

Empathetic technologies: Digital materiality and video ethnography

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Abstract

In this article we advance recent theoretical and methodological discussions regarding the use of video techniques for generating empathetic encounters. We do so through a focus on how these techniques might be rendered in research conducted through sites of action and experience that are explicitly constituted through forms of digital materiality, whereby the digital and material are understood as relational and emergent. We argue for a processual view of digital materiality and in correspondence with this, of the research process, whereby empathetic imagining is itself understood as emergent from the research encounter. By way of example we draw on recently video ethnography research that has used GoPro and researcher-held video recording in collaboration with participants, in order to record and develop understandings of their experiences of self-tracking and cycle commuting.

Keywords

Video ethnography, GoPro, empathy, digital materiality, cycling

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Prologue

Bianca was on her mobile phone when she opened her front door. Once she had finished, in her bike room I videoed her showing me her main commuting bike, explaining the on-board computer, the lights, and the power meter in the shaft of her pedal that 'cost more than the bike', with internal sensors that measure how hard she pushed on the pedal. She showed me where her bike computer (a Garmin 810) clipped onto the front handlebars, explaining how it uploaded to her phone via Bluetooth.

Watching Bianca's GoPro-recorded bike commuting footage alone a few days earlier, I had thought the range of things she did while she rode, and the digital technologies she

used to enable them, was remarkable. In addition to the self-tracking technologies set up on her bike, she used hands-free voice-recognition software to make and answer phone calls, to check emails and messages, and to find out the wind speed in upcoming sections of the ride. This digital layer was inextricable from her ride to work, as I found when I cut the footage together in preparation for interviewing her. Her conversations were inseparable from the experience of commuting. They were part of her normally more private digital communications that the video ethnography inevitably had leaked into. Even though Bianca had known we were recording, I felt as if I was eavesdropping, especially when she was talking to friends about her personal life, and I muted the sound so as not to intrude. Yet it was still impossible for me to evade a feeling of empathetic intimacy with the everyday challenges Bianca faced; I was alarmed by the heavy traffic on her route and the speed at which it passed her, especially as she often seemed to be simultaneously so intimately engaged in this digital world. I started or gasped as trucks went by and as we looked at her footage together. When we viewed her GoPro video together on my laptop, I asked her about the on-road experience. She told me that the ride can feel like a struggle: 'There's an element with my ride home where I'm trying to survive, there's an element of 'I've just got to get through this to the end'. I was surprised she felt like this and still carried on with this long and demanding commute while using digital technologies, and felt worried for her everyday safety (Shanti Sumartojo).

Introduction

Video ethnography is increasingly established as a research approach through which we might generate and share empathetic encounters with participants, across research teams, and with research audiences. As Shanti's fieldwork account shows, such encounters are experienced at interfaces between complex and contingent configurations of people,

technologies, weather, and other processes and things of different qualities and affordances. Yet existing methodological reflections in this field have tended to focus on how we can account for research participants' experience as material, sensory and social, and have neglected the technological, digital and data-permeated elements of the contemporary environments we live and move through. This is partly an empirical legacy. Such discussions initially emerged (eg MacDougall 2001, 2005, Pink 2007) before GPS, locative technologies and big data figured as research fields, or in our methodologies for analysing and disseminating research. However, this has left a gap, whereby existing accounts of how empathetic ways of knowing between researcher and participant (and others), and of using video to generate these, fail to account for the digital materiality of our everyday environments.

In this article we propose how video techniques can be engaged to generate empathetic encounters in research conducted through sites of action and experience that are explicitly constituted through forms of digital materiality, like that described above. In doing so we advance discussions of video ethnography for comprehending human experiences in and of in movement (eg Pink 2007, Brown and Spinney 2010, Irving 2013, Chalfen 2014), and first-person-perspective video/digital ethnography (eg Lahlou 2011), in relation to recent step towards to accounting ethnographically for how the online/offline or digital/material worlds that we weave our lives through are constituted and experienced (eg Boellstorff 2008, Hine 2000, 2015, Pink, Horst et al 2016, Pink, Ardevol & Lanzeni 2016).

