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An introduction to using video for research

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Introduction

This working paper maps the scope and use of video for data collection, describe the qualities and features of video as a research tool for collecting data (and as data), and outlines some of the potentials of video, as well as the challenges and considerations that it raises for social research and suggests processes for collecting and managing video data.

A brief history of uses of video in social research

Video and film have featured in the development of social research within sociology, anthropology, education and psychology. In the past the cost of film and video equipment and production placed it out of the hands of most researchers. Now, video is increasingly a significant resource for many contemporary social researchers. The increased presence of video in the people's everyday lives as well as institutional practices and public environments means researchers often have access to 'naturally occurring' video data. Video is increasingly the data collection tool of choice for researchers interested in the multimodal character of social interaction. The use of video has also been expanded by increased access through the low cost of video cameras high quality video facilities on mobile phones, cheap webcams and free easy to use computer applications for editing. The qualities of video differ from any other form of data (recording). It provides a fine-grained multimodal record of an event detailing gaze, expression, body posture, and gesture. It is a sharable, malleable digital record in which all modes are recorded sequentially. It is arguable that just as the audio recorder gave linguists new kinds of access to speech and voice, which in turn supported and demanded the development of linguistic theories and methods as well as entire sub-disciplines (e.g. phonetics), video recording has enabled the expansion of the repertoire of researchers.

Researchers have used video (and before that film) for many years particularly in workplace studies (see Heath, Luff, Hindmarsh, 2010), the learning sciences (see Goldman et al, 2009), and the home (see Norris, 2004; Goodwin, 2000). Studies have used video to ask questions in a variety of sites including how social class and race are articulated in the school classroom (e.g. Mehan, 1979); how museum visitors interact with one another and exhibits (e.g. Heath and vom Lehn, 2004); how patients and General Practitioners manage consultations, including how digital resources, such as the Electronic Patient Record (EPR) shape these interactions (e.g. Swinglehurst, forthcoming). Video has been used to examine cultural aspects of everyday life, for example, Pink (2003) has used video tours to explore the aesthetics of home décor in relation to social identities, others have explored how families use video recording in the home to construct their domestic narratives (Willet and Buckingham, 2009). Video has been employed to explore children and young people's identities, media practices and digital cultural production (e.g. Marsh, 2004; Domingo, 2011; Gilje, 2009). Others have approached videos made by others, for instance exploring how people produce, share and comment on videos such as Adami's study of YouTube (2009).

Despite this broad take up and the recognition of the potential of video as an investigative tool within social science, it has, surprisingly, only recently become the subject of substantial sociological reflection and has been rather theoretically and methodologically neglected (Kissmann, 2009). The starting point for this working paper is that just as becoming a researcher requires learning how to undertake 'observational research' even though that person can 'see', it is necessary to consider how to use video effectively for research purposes even through a person may be able to use a video camera.

Ways of using video

Video can be used in a number of ways for research including participatory video, videography, the use of existing video data, video interviews and elicitation and video based fieldwork. As Table 1 suggests each of these ways of using video embeds video data in a particular disciplinary history and trajectory of practice and debates about the place of truth, objectivity and subjectivity, and the roles and power of researcher and participant.

Participatory video approaches have grown since the late 1990's in the context of action research and practice based interventions concerned with participation and empowerment, notably in the context of international development, health programmes, and marginalised communities (White, 2003). The underlying aim of participatory methods is to reduce the gap between the concepts and models of researchers and those of individuals and communities by giving participants control of the camera and the process of making their experiences visible. It has parallels with data collection techniques of diary keepers. Participatory video is a process or an intervention in which research participants are provided with access to video recording equipment and training to ensure they can use it in order to document an aspect of their lives. Generally, participatory video is used to explore people's experiences and it produces three kinds of data: 1) the video 'as product', 2) the process of its production – which itself is often video recorded, and 3) the process of video editing. Each of these three types of data can become the focus of research, although some participatory video research prioritises one over the other. Some forms of participatory video are collaborative while others are more individual, such as video diary formats.

Videography is an ethnographic approach to video making which often goes hand in hand with participatory video and visual ethnography. It involves a different understanding and focus of video than say workplace studies or traditional observational video studies. It uses video primarily to gather data 'rich nonverbal cues' to stimulate critical reflection rather than as a way to collect observational data or descriptions of phenomena. There is also a focus on the video as an aesthetic object, as entertainment and pleasure (Tobin and Hsueh, 2009:77). Videography is positioned within larger ethnographic debates concerning how objectivity and subjectivity are conceptualised, and the call for ethnographies to be formulated as multi-vocal texts and 'reflexive mirrors' rather than objective data (Ruby, 1982). Videography understands and uses video as a tool to re-orientate the power of the researcher gaze and to give voice to research subjects/participants.

The use of existing videos as data is increasingly common for research to be undertaken with videos that are already available rather than video generated by researchers for research. There are many examples of research 're-purposing' videos for research including 'home-made' domestic video, broadcast media (Chouliaraki, 2006), automated CCTV recordings (Goodwin, 1994), and YouTube videos (Adami, 2010). The repurposing of existing video data, whether it is from an archive, YouTube, or an institutions video database raises many issues that are key for video-based and visual research. Including the need to understand the history of a video, its context of production, its original purpose and audience, and how these factors are embedded in the video as an artefact, as well as what is missing in the video record.

