Forces of (Im)Mobilities

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Certain devices held up as mobile—phones, tablet computers (e.g., an iPad), laptops—are assumed to facilitate more and/or better forms of mobility. Claire asserts that her mobile devices have simplified her life: 'When I started my company I had to have my backpack with my computer just so I could have all the information I needed for a meeting. Now I just carry my iPad and my phone'. Here, mobility is about travelling lightly. It is also about encountering the right flows of connectivity with others and ideas as needed. Note taking apps that record, store, and recall. Internet access in short bursts at exactly the right moment. Such energies enable Makori to work through his 'hot ideas' that he does not want to lose before he has a chance to develop them on his laptop: his ever-present mobile phone offering all sorts of invitations for 'in-the-moment' thinking and recall of those ideas. Here, mobile devices urge on the momentum of a thought process: simplifying interactions with other digital objects at just the right time and in just the right place.

Mobile devices are often used to pass the time while in motion, filling the gaps and pauses in physical (im)mobilities. As Vincent comments:

> My phone is mostly for Facebook, texting, and maybe a bit of googling if there is nothing to do—like I'm stuck in traffic on the bus and there is a pending problem I have to find a solution for. I don't want to bring out my Kindle or laptop in public.

At times, some mobile assemblages need to be unobtrusive, fading into the background when needed. Vincent talks about reading his environment:

> I get on my Kindle when I'm on my way to work but coming home, because sometimes it is late, I don't want to. Or when I go to the park I take out my Kindle or phone. Or a cybercafé – another secure place. Security comes first because I don't want to attract attention to my devices.

Vincent uses certain mobile devices only at certain times of the day in certain public spaces. Here, a mobile device is rendered less mobile; somehow stopped in its movement toward mobility. The making of mobilities involves presences and absences of what is on the screen, but also the screen itself. There are other immobilities: broken wireless cards confine a person to just one place; no wifi or SIM card balance and the device, as Claire states, 'is totally useless' when on the move.

Ingold's (2012a) notion of meshwork—'an entanglement of interwoven lines'—is helpful to unpick some of the mobilities and immobilities evident in the data (p. 49). Ingold (2005) has argued that instead of a network of interconnected points (or dots), 'the lines of the meshwork … are the trails along which life is lived (p. 47). And it is in the entanglement of lines, not in the connecting of points, that the mesh is constituted'. In later work, Anusas and Ingold (2013) argue that it is important to move beyond 'the networked assembly of discrete objects' and instead consider the 'entangled mesh of materials in energetic movements, out of which the forms of things are continually emerging' (p. 66).

How is this notion useful in this study? A mobile phone on its own does not make things move. Expensive data plans do not necessarily shut down capabilities to work on the move. The choreography of mobilities is not just connecting up devices and digital things but attuning to an assortment of moving lines and how these may intertwine: a form of meshworking. Using the notion of meshworking in this study helps illuminate of ostensibly "mobile" practices is becoming more apparent. In this study, ongoing negotiations between digital things and human actors include figuring out which device to use for what and what other digital actors or people need to be involved in order to work on the move, ensure tasks travel, or that knowledge moves. These negotiations resonate with Ingold's (2012a) idea of an improvised passage (laying the lines of the meshwork). Through these improvisations, mobilities are made.

Actors often attempt to stabilize fluid digital practices. Knots are also important. It is possible that movements beyond the knot end up working themselves back into the knot: tying a double knot, so to speak. This kind of tethering could describe how particular information or connections with others are relegated to different hardware assemblages: for Makori, contact lists are tethered to his phone; backing up to his laptop. Practices that order relations between actors also reflect a degree of tethering: settling into a routine or process that seems efficient and effective (even if only contingent until a new device, work task, problem, or a technology glitch such as dropped internet connections, data plan limits, or bandwidth restrictions comes along). Having figured out what works (for now) there is a sense of wanting to be able to re-travel the route. Makori's dilemma about the iPad that does not fit illustrates the presence of a set of practices that have been figured out, seem to work, and are not receptive to disruption by an iPad. Perhaps attempts to tether could be considered a way of knot-making: a way to slow down movements, redirect them, or even defer them.