The idea that video can be engaged to create create empathetic (while not necessarily accurate or 'true') encounters with the experiences and worlds of others is established in existing literatures. Anthropologists and geographers have suggested that video offers ways to comprehend participants' perspectives, from the ground as they move through environments (eg Jhala 2007). Building on Lee and Ingold (2006), Pink suggests video helps

us generate understandings (but not objective knowledge) of ‘how other people perceive their multisensory environments, constitute place through everyday practice and live “in their bodies”’ (2007: 246), and how video recording invites participants to show their lives performatively (Pink and Leder Mackley 2014). Garrett (2010) similarly recounts how ‘video footage...invokes olfactory and tactile sensory perceptions as well...[it is a] medium which most wholly conjures a multisensual facsimile of experience.’ There is also a growing literature around ‘first person perspective’ digital/visual research techniques involving cameras which are somehow mounted on or attached to the body of the research participant (eg Chalfen 2014; Lahlou et al 2015, Wang and Smeaton 2013, Caprani, et al 2013, Pink 2015) or on their bikes (McIlvenny 2014, 2015) in anthropology, social psychology and sociology, often with social interaction as the core theoretical analytical interest. In each of these configurations, researchers and their relations to camera footage, participants and disciplinary-theoretical traditions need to be reflexively situated. Here we shift the discussion to a particular version of the situatedness of the researcher to account for the digital materiality of everyday life and for the possibilities of micro wearable action camera video technologies to enable researchers to uncover routes towards encountering both people’s traces through (Pink 2011, Pink and Leder Mackley 2012), and experience of, such environments and their more-than-material elements. In doing so we draw on our video ethnography undertaken with cycling and self-tracking commuters. Self-tracking research is an ideal example through which to investigate how we might use video at this digital-material interface or entanglement, because it involves moving through the world in which digital technologies are accounted for, explicitly involved, and specifically used in some cases to record data traces of movement and activity.

While we are concerned with the use of video to research digital-material environments, following media scholars who argue for a non-media-centric media studies

(Morley 2009, Couldry 2012, Moores 2012), or a non-digital-centric digital ethnography (Pink et al 2016), our approach to understanding how the digital materiality of the environment can be articulated through video ethnography involves de-centring the digital. In practice, this means that our video-based investigation occurs at the intersection of or encounter between humans, bicycles, self-tracking (technologies, content and data), and the environment (air, road surface, weather, traffic, other animals moving through the space). Therefore, the methodological challenge we address concerns seeking ways into understanding what it feels like and means to be part of these configurations of things, in the digital-material world in which self-tracking is enacted, and to both define and situate a reflexive approach to empathy within this process.

To do this we discuss three core elements of the approach: first, decentring the object of enquiry (by considering the technological and digital aspects of the activity part of the experience of the configuration of things and processes that constitute the ride); second, asking how video might be used to access and understand participants' experience within the unspoken, mundane, routine and unstopping flow of everyday life (by inviting them to attend to and, in collaboration with the researcher, account for this through co-documentation); and third, the place of video ethnography in a processual approach which creates ways of empathising (differently for different researchers) with what digital materiality feels like to, for instance, bicycle commute and self-track, and acknowledges the open-endedness of such experience. This involves an appreciation of the ontological status of the 'experiences' and 'empathies' that are crystallised through video research, while likewise refiguring digital-material experience as ongoing, constituted through our engagements with the video trace, and something that cannot be objectified or crystallised. As the example above implies, this notion of empathy as continuing and as a generative outcome of the research encounter, rather than as a discrete product of feeling, includes our own affective engagement as

researchers in the experiences of participants, and our intentionality in collaboratively using the resources of our own experiences, even where they do not directly correspond with those of participants.

Digital materiality as a site for refiguring empathetic research

The notion of digital materiality has a recent history through disciplines including architecture, design, media studies, digital anthropology and digital sociology (Willman et al. 2013, Gramazio and Kohler 2008, van Dijck 2004, Horst and Miller 2012, Lupton 2014).

Here we use Pink, Ardevol and Lanzeni's (2016: 10-11) conceptualisation of the relationality of the digital and material which does not start 'with an a priori definition about what is digital and what is material', but proposes 'digital materiality as a process, and as emergent, not as an end product or finished object'. Here, digital materiality is not static, and is a processual 'thing' rather than an object, whereby 'things are alive because they leak' (Ingold 2008: 10); things are not discrete or bounded (Pink, Ardevol and Lanzeni 2016: 10-11).