Video elicitation can be used alongside interviews or focus groups to prompt discussion, stimulate recall or provide a basis for reflection (Roth, 2009). Tochon (2009) suggests that video based reflections can be focused in three distinct ways: reconstructing past-thinking, post-activity narratives, or the construction of reflections on present and future actions. This is usually done by asking teachers to narrate a sequence of video or select a sample for detailed discussion, asking participants to 'call out' what they consider is noteworthy in viewing; 'stopping points' – pausing the video to comment; or developing participants 'selective attention' by focusing on a range of different events that are visible in a video and developing techniques for reasoning about the phenomena that they view on video. Video elicitation can be a useful way for researchers to validate and cross check their interpretations when working with video of 'naturally occurring'

interactions. It can be used to generate research subjects' accounts of an event - to gain insights on a point of view or to learn more about the meaning of practices and structures of knowledge in a site. Video elicitation interviews are particularly useful in helping to generate accounts of the characteristics of 'invisible' phenomena, that is in contexts where something (e.g. work) may be 'invisibly buried in the routines of day-to-day activities or may be conducted in the silent, isolated activities of machine operation.' (Schubert, 2006). Video elicitation can also be used to provide a basis for reflection on practice and continuing professional development.

Video-based fieldwork involves the collection of naturally occurring data using video cameras and is perhaps the most established use of video for data collection within the social sciences. Social Interactional studies developed alongside the use of film/video recording and Goldman and McDermott (2009:110) argue that the use of video in social research became foundational to this theoretical approach – and vice versa. Video is fundamental to its focus on the description of the structures of interaction order, the social and behavioural mechanisms and regularities that people use to coordinate and organise their activities with others: to making sense of and to reveal the structures at work. This use of video involves recording the on going interaction of people in a specific context and recording all aspects of the environment that structure the interactions recorded – policy documents and texts that regulate and record, the set up of the environment, and undertaking casual on-going interviews with participants. The use of video to collect 'naturally occurring data' in these different contexts involves decisions that shape the production of data and its interpretation including where to place the video camera, whether to have a fixed or mobile camera, where to focus the camera, and how long to record for and when to record. These issues are addressed in the following sections.

Key characteristics of video records, and associated potentials and constraints

The remainder of this working paper focuses primarily on the characteristics of video records and working with video in the context of video based fieldwork and 'naturally occurring interaction' although some of this is relevant to the other uses of video described above.

Video records have particular qualities and features that mean it differs significantly from other kinds of data such as audio recordings or field notes. This section considers three features of video data that underpin its distinctive potential for social science research: 1) its character as a real-time sequential record; 2) a fine-grained multimodal record; and 3) its durability, malleable, and share-ability.

A real-time sequential medium

As a result of this quality video data can "preserve the temporal and sequential structure which is so characteristic of interaction" (Knoblauch, Schmettler and Raab, 2006:19). The features of digital technology enable time to be both preserved and interfered with – slowing down and speeding up a video recording to see 'naturally occurring events' in new ways. One of the early distinctive contributions of video based sociolinguistic research, notably the work of Kendon (1973) on gesture was 'the discovery of interactional synchrony, both between speech and unconscious movements for a single individual, and between both of these for two different individuals in conversation or extended social interaction' (Lemke, 2009:44). This quality of video is an essential one for the study of 'naturally occurring data'. It is this quality – the ability to capture temporal and sequential structures, that has made video a central data collection tool in workplace studies notably studies concerned with the temporal relationships of speech to visually depicted actions and events including.

Video data is time-intensive to collect, review and analyse and as a consequence analysis can tend to focus on short segments of video data at a micro-analytical level. Workplace studies researchers and micro-ethnographic researchers it is this focus on temporal-sequential interaction and the thick description that makes video possible that in turn makes it their data collection method of choice. It is through this micro-analysis that they explore larger societal issues: Geertz quote. Some researchers using video, however, argue for the need to examine longer time scales in order to balance this 'inherited tradition of micro-scale use' that they argue can limit (even distort) understanding of interaction (Lemke 2009: 45). From this perspective video data collection can magnify small details and minor events, as well as focus research on brief time scales and fail to look at longer time scales. In response, some researchers propose processes of coding video to generate quantitative data to explore patterns across video data sets that capture longer time scales set qualitative findings into a broader data context (Angellio et al, 2009; Snell, 2011). Others have suggested the use of time-lapse video as a way to look across longer time-periods and there are some examples of longitudinal video based work which make use of the temporality of video across a decade of time and its ability to reflect back the 'past' or take a historical view (Jewitt et al., 2009).

Potentials and constraints

The ability of a video to fix something in its time and its place can, and often does, have an interesting effect in that it can re-awaken the memories and experiences of a researcher or participant.

