Chapter 5

Practicing Diffraction in Video-based Research

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Abstract

In this chapter, we discuss how diffractive methodologies can enrich
visual and video-based research methods. Diffraction is a term derived
from physics. It refers to a particular kind of interference whereby
waves overlap to generate new patterns. In human and social science
research, diffractive methodologies aims to expand the understanding
of objects of study by creating generative interferences and
differences. Our aim in this chapter is to illustrate three ways of
practicing diffraction in visual and video research. These include 1)
reading texts intra-actively; 2) reading the performing of an apparatus
through another; 3) creating intra-actions amongst different forms of
participation in interventionist research. We suggests that by
multiplying our sociotechnical and relational ways of conducting video
research and by reading one video-methodological engagement
through the other, diffractive methodologies help us generate
inventive provocations and produce new meanings.

Introduction

Diffraction as a methodology is the practice of "reading texts intra-actively through one another, enacting new patterns of engagement, attending on how exclusions matter" (Barad, 2010, p. 243). The idea was originally introduced by Haraway (1997) in her attempt to promote a view of the world attentive to partial perspectives, heterogeneity, multiplicity and the entangled complexity that characterize living. Haraway was in search of an alternative to the traditional mode of philosophizing (and doing social science) oriented on uncovering originals and essences by drawing on reflection and abstract thinking with the aim of seeing clearly through the distortions that obfuscate the true nature. According to Haraway this Platonic epistemic stance, which underpins all the "industries of metaphysics…" is bankrupt (Haraway, 1997, p. 268). As an alternative, she proposed using disturbances creatively and intentionally as a way of knowing. She described this approach as diffraction, borrowing from physics, where diffraction is a particular kind of interference when waves overlap and generate new patterns. More specifically, diffraction occurs when waves meet an obstacle or go through an aperture, leaving the waves not to neutralize, but to bend and spread out in many directions. Diffraction thus has become a metaphor for the creation of something new and expansive, an alternative way of knowing in which we produce interferences and diffraction "by design" (Haraway, 1997, p. 273).

The concept of diffraction is appealing because it gives the idea that nothing can be truly 'reflected back' as it is: every attempt to do so would produce something different. Diffraction thus becomes a method for "reading insights through one another, building new insights, and attentively and carefully reading for differences that matter in their fine details, together with the recognition that there intrinsic to this analysis is an ethics that is not predicated on externality but rather entanglement" (Barad in Dolphijn & Van der Tuin, 2012, p. 50).

The concept of diffraction (Barad, 2014) is particularly promising in the field of visual and video-research. Visual researchers are well aware that once we see, we cannot un-see. Every attempt to reflect back produces something different. There is no final meaning in an image so digging deeper is hopeless. The only way forward is to multiply the views by "moving 'sideways' with the flow of experience" (Latour, 2016, p. 94), playfully create interferences between different types of images, visual methods and sensitivities and build on the effects of their differences. Haraway herself used an image to exemplify diffraction and the first example of the application of the diffractive method is in fact the generative conversation with the paintings of Lynn Randolph, in particular "Diffraction[1]", and his commentaries (Haraway, 1997, p. 273).

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[1] In the painting, Randolph uses displacement (the figure is located in sci-fi like view of the universe) and interferences (between images; between symbols; between

However, how diffraction can be used in research practice, in particular in visual and video-based research, is still relatively unclear. This is partly due to the fact that the term has been used often as an evocative metaphor rather than a pragmatic orientation; and partly to the fact that most applications of diffractive methods have been text based, as for example in feminist theory (Van der Tuin, 2011; Van der Tuin 2014; Thiele, 2014). The lack of practical indication of how to work with diffraction has limited, in turn, the take up of this concept by the research community of visual and video researchers.