Empathy is a commonly used, but little interrogated term in ethnographic practice, sometimes used to describe what it means to put oneself in the position of another, a definition we use as our starting point here. Its status in social science research methodology is contested. The notion of empathy in research has been proposed to have a problematic politics, leading some to challenge the idea that it can create 'understanding' (Lather 2008: 19). This perspective sees empathy as something that 'violates the other and is part of the demand for totality' (Lather 2008: 19), to suggest 'the easy assumption of empathy potentially stifles research and can give rise to unethical practices' (Watson 2009: 114). For instance, Watson has proposed that 'the assumption of empathy, of the possibility of entering into another's situation, can give rise to complacency in research terms', and that empathetic accounts might close down the possibility for acknowledging difference, and as such

reinforce forms of oppression (Watson 2009: 114). However these approaches create a problematic good/bad binary between the use of empathy as an objectifying practice and the alternative of an ‘inaccessible alterity’ (Lather 2008: 19). This binary is not necessarily justified in its demonisation of empathy, or at least is only justified when the possibility of a good/bad binary is accepted. Instead we conceptualise empathy in ethnographic research through the work of scholars who define empathy methodologically as an ethical and responsible technique, based on the well established anthropological assumption of the impossibility of fully knowing other people’s minds or experiences. Thus, we learn from our attunement with other people’s movements in ways that involve ‘empathy rather than understanding’ (Spinney 2011: 174) or through the engendering of ‘critical sociological empathy’ in the context of power relations (Warming 2011: 8) to reflect the ‘positioned production of experience’ (Warming 2011: 12). Discussing empathy in apprenticeship processes, Gieser likewise situates empathy theoretically as co-produced. He suggests that ‘Observation and imitation create a “reciprocity of viewpoints” as well as “similar kinaesthetic experiences”’. Thus ‘In other words, at the centre of our problem there are (bodily) movements and something that goes beyond the body, that is, something that connects the movements of two people’ (2008: 300). However Gieser insists that beyond communicating emotion, empathy involves an ‘intentional overreaching ... [that] usually depends on both participants and is therefore a mutual, interpersonal process’, emphasising that ‘intentions are an integral part of empathy and of imitation’ (2008: 311). Therefore, when situated as part of encounters where there is an intention to create correspondences of understanding (rather than the myth of total or objective understanding), empathy becomes not objectifying but negotiated. It is made *with* others, and involves learning from/with them.

The implications of using a theory of digital materiality for understanding empathetic feelings as an element of video research advances beyond earlier proposals that video can

generate feelings of empathy that are inspired by its content, and that it has a privileged capacity for research into the sensory, unspoken and non-representational. This step corresponds with a case Ingold has made for moving away from traditional material culture studies approaches, where he states his purpose as to: ‘restore to life a world that has been effectively killed off in the pronouncements of theorists for whom, in the words of one of their more prominent spokespersons, the road to understanding and empathy lies in “what people do with objects” (Miller 1998: 19)‘ (Ingold 2010: 3). Instead, for Ingold ‘total empathy is as impossible to achieve as a perfect translation’ and ‘the achievement of empathy means taking on another way of being’ (2000: 106). This definition also evades the accusation proposed by Watson (2009) that empathy might be a misguided route towards uncovering other people’s lives that instead objectifies and closes down research. This is because, if we take seriously the argument made above that the digital materiality of our everyday worlds is continually emergent, this has implications for the status of a concept of empathy. From this standpoint, the empathy that researchers co-develop with research participants is also emergent and labile, in a constant state of generation rather than fixed.

To develop this idea, we locate the reflexive form of empathy we have associated with the research process discussed here, not as a capacity of the researcher as beholder of the experience of others, but as a form of imagination only ever emergent from specific and intentional encounters. If we consider that in a processual and contingent world our feelings of empathy are emergent, then it is possible to align the environment/context and the feelings that are generated through and are also constitutive elements of it. This removes the tendency for knowledge to be ‘closed down’ - that is the model of knowledge as an object and as objectifying that Watson refers to, and by offering a different analytical path invites us to understand what we learn through our contact with the experiences of others in research as open and fluctuating.