Despite the power of video to capture events video data is, like all data, partial – it includes and excludes elements. Video is focused on the material world – it makes an audio-visual record of events and its partiality is both related to the restricted view of events that a camera lens provides (i.e. no peripheral vision, limited mobility, narrow angle view). Goldman (2009:30-32) has developed a number of criteria for the evaluation of video based research projects in the context of digital video ethnography several of which are especially pertinent to reflecting on, and where possible addressing, the partiality of video as a data collection tool: 1) '*Wholeness/particularity*' which refers to the need to ensure that the video record is sufficiently detailed and fully presented to capture the essence of a particular event and to bring the viewer 'inside' it. 2) The potential of the video recording to connect the viewer through a sense of '*Being there/Being with*' the researcher. 3) '*Chronological verisimilitude*' the use of video to represent the order events, not necessarily as a chronological account but in a way that enables the viewer to comprehend events in a manner that is 'in sync with the meaning of events' and 'truthlike'. 4) '*Perspectivity*' which refers to the use of the video to make clear the videographer's point of viewing. Others have turned to the technology to address this partiality: panoramic video is being explored as one means of capturing a fuller contextual view of interaction (Pea and Hoffert, 2009) as is the use of multi-perspective wearable cameras and the use of multiple video cameras in classroom laboratories. The partiality of video can be considered a constraint but also a potential – in that it can be used to select and filter aspects of events.

As already noted the ability of video to capture temporal sequential interaction is a valued quality of video. The time (gigabit) limits of video recording as opposed to participant observation for instance mean that video is often turned on and off within relatively short periods of time. This, combined with a tradition of micro-analysis, can serve to fracture representations and produce isolated moments when video is used for research. This can be a disadvantage when video data collection due to the limited history or context it provides. This can be dealt with by videoing over time as necessary and/or combining video data collection with other methods such as participant interviews, documentary analysis, or by adopting a participatory stance to the production of the video data. In the Production of School English Project (Kress et al., 2005), for example, the video data collected was the primary data within a larger dataset that included classroom

observations, teacher interviews, student focus groups, and documentary analysis that served to contextualize the video data.

A fine-grained multimodal record

Video can provide a fine-grained record of an event detailing gaze, expression, body posture, gesture, and so on. That is, video is a multimodal record in which talk is kept in context and all modes are recorded sequentially. This enables researchers using video data to rigorously and systematically examine resources and practices through which participants in interaction build their social activities and how their talk, facial expression, gaze, gesture, and body elaborate one another. This kind of record cannot be made available using any other technology. It is arguably the just as the audio recorder gave linguists new kinds of access to speech and voice which in turn supported and demanded the development of linguistic theories and methods, video recording has enabled the expansion of the repertoire of researchers.

Potentials and constraints

A common limitation in video data is that it can lead to the collection of large amounts of rich data. This can be overwhelming and, if not managed appropriately, can also lead to overly descriptive and weak analysis. Snell (2011) sees the 'sensory overload' of video data as a significant methodological issue in video-based research including data management, coding, and sampling. She argues against the response of many researchers to this problem to conduct in-depth qualitative analysis of short segments of video data and instead argues for the potential of systematic observation software packages, to sort, store, organise, code and systematically analysing a larger video data set. The benefits of pairing systematic quantitative analysis with micro-ethnographic qualitative analysis in order to probe the patterns identified in quantitative results and to anchor and enhance the generalisability of micro-ethnographic findings are, however, not a viable theoretical approach for everyone. Alternatively it can be dealt with through the use of iterative cycles of data collection and analysis to refine and focus data collection can help to overcome this limitation. This involves a short period of data collection, followed by preliminary analysis, followed by refined data collection, and so on.

A durable, malleable, shareable record

Video data is a durable, malleable, shareable record that can be repeatedly viewed and manipulated to be viewed in slow or fast motion, freeze-frame, with or without sound or image. The use of digital video software tools also enables researchers to move through the video via codes that are linked to the video to create new narratives across the video, to parcel it up in new ways. These qualities enable different levels of analytical gaze (micro to macro), multiple passes across data, and enable a researcher to notice details that may have been missed in fieldwork observation. In many cases this offers greater potential for new takes and repurposing of the data after data collection than other forms of data collection (which is not to suggest that video data is entirely flexible). This can enable a researcher to revisit the data over a period of time as they develop understanding of the data, and to bring new research questions to the data. It has also been suggested that slowing down and speeding up video can help researchers to gain analytical distance and reflexivity by denaturalizing it (Lemke (2009:46).

The shareable character of video enables multiple viewpoints, including those of participants, to be brought to it in the analytical stages of research. This can support collaborative commentary, critique and conversational exchange that is anchored in specific events and moments in the recording. This can be vital to understanding and expand the analysis of events. As discussed later in this working paper, multiple viewings is significant in the building of a research agenda and emergent analytical frames and the maintaining of what McDermott and Goldman (2007) call data discovery – the process through which video becomes data rather than an information

source. As noted in the introduction to this paper video is an easy-to-use digital technology that features in many people's everyday lives. The qualities of digital technologies thus connect with the potential for collaborative work between researchers and participants in general and participatory research more specifically. Goldman (2007, 15) suggests that using video technologies provides an opportunity to get at diverse view points by 'breaking the hegemonic practices of capturing video records and shooting others'.