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Turkle (2008) points to the emotional security that is achieved with the 'constancy of a stable technological environment and the interactive objects within it' (p. 133). This sense of constancy resonates with other research. Examining postgraduate students' study practices, Gourlay and Oliver (forthcoming) found that although studying could happen 'everywhere', it was achieved only when specific combinations of space and technologies aligned. Specifically, when the technologies were stable and consistent. For example, a laptop with files that could be taken to different places or an iPad that could access remotely stored files. Different technologies (i.e., Wi-Fi networks, iPads, books, memory sticks, and printers) allowed different kinds of 'moorings', enabling spaces to be made and strung together, providing continuity between lecture halls and libraries, the bus and cafes, and private, personal spaces. And so, tethering could refer to a way of settling a passage (various lines of becoming) into a route that can be re-travelled.

The (Re)Emergence of Place

The making of mobilities does not float independently of the making of spaces. Indeed, Massey (2005) asserts that 'we are always, inevitably, making spaces and places' (p. 175). Examining the material forces and flows of mobilities in/through fragmented geographies (online and physical) helps to illuminate how networked work-learning practices and spaces come to be, even if only in a particular moment. How places come to be 'practice-centred becomings', as Anderson (2012, p. 575) contends, helps to explain how repertoires of buses, cafés, cars, kitchen tables, and libraries (and presence or absence of Wi-Fi connections) unfold *with* work practices. Made more visible in this study is the work of negotiating the performance of places as workspaces: the very material negotiations that are necessary. For example, Sergeeva et al. (2013) explored the introduction of iPod Touch devices for use by nurses and assistants in the operating room (OR) to enable quick and accurate access to information during procedures. But unexpectedly, these devices also became entangled in emailing and entertainment activities. The researchers found that a myriad of often mundane and secretive material practices (to hide and shield iPod use) emerged alongside altered relations with onlookers (others in the OR not using the iPod). New practices emerged in the OR, some of which were problematic.

Forlano (2008) emphasizes that in contrast to rhetoric which positions mobility as freedom, convenience, and anytime-anywhere access, mobile work (and learning) spaces are 'sites of inconvenience, constraint, and specificity' (p. 39). Ben, an ICT consultant in Rwanda, experienced difficulties working on the move:

> The battery in my computer has problems so I turn it on and off to save the battery which means I am always waiting for things to load. Taxis are very small here so I cannot use my laptop. I used to print if I had to spend five hours in a taxi or on the bus so I can keep reading. I have been using my phone but you have to really squint because it is very small. But now that I have a tablet I know I can use it anywhere and keep my knowledge with me.

Coupling his gestures and movements of mobility with the 'becoming of his materials' (Ingold, 2012b, p. 435) was a bumpy path until a more mobile device (his tablet) appeared on the scene. Until then, Ben's materials were struggling to become more mobile, to co-respond with gestures of mobility (aka Ingold, 2012b). His workspace was not really nimble or pliable. Mobile devices do not create 'placeless places': the 'always anywhere' (Hemment, 2005, p. 33). The thingly configurations of specific places demand attention. As Hemment (2005, p. 33) advocates, 'the mobility of mobile media, its freedom to roam, paradoxically leads to a reassertion of place and location'. As workers move, tasks travel, digital entourages release and tether, and knowledges circulate, the making of spaces—online and physical—for work and learning comes to be a highly fluid and provisional process.

Conclusion

The workers in this study were generally positive about their mobile devices. There was some acknowledgement of the work that these mobile assemblages demanded. But these devices—and their entourages—seemed to add more to their work-learning practices than they took away. The micro-analysis afforded by a sociomaterial approach to mobilities of learning and work practices draws attention to increasingly sophisticated digital fluencies that have come to matter. And yet, these fluencies are often unnoticed and perhaps perceived as unremarkable, accepted as what has to be done, and overhead on top of other work—simply part of working, learning, playing, and living online (Thompson, 2015b). To conclude, I will explore several tensions emerging from this study.

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Law's (2011) notion of *collateral realities* is helpful: those realities that get done incidentally and usually unintentionally through everyday practices. Law (2011) argues that by looking for 'the gaps, the aporias and the tensions between the practices and their realities', differences can be discovered (p. 171). One collateral reality that emerges for the participants in this study is the work needed in order not to get lost in the commotion, contradictions, and confusion between mobile devices. And so, considerable energies were spent addressing practical things like handling back-ups, what information is kept on which device, having the right amount of redundancy between devices, figuring out how to use each new technology, and helping to coordinate how one device 'talks' to the others. These practices of choreography (and negotiation) are largely invisible and rather mundane. Turkle (2008) acknowledges that the seduction of the 'always-on/always-on-you' tethering of humans to mobile devices has a way of taking time from other tasks, adding new tasks, and creating new kinds of time: all of which tend to be undervalued (p. 129).