In the anthropological literature there is already a precedent for understanding human feelings or at least intangible processes of human activity through theories of emergence and process. For example, Sneath et al (2009) have argued for a re-thinking of the concept of imagination (which is also relevant for our understanding of empathy), as ‘the processes by which imaginary effects themselves come about’, as ‘an outcome rather than a condition’ (Sneath et al 2009: 17). If we apply this understanding to empathy as an imaginative way of engaging with our encounters with the experience of others, it means we can conceptualise empathy as a way of feeling or articulating something that cannot be known as an actual state that we occupy or occupies us in a determined or objective way, but as ‘an essentially underdetermined effect of the conditions that bring it about’ (2009: 26). To speak of *empathising* rather than empathy highlights its dynamic nature. Empathising does not produce an objective piece of knowledge about others or their experiences but is part of a knowing process, which, as we show below, we might enter into with them. Therefore following this argument, empathy is not simply a state or status that we achieve when we do video research, it is not a way of getting objectively closer to others or having a piece of knowledge that we can hold on to. Rather, as part of a practice of empathising, it is an emergent outcome of the encounters that are created.

Video is a technology that in this configuration has particular affordances and qualities that supports this imaginative practice and with it, the emergence of feelings of closeness, intimacy and understanding. New micro digital cameras worn on the body or on vehicles like bicycles offer ways for participants to record elements of their lives from a first-person perspective. To understand video as existing within and as part of this process of empathising as emergent also requires us to acknowledge video not simply as a representational medium, but as a trace through the world that we move on further and learn with (Pink 2011).

Self-tracking and cycle-commuting: the research project and process

The research project we discuss here was a team ethnography involving four researchers across two cities: Melbourne and Canberra, Australia. We recruited eighteen participants (ten in Melbourne and eight in Canberra) using personal contacts and social media requests for volunteers who regularly cycle commuted while using self-tracking technologies. There were thirteen male and five female participants, aged from late twenties to mid-fifties, and cycling between 10-70 kilometres on commuting days. Here we focus on the Melbourne participants, although the design and undertaking of the project involved all authors and draws on our collective expertise. Melbourne participants worked in offices in the city centre, travelling in from surrounding suburbs, using a mixture of roads shared with vehicular traffic, on-road bike-lanes and bike-only lanes shared with pedestrians, and occasional footpaths or unpaved trails. In Canberra, separate, bike-only paths were more commonly used, and lighter traffic and tracks through urban bushland meant that the environments participants moved through were generally quieter. Our research focused on how participants experienced their self-tracking commute. Here, because our primary aim is methodological, we report on the wider findings only as necessary with this in mind.

The advent of wearable devices such as micro cameras that can be worn on the body and operated hands-free and in an unobtrusive manner, often used in self-tracking or lifelogging endeavours, has also generated new possibilities for video ethnographic methods (Chalfen 2014) but is under-explored in video ethnography where researcher-held camera techniques, that correspond more closely with ethnographic documentary methodology are more common (eg Irving 2013, Pink 2013, Grasseni, 2007). Hand-over-the-camera techniques, whereby researchers invite participants to video record (aspects of) their lives, have developed in visual anthropology and sociology (eg Chalfen and Rich 2007; Mason and

Muir 2012), and can lend researchers a sense of being *in* other people's environments. However, of primary interest to us, are correspondences with ethnography *with* (Ingold 2008) techniques of 'walking with video' (Pink 2007, 2011) or cycling video techniques (see Brown and Spinney 2010). Attending to these approaches along with the radically different positioning of the camera, the viewpoint it records and its proximity to the body and field of vision of the participant when using GoPros, our method sought new ways to conduct *and theorise* video ethnography *with*, rather than about, participants which we elaborate through our discussion of empathetic practice.

We used a GoPro camera to invite our participants to film one of their commuting rides. The GoPro is a type of mobile micro 'action camera' designed to attach to sporting equipment and vehicles such as bicycle handlebars, protective helmets, windsurfers, skateboards and surfboards that is principally intended to capture footage of people's physical exploits and activities. It delivers high-definition footage, is waterproof and shock-proof, and is well suited to mobile ethnographies in the open. For example Lloyd (2015), used footage from a mountain-bike ride to examine an incident of 'cycle rage' and Palmer (2016) carried out an autoethnography of participating in a fun run using a GoPro.