There are a number of initiatives focused on the sharing of video data for research purposes, notably Stanford University's Digital Video Collaboratory Project and the associated DIVER (Digital Interactive Video Education and Reflection) system (Pea and Hoffert, 2009). This is designed to enable researchers to collaborate in producing, analyzing and commenting on a corpus of video records of learning and interaction. DIVER enables users to select excerpts, mark up and comment upon and categorize video records to create term 'a persistent act of reference with dynamic media' (p.454) which can be viewed and experienced by others and which can in turn serve as a focus of commentary and re-interpretation. Clearly the durable, malleable, and shareable character of video data raises challenges for the researcher related to storage and ethics (an issue to be addressed in a forthcoming MODE working paper).

Potentials and constraints

A key advantage of using video to collect data is that it can support an exploratory research design or data-discovery phase. This is because video can remain open for longer relative to other methods of data collection because data management and sampling frames are usually employed at the later preliminary analysis stage in ways that focus down the data. Video data is of course limited and shaped by decisions in the field such as the camera position, when and what is selected to be recorded and so on (discussed later in this working paper). It can also be 're-opened' for more analytical passes than some other forms of data collection, notably it can capture things that a researcher might not have noticed at the time of being present.

An advantage of the shareable character of video data is that it can extend the research access by providing participants with video cameras to represent aspects of their life worlds or practices that a researcher cannot be directly privy to notably for religious, cultural or social reasons. In addition, participants can be provided with video data for reflection and discussion to support data collection. It can however be difficult or may be considered inappropriate, to research private, non-legitimated, and social practices (though the history and scope of video based research in health and institutions would suggest not impossible).

In contrast a limitation of the durability and ease of sharing digital video (particularly in a context of access to social media and YouTube) can heighten concerns in relation to ethics and anonymity. These concerns can be dealt with through the development of sensitive consent protocols for the different aspects of the use of the video data (e.g. for research, or for publication). This may mean negotiating research access in video studies takes a little more time but is a useful and productive task.

Video data recordings can be used effectively to support empirical comparison of strategies, style, and interaction across a data set, as well as historical comparison between data sets. It thus enables researchers to re-visit a moment 'not as past but formerly present' (Raffel, 1979) that can support data collection across a range of sites.

The three qualities of video discussed above suggest that video is particularly productive for data collection when exploring the social organisation and unfolding of interaction over time, particularly where there is an interest in the use of gesture, bodily movement, interaction with objects and other forms of multimodal communication more generally, and where interdisciplinary and participatory perspectives are required. The considerations, potentials and constraints of video data are summarised in table 1 below. The limitations of video highlighted here can be overcome to great effect, as the scope of video based research to date testifies.

An understanding of how video is being positioned in the research process, that is the status it is given, is key to its effective and appropriate use and this is the focus of the next section in this working paper.

Table 1: Summary of the considerations, potentials and constraints of video data

Considerations for video	Advantages	Disadvantages
<ul style="list-style-type: none"> • Need to link video based data to social theories and themes • Understand the effect of video recording on data collection • Make sure the data is understood in context • Decide on the scale you will look at and how much data you need to address your question • Decide on analysis strategies for managing video data to avoid being data overload • What status will you give your data in your data set – primary, secondary? 	<ul style="list-style-type: none"> • Video can support an exploratory research design and extended data-discovery • It can be ‘re-opened’ for later analysis and capture things not noticed at the time of being present • Participants can use the camera to extend the researcher access to their life worlds • Video is sharable - participants can be invited to reflect and discuss it • It can be used effectively to support empirical comparison of strategies, style, and interaction across a data set • Video enables researchers to re-visit a moment ‘not as past but formerly present’ • It can re-awaken the memories and experiences of a researcher or participant. 	<ul style="list-style-type: none"> • Video data is limited and shaped by decisions in the field • Video data is partial: it includes and excludes elements • Video is primarily focused on the material external expression • It can be edited to represent the order events in new ways • It usually provides one perspective on an event • It generally records interaction over short periods of time • Video takes time to watch and review and can be difficult to meaningfully summarized

Validity of video data

There is considerable debate about the validity of video centred around two different aspects of video. First, the extent of the effect of process of video recording on a naturally occurring event: that is the camera-in-situ- effect on what it is that happens in a social setting. This raises general questions about the role of the researcher in data collection, and specific questions about camera effect. Second, how video remediates what it is that we see of that event, the reality status, partiality and validity of the video record that is generated of an event. This remediation is discussed both in social and technical effects. With respect to the social effects, the issue here is how a researcher uses the camera to frame an event, their participation and influence in the recording. The technical effect relates to how the technology of the video recorder ‘participates’ in the production of the record – for instance the limitations of a camera lens may result in the need for more close up views of interaction, or provide a truncated view of an event.

Debates on the validity of video can be characterised as occupying three positions - each underpinned by a different understanding of what makes research valid, robust and reliable. These positions are that video: produces a replica of events; distorts reality; or, is a reflexive research tool.

Video as unobtrusive: capturing reality?