Our aim in this chapter is to fill this gap and illustrate how diffraction can enrich visual and video-based methods. We do so by illustrating and discussing three ways of practicing diffraction in visual and video research. As we shall see, diffraction can be used, first, as an interpretive practice by actively juxtaposing different forms of representations (e.g., visual vs. written) and reading different types of "data" and "texts" diffractively. Diffraction can also be used methodologically for data "collection" and "analysis". In this case, the juxtaposition is between research apparatuses (e.g., video recording practices) that are actively played against each other to discover how they make differences and produce contrasting views. Finally, diffraction can also be used as an intervention method, for example by creating the intra-action amongst practitioners' different forms of participation in video material.

Our modest goal is to show that in all three instances the diffractive practice can bring inventive provocations and produce new meanings; it is "good to think with" (Barad in Dolphijn & Van Der Tuin, 2012).

Practicing Diffraction by Reading Texts Intra-actively

A first practical understanding of diffraction comes from Barad's idea of "reading texts intra-actively through one another" (Barad, 2010, p. 243). A diffractive approach thus involved the "reading and interpreting [of] events of different spacetimes one through the other, for example, 1600 Shakespeare's Hamlet through Marx's 1848 Communist Manifesto through Newton's 1687 Principia attending to how exclusions matter" (Barad, 2010, p. 243). New meanings emerge from the conversation between texts and by paying attention to the fine details and exclusions each of them and their encounters produce. The characteristic feature of this way of

moments in history as the character is depicted as having different ages) to depict the state of ontological multiplicity and messiness characteristic of being a woman. The painting and its sequential re-reading by the painter and the scholar are used to exemplify the generative power of reading texts and images through one another and its capacity to generate new meanings. At the time of writing the painting was available at http://companionrandolph.blogspot.com/ (accessed on 26/06/2020)

practicing diffraction is that it takes place post hoc in the domain of reading and interpretation (Kaiser & Thiele, 2014). A typical example is the work of Murris and Bozalek (2019). The authors diffractively read three existing books on post-humanism and build on their own feeling and experience to generate a number of theoretical propositions on the experiential dimension of research (for another example, see: Van der Tuin, 2011).

In the realm of visual research, adopting an (interpretive) diffractive methodology amounts to taking three steps.

First, it entails becoming aware of the "gaze" that is at work when making sense of still or moving images. According to Copjec (1989) the gaze is a form of culturally constituted visuality that pre-exists the individual subject:

"Between the subject and the world is inserted the entire sum of discourses that make up visuality, that cultural construct, and make visuality different from vision, the notion of unmediated visual experience. Between the retina and the world is inserted a screen of signs, consisting of all the multiple discourses of vision built into the social arena … when I learn to see socially, that is, when I begin to articulate my retinal experience with the codes of recognition that come to me from my social milieu(s), I am inserted into systems of visual discourse that saw the world before I did, and will go on seeing after I see no longer. (Bryson, 1988, p.91-2)

The concept of gaze overlaps significantly (although not completely) with the notion of apparatus. For Barad, an apparatus is the set of "material-discursive practices (…) with which we engage with the world" and which are "productive of (and part of) the phenomena" we study (Barad, 2003, p. 819). For example, Aarsand and Forsberg (2014) conducted a video-ethnographic study on the everyday lives of middle class, dual-earner families. They show that "corporeal privacy" is not a given phenomenon open to observation. Rather, the boundary between public and private is produced through their "scientific apparatus", that is the everyday video methodological practices which included the material frames, the objects present, the discourses on privacy, and the interactive negotiations when to turn on and off the camera while in the homes of their research subjects.

This suggests that simply becoming aware of the social and historical situatedness of our gaze and practices of seeing is not sufficient. As researchers, in fact, we cannot operate by subtraction, that is, we cannot resolve the issue by trying to factor out the apparatus itself. What is required is a second step in which we mobilise an alternative gaze. In so doing we immediately generate a number of interferences between gazes. The immediate effect is that of bringing to attention the existence of the gaze itself. For example, Hultman and Taguchi (2010) propose a diffractive reading of images of children in playgrounds that juxtaposes the traditional gaze (child playing in the park) with what they call a relational materialist gaze ("The girl is in a state of becoming with the sand, and the sand

is in a state of becoming with the girl", p.530). The diffractive reading allows for foregrounding the anthropocentric nature of most current practices of taking and consuming pictures of children. It allows for advancing an understanding of children and park to be differently entangled phenomena, which in turn encourages us to view education not so much as filling a lack but rather offering children supplements and extensions (Lee, 2001).