Our technique was, in practical terms, similar to a video elicitation method (eg Pink 2013). We aimed to experiment with using the GoPro as a way of viewing participants' commuting trips from their perspective, including how they negotiated the rides and interacted with their self-tracking devices in relation to other elements of their rides. We asked participants to use the helmet-mounted GoPro camera to record a commuting ride to and from work and edited this footage into 15-20 minute clips, to account for aspects we wanted to cover. This included footage of participants' preparation and arrival routines; their interactions with digital devices before, during and after their rides; their responses to road, weather and topographical conditions (eg. steep hills or long straight stretches of road); their

use of shortcuts and navigation of traffic; moments of changing speed; what they did at stopping points, such as traffic lights; and the stages and transitions of their rides. We identified these elements as of particular interest based on our previous research on self-tracking (Pink, Fors and Berg 2016), cycling and walking (Pink 2007; Sumartojo and Pink *under review*) and the use of video (Pink and Leder Mackley 2012, 2014).

We next video recorded participants showing us their bikes, the devices they used in conjunction with them, and being interviewed while watching the edited GoPro footage with us, in their homes where they felt comfortable with this (about two-thirds of participants). Thus, rather than merely describing how they used self-tracking devices and everyday routines of cycle commuting, participants *showed* us their bikes, devices and layouts of their everyday environments.

The different stages of this process had distinct qualities. First, the participants' GoPro videos of their rides encouraged them to attend to their own activities more closely. For instance, one said he had 'hammed it up a bit', exaggerating his head movements so that his helmet-mounted camera would clearly pick up the object of his attention. Rather than merely recording or 'capturing' their activities, the participants engaged in a more active process of making videos through their agreement to participate, and sometimes changing how they thought they habitually rode as an aspect of their participation.

Second, as researchers, our experience of watching the participant recorded GoPro videos was immersive, as the wind and traffic sounds combined with fast moving footage to sometimes induce anxiety or shock about the riders' well-being. Occasionally, when the camera was hit by low-hanging foliage or the cyclist moved his/her head quickly, the sudden movement and sound of impact of wind made Shanti jump in her office chair. As riders wove through lanes of traffic, the gaps between the cars looked too small to accommodate them and we sensed that collisions were imminent. For, instance for Shanti this was reinforced by her

own experience of cycling through traffic and the memory of the embodied, spatial decision-making when guiding her own bike past idling cars. Thus, the video enabled us to make embodied correspondences with our own histories of riding, navigating traffic, and having accidents such as running into cars or crashing our own bikes.

Third, participants commented on how their video footage did not accurately reflect their own perceptions of risk and traffic, mentioning, for example, that the gaps between cars and curbs were bigger than they appeared on film. Here, the video footage contradicted their embodied and skilled experience of guiding their bikes through traffic or passing other cyclists; situations where they remembered feeling competent and in control appeared on video more risky than they perceived it. Our invitation for participants to make videos that represented their own experience created footage that we then encountered sensorially as researchers. Because each video was a trace of a particular body with its own strength, frailty, and capability - evident through breathing sounds as people rode up hills, or quick glances over the shoulder to assess oncoming traffic - the experience of watching and editing the videos felt almost companionable as we were able to see the surroundings through which the participants rode, the elements of it they had to navigate and manage, and some aspects of their bodily movements and reactions to those surroundings, communicated through sound and vision. As we 'rode along' digitally through the video footage, this enrolled us into the experience in distanced and disembodied but still powerfully empathetic ways. Video and the empathising it made possible, was perfectly suited to an investigation of the digital-material world; because it allowed us to attend to what participants were physically *doing*, we were subsequently able to discuss what they were perceiving, feeling and thinking when interviewing them. This included the 'invisible' (Pink and Leder Mackley 2012) ways they were immersed in and understood their activities through the data they were creating (in both video footage and self-tracking), responding to (as they planned or changed their rides as a

result of self-tracking data) or sharing (in the interview and through social media self-tracking apps).

Decentring the object of enquiry

The technique of decentring the *obvious* object of inquiry in order to situate it as a relational process or thing (or both) within a complex everyday ecology is increasingly typical in ethnographic accounts of digital technologies and media in everyday life. This non-digital-centric approach surpasses simply asking how new technologies impact on a supposedly pre-existing world, to instead investigate how the emergent forms of digital materiality are part of ongoing changing configurations of ‘things’ that inevitably leak into each other. Translating this goal to a practical video-based research method involves considering how to use video as a medium through which to situate digital technologies, or to account for their situatedness. Thus, while we sought to understand how people use and experience self-tracking technologies in their everyday commutes, we focused on their *experience* of cycling commuting with these technologies and thus did not foreground self-tracking in the participant-produced GoPro recordings.