Research that treats video as unobtrusive in relation to recording a social event or phenomena tends to marginalise or deny the influence of the video on the research participants and therefore the data collected. From this perspective video recordings are seen as replica of what happened. The video recording may be used as empirical interactional evidence to support this assertion, perhaps pointing out that participants were not looking or pointing at the camera, and no one seemed to be uneasy. However, Lomax and Casey have suggested that the assumption that participants not looking at or acknowledging a camera means they are not affected by it is flawed. They argue that participants ignoring a camera could be interpreted as 'an *active state of not paying attention* rather than not noticing'. This is methodologically problematic they suggest, not because of the question of the impact of the video camera but rather that it is not acknowledged or explored empirically and reflexively.

Video as distorting?

Some researchers see video recording as distorting social interaction. Sometimes to such a degree that video is considered of little empirical value as what is recorded is so far from 'reality' as to negate its' usefulness. Those who continue to use video and are concerned with its potential distorting effects have used a number of different technical and non-technical strategies to ensure the validity of their data. Some attempt to minimise the presence of the camera and the researcher through the use of small wall or ceiling mounted cameras operated by a pre-set program or remote control or the use of one-way mirrors. Some researchers use covert remote controlled cameras to avoid both the presence of the researcher and the camera, although this clearly raises difficult ethical issues. The use of wearable miniature cameras attached to participants glasses, or helmets is another approach that attempts to both naturalise the video equipment and the process of recording, and to remove the bias of researcher's control of the 'gaze' of the video by literally embedding the technology in the participant's field of vision thus attempting to get a more authentically situated subject perspective (Lahlou, 2011). Post video recording, researchers can use a range of strategies to assess the potential effect of video on the event, including the use of participant interviews and surveys, and combining of video with observation to measure and compare effects as validation procedures. Interview and survey strategies are, however, flawed in several respects, perhaps most importantly they assume that participants have privileged insight into the social interactions of which they have been a part which Lomax and Casey argue is questionable and which ignores the point of video-based research: 'Video- taping is usually undertaken with the express purpose of identifying actual behaviour as opposed to reported behaviour in situations where participants are not always aware of their actual activities and the activities of others.'

Social scientists who acknowledge that the presence of a video camera *can* influence the behaviour of those being recorded in some moments also argue it is problematic to suggest that such 'reactivity' will distort and undermine the quality of *all* video data.

Assessing the influence of any method of data collection and its impact on the quality of the research data collected is an important issue for any research method. Social researchers who regularly use video have recently shown how this issue can be addressed empirically by examining the actual influence of video recording on their research subjects (e.g. participant orientations to the camera). This involves identifying the influence of video recording on research subjects and analyzing its impact on the use of the data rather than removing it from the dataset

as 'bad data' (Knoblauch, 2006; Heath, Hindmarsh, and Luff, 2010). Heath et al (2011) suggest that researchers analyze the moments where the camera has an effect to understand how and when it arises and its impact on the use of parts of the data. This approach suggests that the extent of any video effect on data varies depending on the use of the camera - whether it is fixed or mobile/roaming (Heath, Hindmarsh and Luff, 2010), the length of the study – with effect lessening over time (Kress et al, 2005; Knoblauch, Schmetzler and Raab, 2006), and the research context - that is whether it is one where people are regularly observed (Jewitt, 2008). On the basis of extensive use of video in their research, Heath and colleagues conclude that the issue of 'reactivity' is often exaggerated: "Throughout our studies of a diverse range of settings and activities we found that within a short time, the camera is 'made at home'. It rarely receives notice or attention and there is little empirical evidence that it has transformed the ways in which participants accomplish actions' (Heath, Hindmarsh, and Luff, 2010:49).

Video as a reflexive tool in the research process?

The idea that video data either captures 'what is really going on' or 'adulterates and distorts events beyond usefulness' are clearly diametrically opposed. Both of these perspectives are, however, founded on a desire to capture and preserve reality and are connected by an underlying focus on reality and objectivity. This pre-occupation with whether or not video data has accurately captured reality or distorted it is rejected by some social scientists who use video as naïve: notably ethnographers and visual anthropologists. They shift attention away from this debate to the question of how video can be employed to understand the perspectives, values, practices and experiences that underpin social interactions. From this perspective there is value in taking account of the role of researcher and the social (and technical) significance of video technology itself: in particular, the ability of video to 'preserve the interaction for re-presentation and participants' awareness of that ability'. From this perspective, whether (and how) the camera is 'made at home' or brought into the interaction are not understood in terms of 'good data' or 'bad data' but rather they become points of investigation. Lomax and Casey's (1998) seminal video-study of Midwifery home-visits, takes a reflexive approach to the video data collection process – for example the moments of being asked/told to turn the camera on and off during a visit, and participant visual attention to the camera as multimodal resources that they used to indicate the boundaries of informal/formal and shared/private boundaries within the consultation.

Here the technical shaping of the video becomes a point of reflection as well, that is how does the use of one or more cameras impact on the data, the use of a roaming or fixed camera, the camera lens used, as well as lighting, and angle of shot. These issues are discussed later in this working paper.

When do video recordings become data?

These three perspectives on video data pose a further question - What is video and at what point in the research process does it become data?