The mobilization of the second gaze thus becomes generative of new and unexpected meaning. This can be achieved, however, only if we utilize a positive rather than negative view of difference – a view in which difference is not understood as a form of absence or lack but rather a generative force (Deleuze, 1990). In clearer terms, the second gaze is not mobilized to identify the "shortcoming" of the first one, but rather to generate new possibilities. This in turn requires a third and closely related step is which the two gazes (and the visual representation) are put in conversation and played one through the other. Diffraction creates thereby creative provocations, which makes it is generative, not subtractive. The result is a richer form of understanding that is multiple, irreversible and potentially endless. It is multiple in that the goal is not that of constructing a stable and unified view of the phenomenon, but rather that of generating a crowd of representations that can foster understanding. It is irreversible in that each reading builds on the previous one – so that the differences themselves continue to change. It is open-ended and potentially endless in that the game of interpretation can continue until practical or political reasons stop the conversation such that one of the versions is affirmed as the final and truthful one.

Yet, this first way of practicing diffraction also has its limitations. Reading texts, images or other forms of visual representation through one another post hoc still takes place in the realm of discourse. While this post-hoc diffractive movement is useful to generate new and unexpected meanings, is it also scarcely attentive to the constitutive dimension that material apparatuses have in the constitution of the representation itself. For example, in the cases above, Hultman and Taguchi (2010) utilise pictures taken by a "professional photographer" (p.527). This goes contrary to Barad's view, which suggests that the gaze is not in the eye of the interpreter but rather lies at the encounter between the eye of the photographer, the camera, photographic practice, and the practices of interpretation of the viewers. In clearer terms, post hoc diffraction can be accused of trying to close the stable after the horses have bolted. As such, it can be subject to the same criticisms levelled at traditional reflection and perspectivism: that in the world of (scholarly) discourse, it is rather easy to move from one position to another, from one sensitivity to another, from one gaze to another.

We recently found ourselves being caught up in such a mostly discursive, post-doc way of practicing diffraction until we realized that we had to go back into the field. We had

resubmitted a paper in which we utilized photographs to discuss the inclusion of non-corporate spaces (e.g. public spaces) into organizational spaces and analysed how affective atmospheres emerged in-between different spaces (De Molli, Mengis, & Van Marrewijk, 2019). The reviewers were not pleased with the visual material we had provided in the paper. One "found the use of illustrative images to be dull" and not expressive of the affective atmosphere we wanted to show. Thus, we went back to our dataset of over 2000 pictures, taken during our ethnographic observations, with the intention to identify some better-suited pictures. We tried first to simply change pictures and select more "expressive" ones. Yet, as we viewed these images now through the verdict of the reviewer – and no longer, as before, primarily through our embodied experience as observers – we had to agree: the pictures were somehow flat, devoid of the affective, atmospheric charge we felt the space had when walking through it in person.

We could not solve the issue by reading our already collected data one through the other, but had to return to the field. We paid attention to how we took pictures, viewed them through our earlier takes, through the comments by the reviewers, and through our own embodied experience. We started to experiment with short videos, walking with video from one space and atmosphere to another. We did the same by taking extensive ethnographic notes of these passages. With time - and through this diffractive practice of intra-actively reading one rendering through the other - pictures, ethnographic notes, the video material, and our own embodied experience changed, and new patterns and meanings emerged.

By taking into account materiality more seriously (through our bodies, through our technical choices of how to take pictures), we needed to practice diffraction differently (as we will exemplify below), not just relying on reading texts intra-actively, one through the other. Barad (2007) underlines the importance of such material engagement when practicing diffraction:

…the point is not merely that knowledge practices have material consequences but that practices of knowing are specific material engagements that participate in (re)configuring the world. Which practices we enact matter-in both senses of the word. Making knowledge is not simply about making facts but about making worlds, or rather, it is about making specific worldly configurations-not in the sense of making them up ex nihilo, or out of language, beliefs, or ideas, but in the sense of materially engaging as part of the world in giving it specific material form (Barad, 2007, p.90).