As we discussed their commutes with participants, we focused on how their self-tracking devices and data were part of their rides, on how hard their bodies were working, where particular milestones were in their journey, what they were thinking about and how they had felt. By asking participants to ‘talk us through’ their footage, explain what they were doing and what was most important to them about different aspects, the interviews unfolded as a discussion about their cycling routines. It led us to how a digital material entanglement of objects, experiences, routines and feelings was constituted with self-tracking. In other words, to come closer to and to establish a basis for an empathetic understanding of their

digital-material experience of self-tracking beyond what we felt when watching the video, we needed to understand what else it formed part of.

For example, for Bianca, self-tracking was part of a configuration of cycling, technology, sensory experience and cognitive understanding with profound meaning. Cycling was central to Bianca's life – and self-tracking was central to her cycling. She explained to Shanti that she and her partner had bought their house about a year ago, in part choosing it for its 35-kilometre distance from the city so she could use the commute as a training ride. She hated taking the nearby train, seeing it as both an unpleasant experience and a waste of time. Although Shanti asked Bianca about self-tracking and how she used it, their conversation extended far beyond her use of specific technologies or devices. Instead, these elements were part of a much bigger web of experiences and feelings, prompted by cycling, that went to profound considerations of life and death. As Bianca put it:

To me, particularly commuting...it's being this close to death all the time reminds me of my mortality and I like that fear that there's a truck passing me this close on the right and I've got to work and I've dodged death and it's like, 'OK! Day of work done'. So I like that, it's better than catching the train and sitting there with your earphone, so commuting's an experience for me...

Self-tracking was part of an assemblage of elements that went to the core of how Bianca conceptualised and managed her being-in-the-(digital material) world. Asking her how what she was doing felt like, however, decentred the primary object of inquiry, which was the self-tracking technology, and drew out a complex set of relationalities amongst the different elements of her commute - affective, material, digital, environmental and bodily - that emerged as Bianca and Shanti watched and talked about the commuting footage together.

Thus with Bianca, and other participants, video opened a route to discussing the physical, sensory, and affective aspects of cycling. It opened up a world where Bianca managed her responses to the environment through which she was moving at speed, the simultaneous strength and vulnerability of her own body, and the changing and at times quite dangerous elements of the environment around her, particularly the traffic, in relation to which she reflected on her own 'unconscious competence' in the midst of this assemblage. Bianca participated, took account of and responded to the contingency of her environment, including her self-tracking data, without necessarily 'thinking' about it. While Bianca's example was extreme (it would be rare in Melbourne to commute 70 kilometres a day, five days a week), it demonstrates the relevance of video ethnography as a means through which to de-centre and situate how digital technologies are part of everyday experience. These video techniques bring to fore the core experiential elements of our journeys through a digital material world.

Empathetic video encounters with the routine, mundane and unspoken everyday

A perennial problem that scholars, particularly in cultural studies and human geography, have associated with everyday life research is that of being able to access the mundane 'flow' of everyday life (reviewed in Pink 2012). Brown and Spinney (2010: 139) used helmet-mounted cameras to capture conditions of flow amongst cyclists, an intangible and fleeting state manifested in bodily movements including 'weaving through traffic, track-standing, riding smoothly and running red lights'. The problematic of not being able to study everyday life unless it sliced through into a representational form of itself - that is crystallised and objectified for analysis - is not completely solved by video ethnography. However, there are three aspects of our approach that enable a shift in perspective that seeks to ameliorate this. First is the processual approach to understanding not only everyday worlds, which we elaborate on below. Second, is the use of digital technologies (by researchers and

participants) that move through the world with participants. Third is the idea of the ethnographer taking shared journeys with participants. Such journeys need not be perceived as necessarily shared in a literal, physical sense, and this is again where video and digital technologies enabled us to create ways of journeying with others, that invited empathetic reflection. We now discuss our journeys into the routine, mundane and often unspoken elements of the everyday, including with digital technologies and data play out as they are entangled with the contingencies and the habits of life.