If video records are seen as an unproblematic replica of events it is likely to be treated as data from the moment it is recorded. It may be understood as an information source that needs to be counted and coded and to be transformed into data. For instance, a video based research project on what and how children play during natural play in schools involved researchers watching video and coding/scoring the number of children that showed a certain category of play using codes developed from the literature on play theory (e.g. construction play, make-believe play) (Berkhout, Dolk, and Goorhuis-Brouwer, 2008). In studies such as this, reality remains relatively uncontested, the need to ensure the objectivity of the video record is paramount (e.g. using fixed cameras and clear video recording protocols), researcher and participant roles are clearly delineated with a focus on minimal researcher presence and interaction. The acknowledgement of the researcher and their use of video technology in the construction of the data are thus

restricted to questions of objectivity and quality control, and the identification and removal of moments where the process of being video recorded appears to 'rupture' the participants' practice as 'bad' data. Within a paradigm of video as distorting such video would usually only become data once it has been validated through interview data.

Others caution that video recordings are a re-presentation of events and only become data when operated on within an emergent and analytic program and the 'opinions and biases of initial viewings give way to more empirically demonstrable accounts' (Goldman and McDermott, 2009:102). From this perspective video is an emergent kind of data that needs to be 'layered and saturated with interpretation' (Goldman, 2009:17). Pink (2006) argues that a reflexive account of video data is required in which 'things become visible because of how we see them rather than simply because they are observable' (Pink, 2006). Similarly Goldman and McDermott (2009:101) note that 'The power of video is not in what they make easily clear, but in what they challenge and disrupt in the initial assumptions of an analysis. They are a starting point for understanding the reflexive, patterned ways interactions develop'.

At the centre of the debate of when video counts as data is the question of what meaning is and how it is captured in research processes. Schindler (2009) explores an important distinction within this debate between what is visible and what can be seen in research video data: what she calls the production of 'vis-ability' drawing on the work of Goodwin on Professional Vision (1994). She points to the need to remember that video reduces social processes to an audio visual, two dimensional reproduction, it does not record a social situation rather it records the 'visual impression of a situation' (Schindler, 2009:136) by capturing what is visible as a perceptual act not what is seen and understood by the participants in a situation. Using video recordings of a Martial Arts Class she reports that colleagues who had no knowledge of martial arts could not see the martial arts moves been demonstrated: 'they only saw two people rolling around on the floor... they could not see any connection between verbal and visual impression' (p141). Video recordings fix visible and audible phenomenon but a viewer may lack the background knowledge needed to understand it. This positions video data in larger debates about what it means to look: from the perspective that video is a kind of digital trace of complex histories and practices, rather than an observable record. Traces of the video and of the researcher. That is video becomes processed into data through the work of looking. The process of video becoming data is therefore engaged with cultural beliefs and knowledge. Erickson draws on examples that show the difficulty (and dangers) of making sense of video recordings outside of a researcher's cultural and social knowledge and experience. For example, a Native American teacher whose demeanour and voice was shaped by cultural norms and the constraints of a health condition that led them to breath in a particular way was misinterpreted as depressed. He argues persuasively that 'Video recordings are better regarded as sources for data than as data in themselves....From such records, data can be defined, analytically' (Erickson, 2009: 158). Erickson cautions against the researcher constructing his or her own narrative understanding of video recordings on the sole basis of their prior experience, and suggests while the usual problems of sense making and visual perception underlie these problems novice researchers need to learn new ways of seeing.

Having introduced the reader to the scope and possible uses of video in social research, its key qualities, and addressed different perspectives on video data, the remainder of this paper addresses key methodological issues which are embedded in these larger discussions of the status of video data.

Setting up a video study

The remainder of the chapter speaks to studies in which new video data is to be collected, and primarily the use of video based fieldwork. Whatever stance is taken concerning the reality or status of video data, video data will be shaped to different degrees by the researcher's negotiation of access, decisions concerning the choice and positioning of cameras, scale and when to stop collecting video, the place that video is given in a data set, and how to manage and sample video data, including preliminary transcription and coding.

These decisions, such as whether or not to use a fixed or mobile camera, are connected to how theoretical perspectives on reality and observation are articulated, and whether the recorded video data is viewed as illustrative and reveals observations primarily generated through fieldwork or whether they are viewed as a 'principal form of data on which insights and findings are based' (Heath, Hindmarsh and Luff, 2010:38). It is these choices at the data collection stage that this paper now turns to.