In this study, mobility practices are not just about working and learning *on* a screen that one carries but doing so *with*, *through*, and *between* multiple screens. However, this raises the question of whether more devices lead to the performance of better work-learning mobilities: i.e., fewer geographical constraints, increased capability to learn on the move, increased connectivities with others and their digital artefacts, and/or more extensive and timely circulations of knowledge. Although this study suggests that sorting and ordering of mobile materialities demands attention, time, and discipline (by human *and* technology actors), this study also suggests that convergence on one device may not be an ideal, or even feasible, aspiration. Indeed, it is worth considering that the plethora of devices designed to be held and worn (aka mobile) represent multibillion dollar entertainment, communication, education, personal management, and security industries (Wilson, 2014, p. 535). Given that the current rhetoric seems to be about the next game-changing feature, the market is relentlessly saturated with one new possibility after the other. This means a significant amount of work required to sort, order, bridge, articulate, and negotiate complex relational and material arrangements as new devices and related digital actors are taken into account. For now, curating multiple screens may be a necessary practice of work-learning practices on the move.

The making of mobilities in this study evoked tasks and learning that travel alongside devices and interactions unfolding in an intricate web of physical and digital spaces and activities. It is truly a bring-your-own-devices (BYOD) scenario. Is there a role for adult educators: those who focus on workers and their (professional) learning? In this study, educators do not figure in the work-learning spaces and practices described. Workers seem to be figuring things out on their own, albeit in very different ways. Perhaps much of what is being learned about making and navigating mobilities of work-learning practices is crowdsourced amidst multiple teaching presences: a more distributed way of problem solving and circulation of knowledge. This is an interesting avenue for further research.

Emerging from this study are questions around how learning opportunities can be designed in ways to work with the mobile practices highlighted here. How are networked learning spaces and places to be conceived? Out of airtime, out of power, a broken device or a device that cannot access the materials, online content not optimized for use on mobile devices, and the learning possibilities are fraught with potential failure or at best, marginalized. This study offers insight into some of the ways mobile devices become knotted together with other digital things and practices. If professional learning is increasingly unfolding in ways and spaces described as 'mobile' and characterized by fragmentation, bite-sized learning, distractions, making do, and work arounds, how do educators respond with their learning designs? Is it realistic to expect any place—any assemblage of actors—to be a learning space?

While not denying the obvious benefits of working and learning in ways that are more flexible, accessible, and convenient it is timely to push back on the seductive logic of anywhere-anytime engagement. Perhaps what more formal learning encounters can do is create a sort of 'refuge': something different than the constantly churning kaleidoscope of devices and spaces that need to somehow align for things to happen. Perhaps these formal encounters are a necessary form of tethering. A making space for places and practices conducive to learning. This is one possible re-ordering of mobile work-learning practices.

Are there other ways educators, learning specialists, and organizational learning departments might respond to more fragmented, twitchy, mini-moments of learning? There is certainly scope to consider how to evoke discussion around the new digital practices outlined above. Perhaps another step is to highlight the kinds of pedagogy—and pedagogical challenges—unfolding for adult worker-learners in and through their everyday

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work and learning practices. And from there, to consider new sensibilities for the challenges and possibilities of more mobile and mobilized learning: learning in and through diverse, diffuse, and tenuous learning spaces.

References

Anderson, J. (2012). Relational places: the surfed wave as assemblage and convergence. *Environment and Planning D: Society and Space, 30, 5*70–587. doi:10.1068/d17910

Anusas, M., & Ingold, T. (2013). Designing environmental relations: From opacity to textility. Design Issues, 29(4), 58-68. doi:10.1162/DESI_a_00230

Buscher M., Urry J., & Witchger, K. (2010). Introduction: Mobile methods. In: M. Buscher et al. (Eds.), *Mobile Methods* (pp. 1-19). London: Routledge.

Edwards, R. (2012). (Im)mobilities and (dis)locating tractices in cyber-education. In: R. Brooks, A. Fuller, & J. Waters (Eds.), *Changing Spaces of Education: New Perspectives on the Nature of Learning* (pp. 205-218). Abingdon, UK: Routledge.