Barad utilizes the image of (agential) cut to indicate that setting up or adopting a specific apparatus is a form of "ethico-onto-epistemological commitment" that operates specific cuts in what phenomenologically presents itself. Diffraction thus requires us to understand how different apparatuses and the cuts that they produce "matter in the reiterative intra-activity of worlding, that is, of the entanglement of spacetimematterings"

(Dolphijn and Van Der Tuin, 2012, p.46). This leads us to a second and slightly different practical understanding of diffraction in which diffraction dos not take place post hoc but operates earlier when we choose, set up and enact our practices of visual capturing (filming, taking pictures, painting). Diffraction thus starts with juxtaposing research apparatuses (e.g., video recording practices) that are actively co-located to provide contrasting views or played against each other to discover how they make a difference.

Practicing Diffraction by Reading the Performing of an Apparatus through another

Diffraction can also be understood as "a process of paying attention to the ways in which practices [of data collection and analysis] produce (…) 'cuts' that can interrupt and splinter the object of study" (Uprichard & Dawney, 2019, p. 19). When Barad reminds us that a phenomena does not exist ex-ante, but is produced in the intra-action with the apparatus (Barad, 2003, p. 819), the implication is that different methodological practices, including not only interpretative, but also material practices, will produce the phenomena differently. To explain this, she refers to the "two-slit diffraction experiment" in quantum physics, which the Nobel Prize physicist Bohr used to determine whether light is a particle or a wave (Kaiser & Thiele, 2014, p.165). Importantly, depending on the apparatus through which light is measured, its nature changes with light behaving both as wave and as a particle. The phenomena under examination is produced differently in its intra-action with the distinct apparatus that "measures" it. In this way, "[d]iffraction patterns record the history of interaction, interference, reinforcement, difference. Diffraction is about heterogeneous history, not about originals" (Haraway, 1997, p. 273).

Indeed, when deploying mixed methods in data collection, we can produce multiple "cuts" of the object of study, which might not be integrated into a coherent whole as the method is usually practiced, but rather propose an opportunity for a diffractive reading (Uprichard & Dawney, 2019, p. 20). Paying attention to the differences that are produced through the different methods with which we approach our object of study, we can become attentive to its different qualities and ways of being (in the light example above, a wave and a particle). Second, as we will show below, it can also be useful to learn about the performativity of our methodological choices. And finally, by diffractively reading one production of the object of study through another, we can become aware of the "interferences" and "reinforcement[s]" of our methodological practices (Haraway, 1997, p.273).

To exemplify such a diffractive methodology and their benefits in video-based research, we will refer to an 'experiment' we conducted to better understand the specific performances of the apparently technical choices of camera angle and movement

on our object of study (for details of the study, see: Mengis, Nicolini, & Gorli, 2018). The 'experiment' consisted in conducting three observational studies in healthcare settings, focusing on inter-professional coordination practices in the emergency department of a regional hospital in Switzerland, interaction practices between patients and clinicians in a dental outpatient clinic in Northern Italy and later the patient journey in a A&E department in the UK[2]. All involved video-based observations of interactions. When reviewing the video recordings of our first two settings, we realized that space was an important mediator of the interactional practice; space was constantly rearranged through the displacement of machinery, utensils, furniture, the drawing of curtains, and the collective movement of people in space, thus shaping the coordination and interaction of people. As we tried to inquire into this issue also in the second context, we found – to our surprise - that the video recordings did not foreground space equally.