While both GoPro video and self-tracking technologies are often hyped as new and newsworthy, they are simultaneously very mundane technologies. They are both entangled with and record digital traces of the ordinary, routine, habitual, contingent and otherwise hidden moments and movements of our lives. Through our video recordings we sought to encounter the literal pulling together and gathering of objects that include self-tracking devices through a focus on routines of preparation. For instance, Natasha began video recording her ride home as she packed her bag on the bench in the changing rooms (having first ensured no-one else was there), explaining as we watched the small, colourful bag in which she keeps her raincoat, the toilet paper she was bringing home from work a few rolls at a time from a larger box, her 'assortment of lights', phone, hairbrush and work pass. She had grabbed these objects from her desk, and carried them to the changing rooms where she laid them out on the bench and packed them neatly and carefully into her backpack for the ride home. She carried her phone, which she uses to self-track using the Strava app, in her hand as she moved from the changing room bench to the locker to her bike. She walked directly to her bike, which was a few metres away in the underground facility, and attached her lights to her bike, turned them on, then got her phone out of her bag and turned on Strava, returned her phone to her backpack and put it on before leaving the bike area directly onto the street.

Natasha explained how she goes through this routine for every ride, describing it as ‘pretty consistent’ over the two years she’s been working in this building and riding regularly.

Our video of Natasha’s preparations showed the digital-materiality of her everyday activity and experience as she carefully carried her phone through the changing rooms, switched on the self-tracking app and replaced it in her bag in a familiar routine. She explained in detail what she was doing and why, showing that while these activities were mundane, they were significant, and rested on small but purposeful decisions that video invited her to share with us - that is the video process meant she could intentionally invite our empathy. For instance Natasha stopped the GoPro replay to explain why she was carrying toilet paper home, and that she had chosen the small, colourful bag for her raincoat because it was easier to pack the raincoat into than the bag it had come with. Here, by being invited into participants’ mundane moments of intimacy with technologies and materials, we could explore how and why specific and contingent configurations of people, things and processes came together to constitute the digital materiality of self-tracking cycling. Indeed, most participants tended to go into great detail to explain their choices of cycling gear, timing of their commutes, which routes they took when, and other minute details that were contingent on everything from time of day that they were commuting to weather, to whether they had to run errands after work.

Other video recordings of more dramatic mundane moments led our feelings to become entangled and negotiated with those of participants during the research process, demonstrating how forms of empathy are implicated in processes of knowing and learning with others. As we co-worked with the video recordings, Sarah viewed Shanti’s interview with Lyn. Wearing earphones, she focused in on part of the video where they were viewing footage of Lyn riding along a riverbank. ‘She looks really close to the river’ commented Sarah out loud, feeling her muscles tense as she imagined the possibility of the rider whose

view she could almost see, falling into the dark river. Right after, as Lyn proceeded into a fenced segment of the ride, Shanti's interview question echoed Sarah's feelings, as she asked Lyn: 'does it feel as hemmed in as it looks?'. Yet Lyn responded that it didn't, bringing back into focus the question of what she felt during the ride.

[INSERT FIGURE 1 HERE]

On the one hand this example tells us something about the limits of assuming we can empathise with other people's experiences without first gaining some sense of what surfaces for them. Indeed, in Lyn's case we learned that there were other things that she was interested in about her ride, particularly her speed and timing. But it also shows how even when empathising through video, encounters might lead to misunderstandings, which can be resolved when the co-production of knowing with participants is at the centre of the research process. The intensity of feeling that emerges as part of the research encounter is nevertheless generative of learning experiences. This is moreover typically ethnographic since it invites the opportunity to learn through comparing our own experiences with those of others.