Enriquez, J. (2013). Being (t)here: Mobilising 'mediaspaces' of learning. *Learning, Media and Technology, 38*(3), 319-336. doi: 10.1080/17439884.2012.685744

Forlano, L. (2008). Working on the move: The social and digital ecologies of mobile work places. In D. Hislop (Ed.), *Mobility and technology in the workplace* (28-42). Routledge: Abingdon, UK.

Goodyear, P., Banks, S., Hodgson, V., & McConnell, D. (2004). Research on networked learning: An overview. In P. Goodyear, S. Banks, V. Hodgson, & D. McConnell (Eds.), *Advances in research on networked learning* (pp. 1–11). Dordrecht: Kluwer Academic Publishers.

Gourlay, L. (2012). Student author as actor network? Using ANT to explore digital literacies in higher education. In V. Hodgson, C. Jones, M. de Laat, D. McConnell, T. Ryberg, & P. Sloep (Eds.), *Proceedings of the 8th International Conference on Networked Learning 2012*, 97-102. Available at: http://www.networkedlearningconference.org.uk/info/confpapers.html

Gourlay, L., & Oliver, M. (forthcoming). Students' physical and digital sites of study: Making, marking and breaking boundaries. In L. Carvalho, P. Goodyear, & M. de Laat (Eds.), *Place-based spaces for networked learning*. To be published by Routledge.

Hamilton, M. 2011. "Unruly Practices: What a Sociology of Translations can Offer to Educational Policy Analysis." *Educational Philosophy and Theory: Incorporating ACCESS* 43 (sup1): 55-75. doi: 10.1111/j.1469-5812.2009.00622.x

Hemment, D. (2005). The mobile effect. *Convergence: The international journal of research into new media technologies, 11*(2), 32-39

Ingold, T. (2005). *Up, Across and Along.* Available at: http://spacesyntax.tudelft.nl/media/Long%20papers%20I/tim%20ingold.pdf

Ingold, T. (2012a). Looking for lines in nature. *Earthlines, 3*, 48-51.

Ingold, T. (2012b). Toward an ecology of materials. *Annual Review of Sociology, 41*, 427-442. doi: 10.1146/annurev-anthro-081309-145920.

Law, J. (2008). On sociology and STS. *The Sociological Review, 56*(4), 623-649. doi:10.1111/j1467-954X.2009.01846.x

Law, J. (2011). Collateral Realities. In: F. Dominguez Rubio & P. Baert (Eds.), *The Politics of Knowledge* (pp. 156-188). London: Routledge.

Neuman, W. L. (2011). *Social Research Methods: Qualitative and Quantitative Approaches* (7th ed.). Boston: Pearson.

Massey, D. (2005). *For space*. London: Sage.

Mol, A. (2010). Actor-Network Theory: Sensitive terms and enduring tensions. *Kölner Zeitschrift für Soziologie and Sozialpsychologie, 50*(1), 253-269.

Ruppert, E., Law, J., & Savage, M. (2013). Reassembling social science methods: The challenge of digital devices. *Theory, Culture & Society, 30*(4), 22–46. doi: 10.1177/0263276413484941

Sergeeva, A., Huysman, M., Soekijad, M., et al. (2013). *"No user is an island" Onlookers, affordances, and the impact of mobile devices on work practices*. Paper presented at International Conference on Information Systems, Milan, Italy, 15-18 December.

Thompson, T. L. (2015a). Actor Network Theory and adult education. *LLinE (Lifelong Learning in Europe), 1*. Retrieve from: http:www.lline.fi/en/issue/1_2015/issue-12015

Thompson, T. L. (2015b). Digital doings: Curating work-learning practices and ecologies. *Learning, Media & Technology*. doi: 10.1080/17439884.2015.1064957.

Thompson, T.L., & Adams, C. (2013). Speaking with things: encoded researchers, social data, and other posthuman concoctions. *Distinktion: Scandinavian Journal of Social Theory, 14*(3), 342-361. doi:10.1080/1600910X.2013.838182

Turkle, S. (2008). Always-on/always-on-you: The tethered self. In: J. E. Katz (Ed.) *Handbook of Mobile Communication Studies.* Cambridge, Mass: The MIT Press,

Urry, J. (2004). Connections. *Environment and Planning D: Society and Space, 22*, 27-37. doi:10.1068/d322t

Wilson, M.W. (2014). Continuous connectivity, handheld computers, and mobile spatial knowledge. *Environment and Planning D: Society and Space, 32*, 535-555. doi:10.1068/d14112

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