As recordings of the two contexts were similar for the movements of people and objects, but different for the deployment of camera angles – one working with a wide-angle shot, the other with a medium shot – we started to inquire whether camera angles matter for how space is performed as a phenomena. From previous studies on organizational space (for recent overviews, see: Beyes & Holt, 2020; Stephenson, Kuismin, Putnam, & Sivunen, 2020), we knew that space is not just one 'thing' and limited to its physical layout, but rather is multiple and processual. Space continues to be produced (Lefebvre, 1974/1991) in interaction with people's spatial practices (what Lefebvre calls 'perceived space', e.g. employees' habitual missions to the coffee machine) and their ways of making sense of space (what Lefebvre calls 'lived space', namely the way people give meaning to space in relation to, for example, foregone spaces of the past or to collective imaginations of an 'office' space). Our initial video-recordings seemed to suggest that the technical choices of how video data are recorded or viewed may be of methodological relevance to how a phenomena can be studied (Laurier, 2013; Luff & Heath, 2012; Mondada, 2009), or in our case to how space would manifest (as a practiced space, as a lived space). The question was how exactly this happened and how the technical choices of our recordings mattered for how space would be produced 'differently'.

In a second part of the study we video-recorded the clinical practice with different camera angles and added a third site in the UK. With the steady camera, we worked both with wide-angle and mid-angle shots and further experimented with a roving camera, either following the mobile action of practitioners by walking next to them or attaching a head-camera on their forehead (Laurier, 2014; MacBeth, 1999; Pink, 2007). We thus experimented with four different video recording apparatuses: the Panoramic View (a steady camera using a wide-angle shot),

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[2] For reasons of space only the first two studies made it into the final paper.

the American-Objective View (a steady camera using a mid-angle shot), the Roving Point-of-View (a roving camera tracing the clinical practice by following practitioners cheek-to-cheek), and the Infra-Subjective View (a head-mounted camera on a practitioner tracing the clinical practice for a subjective angle) (Mengis, Nicolini, & Gorli, 2018).

When analysing these recordings, we started to engage in a diffractive practice focusing on the differences the four apparatuses produced in how organizational space revealed itself. We found that each video recording apparatus privileges a different spatial understanding (see Figure 1). For example, the Panoramic View pointed to space as physical extension (e.g. objective positions of objects/people in space) and privileged a structural explanation of space as the materialization of power (e.g. how spaces are joined/divided, control of entry/location). Instead, the Roving-Point-of-View foregrounded a collectively practiced space where space is assembled through rhythmic spacing, through directionalities and orientations of objects and bodies, and through activities within space.
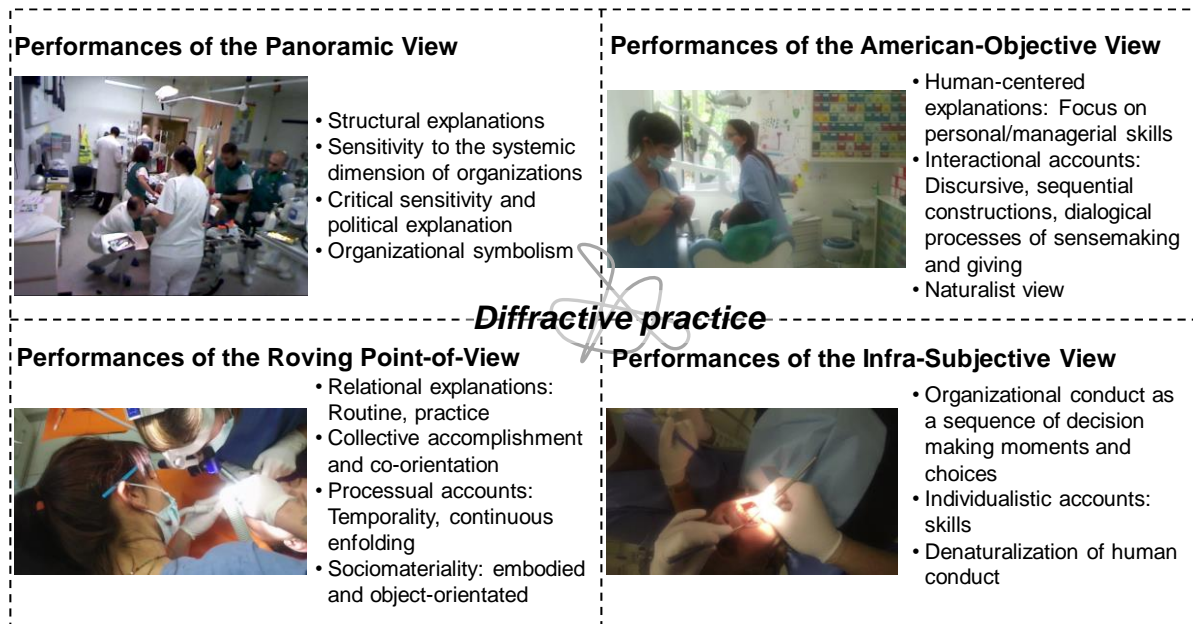