Because GoPro video takes us close into participants' lines of vision and body sensations, our reactions to watching participants' footage of cycling - especially at speed, through traffic or along narrow paths or around tight corners - can generate senses of intimacy/empathy to learn through. For example, for Shanti some participants' recordings seemed like an echo of her own regular cycle commuting, sometimes along the same routes. Natasha commented on her audible breathing noises as she worked to go up a hill, explaining that she was breathing loudly because she had recently recovered from a chest infection. Shanti replied 'I was sympathising because I know this hill', explaining how it formed part of her commute home, implying that she also had to breathe hard in the ascent. Here, video and

audio tracks opened up a sense of parallel physical experience of the same stretch of road between the participant and researcher, during a brief section of cycling footage. The video trace that Natasha made on her way home allowed them to connect their experiences - the same hill, a similar physical effort - to surface in an empathetic moment that only lasted until Natasha's footage showed her turning off of Shanti's familiar route home. Video enabled a moment of empathetic entanglement between researcher and participant, whereas Shanti's own specific embodied experience of cycling a particular route allowed her to 'arrive at a particular form of multisensory knowing' (Pink 2015, 173) as she and Natasha watched the footage together. The digital technologies implicit in this encounter, Natasha's smartphone with its self-tracking app, the helmet-mounted camera worn during her ride, Shanti's laptop that they used to watch the video together and the video camera Shanti used to record the interview, were all crucial aspects of the assemblage that allowed this connection to emerge as part of the video ethnography.

Conclusion: Video ethnography, empathy and the open-endedness of experience

In this article we have outlined an approach to video ethnography that seeks to go beyond existing renderings of video as a medium that can generate empathy, as a way of recording interaction, and as representation. Instead we have suggested that video can become a technology for empathetic imagining (or empathising), developed in collaboration with participants in research. We have also emphasised how self tracking technologies, cycling and the experiences associated with them can be conceptualised as open things or processes. That is, when they are created in the research process, they are not 'discovered' as discrete knowledge objects but emerge as open and leaky things, that are experienced in ways that are always relational to others. This is on the one hand an ethnographic insight which invites us to understand the world that we inhabit as processual and relational. Yet it also invites us to

consider how engaging video to generate empathetic forms of imagination, which are *emergent* rather than having an object status, is implicated in ethnographic research. This means thinking of video beyond being a representational medium, and beyond being a medium that inspires us to empathise with the people shown in documentary or video ethnography content. Instead it requires us to consider how video is a technology for the making of empathetic and negotiable forms of imaginative encounters with other people's experience.

Ethnographic intent is fundamental to how empathetic imagination emerges. That is, as researchers we seek ways in which to comprehend the experience of others, and following an anthropological approach to ethnography, we need to be prepared to do so with such a way that engages us *with* them, and that is negotiated and subject to shift, rather than in doing research *about* them. This approach foregrounds how our own embodied experiences, emotional responses, and empathising, emerge in relation to both the footage and our encounters with the participants as we view and talk about the footage with them. This is particularly interesting for team ethnography: as our bodies respond to the 'action' footage taken by the participants and as the four of us [researchers], discuss our responses with each other as we work together to analyse and interpret the GoPro, preparations and interview video footage, empathetic assemblages are created and recreated.

Based on this understanding, we have suggested and developed an example that shows how video from a wearable device such as the GoPro action camera offers ways to research everyday digital materialities as they are experienced and as they emerge in mundane everyday contexts. As with any research method, this method possesses a biography or social life (Pink and Leder Mackley 2012, Savage 2013), which requires us to foreground the affordances of the technologies we use and account for how these assemble in the research process. The GoPro action camera's visual perspective may evoke different

empathies to those associated with a researcher-held camera or audio recorder, since all methodological devices have specificities (Lury and Wakeford 2012) that shape how we learn through and with them. The GoPro opens up some ways of knowing and feeling as it closes off others. As Lury and Wakeford (2012: 9) point out, there is a ‘thingness’ to research methods. The process of ethnographic imaginative empathising always emerges relationally with the technologies employed to produce it.

Video techniques give us a way to encompass how digital media are entangled with and in the world that we move through in many everyday contexts. While the example we have used to explain this has been an obvious one, in that in bringing together embodied experience and data self-tracking happens as a form of digital materiality, our point is broader. This is because the digital is not separate from other forms of experience in the world, but it is relational, our ways of engaging with it are multisensory, and it accompanies us through the everyday world. Video too, as a digital technology participates in this, as GoPros sit on bike helmets and camcorders can be used to explore the ways people prepare for commuting. It makes a trace through the world with us, in ways that correspond with traces made with other digital technologies. Thus, its recordings are themselves part of entanglements with other technologies, things, processes and people. That is why it can be considered a technology for empathetic imagination, in that video is *in there* with the other constituents of everyday processes, and therefore provides us as researchers with a starting point for engagement with the human experiences that form part of this.

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