Negotiating access

It is important to ensure that video is the best data collection 'tool' for a project: there are some research contexts and sites where it may not be possible, feasible or ethical to use video, or the type of data video can collect may not align with the research questions to be addressed. Once the informed decision has been made to use video the researcher needs to convince those they wish to research that the use of video is appropriate and that it will not cause any harm to the participants and organisations involved. Negotiating access to conduct research with a group of people, in an organisation or a site is an important part of any research. It is a moment where the needs of the participants, their concerns and rights as well as those of the researcher can be explored to support productive research relationships and experiences. The concerns raised by research participants concerning the use of video can make the process of negotiation more complex. As already noted, video produces a durable, sharable, and detailed yet partial record of an event. These are often exasperated as video is recorded by a researcher and gives a third person view of an event although multiple perspectives, first-person participant perspectives, and collective participatory perspectives are embedded in some video research processes. It is common for these qualities to engender concerns about the use of video among research participants and the gatekeepers to organisations (e.g. hospitals, schools and other work environments). Concerns vary depending on the context and focus of the research, however, typically concerns may include, what control they will have over what will be recorded? How video recordings will be stored? Who will see them? Will they be shared or distributed beyond the research team? How will participants' experience of being video recorded affect them? How will the organisation and people's anonymity and privacy be maintained? Will what is recorded affect the organisations reputation (i.e. such as the recording of inappropriate or unanticipated negative events or bad practice)? Might the video be used against the organisation (e.g. as evidence that a protocol or procedure was not followed)? These concerns and others like them need to be listened to, addressed and managed by the researcher in advance of video recording. Concerns need to be discussed and possible solutions agreed to ameliorate them in a balanced way that does not jeopardise the participants' well-being or different stages of the proposed research from data collection to presentation and publication (i.e. that enables the necessary data to be collected and reported adequately). Researchers may also want to address possible use of the data in the future (e.g. comparative studies over time). These discussions can be used to form the basis of a written agreement on the use of the video.

An example of a written agreement with a secondary school regarding the use of video for research purposes is provided below:

- Only lessons will be video recorded – no recording will take place in corridors or communal areas;
- We will avoid recording students whose parents have not consented to them being video recorded or those who themselves state they do not want to be videoed;
- If a fight breaks out in a lesson the camera will be stopped during the episode;
- The video can be viewed by the project team and visiting researchers working with the team, short clips can be used for teaching purposes and in conference presentations, however;
- The school can veto the showing of a specific video clip beyond the immediate research team – although the research team can describe and analyse the event if it is appropriate to the research questions;
- Teachers will be supplied with copies of the video data of their teaching for their own use, continuing professional development and reflection;
- Still images of any part of the video can be used for teaching purposes, seminars and conferences and in publications (hard copy and online) with the proviso that the school identity and pupil identities are masked (e.g. covering logos, using photo-effects or line drawings to mask identities);
- Additional approval of the school is required to use a clip of video online and in web-based publications;
- The data will be stored in a password-protected computer, and video data will be backed up on a password protected hard-drive which will be kept in a locked cupboard. The video data will not be destroyed;
- Participating teachers will have the opportunity to read and comment on draft papers, where there is strong disagreement with the research team's representation of events there will be a meeting to discuss this, if the matter cannot be resolved the teacher's comments will be recorded in the paper alongside those of the researcher.

Agreements, such as the one above, can be negotiated and designed with participants to respond directly to their concerns about privacy, anonymity and reputation by enabling them different levels and points of control (e.g. via opt in/out options, or clarifying who has access to video data) of the video used for research. Ethical issues raised by the use of video and visual research related to negotiating access including consent are fully discussed in a MODE working paper on Video and Ethics.

Choice of video cameras

There is a range of video cameras that can be used to collect data and selecting which one to use is a part of the design of video research. For example, small hand-held flip cameras are often chosen for studies that require mobility and detail, such as studies of close up interaction between pairs and small groups. They are also the video camera of choice for participatory video projects with children as they are easy to use and small enough for young children to hold and carry. Mobile phone video cameras are often used in the context of studies that want to make use of people's existing technologies: notably participatory and workplace studies. Larger cameras fixed on tripods tend to be used to video record more stable interaction between people within a designated field of vision over longer periods of time. Fixed un-obtrusive (often near hidden) wall and ceiling mounted cameras in laboratory contexts feature in many experimental psychology

studies and may also include two-way mirror facilities that enable 'covert' or at 'non-visible' multiple observation of interactions designed to overcome issues of 'interference'. The video is frequently set-up to maintain set distances between participants and objects, to realise a strict testing format using protocols that emphasise regulation and uniformity in data collection and analysis. Each of these cameras is embedded in particular practices and histories (including leisure uses of video) and these histories impact on how participants notice or draw the camera into the research experience.

In addition to generating their own research data, increasingly researchers can make use of digital video cameras that are embedded in professional practice. The UK Police force uses a range of video cameras, including CCTV, video recordings of events, and since 2007, some units have been using wearable video cameras. Subcam (Lahlou, 2011) is a lightweight, small wearable wide-angle camera worn on a helmet at eye-level and directed at the carrier's field of vision. It allows video recordings to capture practice as experienced from the subjective perspective of a range of practitioners in the workplace including the police, office workers, and construction teams: hence the name 'Sub(jective)cam'. In the surgical operating theatre the use of video cameras goes well beyond surveillance, with digital video cameras and video display screen mediating much of the work that surgeons undertake in the surgical operating theatre (Mondada, 2003). This includes the use of laparoscope: key hole surgery, in-built light handle cameras and wall mounted cameras all of which both mediate the surgical work and video record it at the press of a button.

The decision of what kind of camera to use, and whether to use researcher 'controlled' video cameras, to hand over the camera to a participant, or to make use of professionally embedded video cameras comes back to the question of what is the video data going to be used for: what is the research aim, and what are the research questions to be addressed? This will determine what is the most appropriate video camera to use.