Performances of the Panoramic View
- Structural explanations
- Sensitivity to the systemic dimension of organizations
- Critical sensitivity and political explanation
- Organizational symbolism

Performances of the American-Objective View
- Human-centered explanations: Focus on personal/managerial skills
- Interactional accounts: Discursive, sequential constructions, dialogical processes of sensemaking and giving
- Naturalist view

Diffractive practice

Performances of the Roving Point-of-View
- Relational explanations: Routine, practice
- Collective accomplishment and co-orientation
- Processual accounts: Temporality, continuous enfolding
- Sociomateriality: embodied and object-orientated

Performances of the Infra-Subjective View
- Organizational conduct as a sequence of decision making moments and choices
- Individualistic accounts: skills
- Denaturalization of human conduct

Figure 1: Diffractively Viewing Different Video Recording Apparatuses One through the Other (on the basis of Mengis, Nicolini, & Gorli, 2018)

It is important to note that these different performances were not only produced by the specific video-recording practices, but also by our diffractive reading of one recording and its apparatus through the other. The panoptic, refrained gaze of the Panoramic view with its privileging a focus on structure, control, or resistance emerged by viewing it through the Roving Point-of-View and its performances. At the same time, the Roving Point-of-View's focus on embodied effort, processual enfolding and materially oriented practice emerged by viewing these recordings through the ones of the American-Objective View and the Infra-Subjective View. By viewing the

recordings of the different apparatuses one through the other, we could "attend (..) on how exclusions matter" (Barad, 2010, p. 243), that is which qualities of space emerged and which ones faded into the background. In this way, the different video-recording apparatuses had not fixed performances (cp. notion of 'affordances', Gibson, 1977, Majchrzak & Markus, 2012), but as the apparatuses became entangled with our diffractive practice, specific differences (of space) were produced.

A diffractive practice is thus importantly different from the general methodological practice to compare and contrast, for example, across different data collection methods. Such a methodological approach aims to "integrate" data and to achieve "valid" and "reliable" findings (Uprichard & Dawney, 2019, p. 28). Instead, the diffractive method does not focus on the coherence of data, but rather allows a phenomenon to manifest in multiple ways. It is in this way that diffraction "splinters" the object of study, inviting us to read "data across methods [and multiple video recording practices] while allowing data to noncohere, disintegrate and not reproduce objects of study" (Uprichard & Dawney, 2019, p.29).

Practicing Diffraction by Creating Intra-Actions Among Different Forms of Participation in Interventionist Research

A third way of understanding and practicing a diffractive method is to create interferences, interactions and differences through participatory research, that is, methodological approaches that involve participants in the field both in data collection and in analysis. Indeed, the diffractive method does not need to be limited to the sociotechnical aspects with which we approach a phenomenon, such as the video-methodological practices detailed above. It can also involve the relational practices through which we engage practitioners and organizational members (Bayley, 2019). Video-based research has developed participatory approaches by involving organizational members in the analysis of the video material in which they were recorded in the first place (Milne, Mitchell, & De Lange, 2012; Whiting, Symon, & Roby, 2018). For example, Jaretti and Liu (2016) present a "zooming with" method where excerpts of their video material are proposed to the individuals involved in the recording. They used the video clips for a "projective interview", which allowed them to understand the participants' interpretations of the recorded scenes and grasp "their recollections, motives, and feelings" (p.374-375). Their interest in drawing on the interpretation of participants was to be able to "integrate" (Uprichard & Dawney, 2019) the various interpretations of participants as well as their own.

Participatory approaches in video research can, however, also be used with a diffractive attitude. An interesting example

is proposed by Ivinson and Renold (2016). Working in a former coal-mining community in Wales, the authors used a diffractive analysis to explore the notions of gender and corporeality of teenage girls. After a more traditional, interview-based study on "Young People and Place", the scholars returned to the schools where they had conducted the interviews and recruited two girls to participate in a film project. Together, they developed the idea of what they were going to film (the girls would run), and where (a park where they used to jog, but whose woods were considered dangerous because of stories of rape and abduction). The short "Still Running" was filmed during the course of one day; the girls were video recorded by the two female researchers and a professional filmmaker in a park while running, a practice they had enjoyed in pre-adolescence, but no longer (p.172). While filming, the girls initially felt very conscious of the "objectifying male gaze" (p.181), running slowly and protecting their chest with their arms to prevent their breasts from moving. Realizing their discomfort, the scholars decided to participate themselves in the running, "unashamedly" and secure of themselves (p. 175). This, together with the "anonymous gaze" of the camera and the camera women – enacted in the ritual of repeatedly setting up the tripod and installing the camera for the next shot (and diffracted by readings of Deleuze, 1985/1989) - let the "ubiquitous sense 'of always being watched' by an imaginary predatory male be neutralized" (p.178). By running and re-running the same path, the girls gradually inhabited their bodies "more fully" and sprinting became "bolder and faster" (p.178). Through the collective, female entanglements with the camera and the girls' repeated running, a "girl-body-camera-landscape assemblage" was co-produced (p. 182). It allowed for a transition from stuckness to fluidity, a fluidity that temporarily interrupted the dominant production of the female within the post-industrial places of coal-mining where gendered legacies of masculine corporeal strength and movement (p. 170) blocked the girls in becoming energetic and being in their bodies.

The example shows how the embodied, space-bound, technically mediated, but also relational intervention by the scholars provoked multiple diffractions with historical legacies of masculinity and femininity, ongoing gender-based bullying in schools, present internalized gazes, and practices from the personal past (pre-adolescent jogging). Diffraction here is not practiced by the researchers and their methodological choices and technical equipment alone, but involves also the participants and their intra-active responding, their choice of activity and location, their bodily discomfort, their growing confidence. The object of study thereby continued to emerge in the diffractive practice as notions of gender and corporeality were not fixed, but evolved both in the embodied, video-based practice of the girls and of the scholars.

A second example, this time rooted in an organizational work setting, is offered by the work of Rick Iedema and his colleagues (Iedema, Long, Forsyth, & Lee, 2006; Iedema, Carroll,

Collier, Hor, Mesman, & Wyer, 2018). The group has been experimenting with participatory video-based research in healthcare settings for a decade. Over the years, they have developed a well thought out process for using video in a collaborative fashion, both for academic purposes and for the improvement of clinical practice.

The scholars spend initially sometime in the hospital to observe a particular practice – for example, the handover between two clinical teams (for details, see: Iedema et al., 2006, 2018). After obtaining permission, they then film aspects of the handover practice during three weeks. The researchers edit instances they found relevant and then show them to the various groups involved in the handover, such as the intensive care unit team and the surgery team. These separate viewings allow for different aspects, priorities, and meanings to emerge. On the basis of these multiple accounts, the scholars then select some relevant scenes to be shown to the whole group of people involved in the handover. The video excerpts are now being discussed within this inter-professional and interdisciplinary context, such that the different emerging interpretations and concerns diffract one through the other as well as with the ones of the researchers. On this basis, the practitioners develop together concrete measures to improve their practice and after some weeks that the new practice had been implemented, they do another round of video recordings and diffract these with the former practice (Iedema et al., 2006).

Such an approach resounds the interventionist methods developed in the context of activity theory, which can provide further theoretical depth. For example, Yves Clot's "clinic of activity" (Clot, 2009) proposes to video record sequences of work activity (e.g. work on assembly lines, delivering homilies), to then use to confront protagonists of the activity in individual settings (simple self-confrontation) as well as to subsequently call for collective discussions between pairs of workers and among the whole team involved (cross self-confrontation). All these dialogic activities are themselves video-recorded. The aim of the approach therefore is not to get to the essence of the activity. Rather, through the dialogic practice around the video artefact, "professional dispute" and "controversy" (Kostulski & Kloetzer, 2014) are orchestrated with the aim of unleashing the development of the activity. In this way, the approach should enable workers to relate in another way to their work "by seeing things differently – through the eyes of the others" (Kloetzer et al., 2015, p. 62). Consequently, the approach foresees that out of this dialogic practice a "multi-voiced" film is produced that can bring about further conversations at other levels of the organization (Kloetzer et al., 2015, p. 52).

In such participatory, interventionist approaches (see also: Mesman 2011; 2019), we can find many of the diffractive qualities discussed so far. The methods are geared towards multiplying the object under analysis (Uprichard & Dawney, 2019), actively giving different practitioners the possibility to develop their own understanding so that their different readings can interact,

interfere, reinforce, or differ without necessarily having to integrate into a coherent whole. The approaches also acknowledge the processual, evolving nature of phenomena as the interventions in practice and their diffractive readings are recurring over time (e.g. there is no right handover, but the phenomenona continuously evolves).

Taken together, the two examples illustrate a third way of practicing diffraction. Unlike the former two, participative diffraction entails a working with and through the participants in the field, their practices, their tools, bodies, and discourses, performing cuts to the object of study in intra-action.

Concluding remarks

Bruno Latour (2002) once commented that we should avoid "freeze-framing" and "extracting an image out of the flow, and becoming fascinated by it, as if it were sufficient, as if all movement had stopped" (p. 22). He adds that "the only way to access truth, objectivity, and sanctity is to move fast from one image to another, not to dream the impossible dream of jumping to a non-existing original" (Latour, 2002, p. 22). In this chapter, we have illustrated three ways in which this can be achieved by mobilizing the conceptual and practical toolbox of diffraction. As we have shown, diffraction is both a powerful heuristic and a sophisticated methodological resource.

As a heuristic, when used proactively and generatively, diffraction helps to illuminate "the complexity of the always/already entangled processes of dis/continuous becomings that make up what we are used to calling world" (Thiele, 2014, p.207). It does so by placing different transdisciplinary practices in conversation with one another "whilst paying attention to fine details and the exclusions this action produces" and "by investigating how 'objects' and 'subjects' and other differences matter, and for whom (Barad, 2007, p. 90–94)".

As a methodological resource diffraction alerts against a reductive understanding of reflexivity. Increasingly, reflexivity is conceived merely as the effort to recognize the "situatedness of knowledge" and the performative interference of the methods and apparatuses we use. The ensuing injunction is that when we choose an apparatus or method we need to remain reflexive of what is left out, what the apparatus does not make us see. This understanding of reflexivity as lack and incompleteness may suggest that we can solve the issue by subtraction: if we factor out the gaze and apparatus from the representation (or, in the case of research, disentangle the methodologies used to collect and analyse data and the subjectivity of the researcher), we can get to the bottom of things -- the essence of meaning. Diffraction warns that such an attempt is destined to fail. "Data" are always the result of an intra-action between phenomena and apparatuses; 'reflecting back' on the source of data does not get us close to the real thing as we have seen in

our examples above: every attempt to do so produces something different and new. Although as noted by Lumsden (2019) the contraposition between reflexivity and diffraction upheld by some authors is rather contrived (good reflexivity has always been non-subtractive), diffraction invites to embrace rather than fear our incompleteness. Diffraction both as a metaphor and as a practice invites us to embrace the idea that good science (and social science) is about adding meaning and complexifying our appreciation of the world rather than succumbing to traditional eliminativist and reductive approaches that invite and often pressure us into "abstracting or deconstructing" rather than expanding and creating (Stengers 2008, p. 3).

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