Once the camera has been selected another set of questions are raised: Who will control and operate the camera? Where to position a camera? How many cameras to use? Whether to use a fixed or roaming mobile camera? These decisions are theoretically informed, shaped by notions of validity, objectivity and subjectivity and influence the representation of the events and interactions being video recorded.

Who will use the video camera?

The decision regarding who will use the camera or control its use relates back to the way that video is being used, discussed at the beginning of this paper. If the research participants will be using the camera (e.g. participatory video or videography) they may need training on its use and the researcher will need to decide to what extent they want to provide guidance on its use within the research project. In video based interviews and field work participants may be involved to different degrees in the video data collection, they may be asked to turn cameras on or off, replenish video tapes, or upload video data over a period of time, for example. Perhaps clear instructions on when to turn the camera on and off will be required, or perhaps the researcher wants to use the data as a reflexive tool to investigate when participants turn it on or off. In some cases the researcher will maintain full control over the camera in the field. The decision of whether and how to distribute or hand over control of the video camera to research participants (or co-researchers) is a significant one and relates in large part to the extent to what kind of view of interactions is required to address the research questions and the potential of a researcher to access that view. In the case of working with existing video data via archives or YouTube for example, the question of who is operating the camera becomes a dimension or question for the research.

Where to position a video camera?

The question of where to position a camera (or in the case of video archive data – where the camera was placed) is an important one for all video based studies. It gives a sense of the relationship to the event being established and is central to the type of data to be recorded. In the case of video based fieldwork Lomax and Casey (1998) argue that an early theoretical decision is where to place the video camera and how to frame a shot, followed by when to start and stop the camera. While there is no standard ‘right position’ for camera, there is general consensus across social researchers for the need to locate it where the pertinent action is, to frame it, and to disrupt it as little as is possible. Knowing what interactions need to be video recorded, their scale and the space of activity that needs to be covered by the video camera(s) and therefore where best to place the video camera requires knowledge of the context. It is useful to have an understanding of the setting before video recording so that there is a clear sense of what needs to be captured (although this is not possible for all settings or events). Observation of the context and practices prior to video recording along with participant interviews can help to develop the necessary knowledge to decide where best to set up camera, as can doing a video dry run to experiment with different camera positions. The partiality of video as a research tool means that camera position is always a complex decision with gains and losses attached to any decision. It is this observational preparatory work that will indicate whether a fixed camera is adequate and/or a roaming mobile camera is required.

Whether to use a fixed or roaming mobile camera?

There is considerable debate on the use of fixed or roaming mobile cameras among those who use video for social research connected to issues discussed earlier in this paper.

On the one hand there are arguments for the value of use of fixed, distant and ‘un-manned’ (or hidden) cameras to address concerns related to the validity, distortion and affect of video. Erickson (2009) argues for the need to aim for as ‘raw a footage as possible’: to position a wide angle camera where it can capture as much as is possible without movement, panning and zooming to capture events unfolding over stretches of time, and keep a long-shot provides both action and response. Erickson argues that simplifying the picture by use of close ups and shortening the clip are inappropriate means of handling the problems of information overload. A fixed camera gives a consistent view and the researcher tends to be less obtrusive.

On the other hand there is support for the use of mobile roaming cameras where researchers need to take account of the detail of interaction that video can afford and to compensate for the partiality of video data discussed earlier. The traces of a mobile camera– camera movement, panning, zooming - becomes embedded in video data that can unwittingly add movement and tension to an event or create fragmentation. (Although high definition video cameras are currently being developed that enable many of these selections to be made at a post-recording stage.) This movement, if left unmanaged, can create challenges for those wanting to analyse the structure of interaction: for example, when a mobile video camera is used the camera may be tuned into action and miss the beginning or end of an interaction (MacBeth (1999) cited in Heath et al 40). However, a situation where participants are highly mobile (e.g. in a nursery school playground or classroom) may suggest that a mobile video camera is appropriate.

Preliminary fieldwork is needed to help a researcher decide what use of the camera is most apt depending on research questions, the social and physical/spatial constraints of the setting, and the type of research data needed. One option is to use a static fixed camera and a mobile hand held camera and aim for multiple perspectives within the data. Each requires different kinds of planning and preparatory work. The use of a fixed camera requires the researcher to select a viewpoint to frame the action. The use of a mobile camera means they need to decide how and what they will follow, they need to design the movement of the camera. In both instances researchers need to think how they might use other data sources alongside the video (e.g. to use field notes) to compensate for the limitations of video as a data collection tool.

How many cameras to use?

Some researchers, notably those concerned with maintaining the integrity of sequences of interaction such as Heath et al (2010), suggest that the use of multiple cameras is not advisable as they multiply the data collected, can overcomplicate the interaction by adding multiple perspectives, can fracture sequences of interaction (in a similar way to a mobile camera), and present challenges for analysis. From this perspective a single camera is usually the preferred option as it preserves a more holistic account of interaction.

The partiality of video, together with a desire for the 'objectivity' of fixed cameras, or the benefits of combining a fixed with a mobile camera, has led some researchers to use multiple cameras. Goldman (2007:4) suggests the use of multiple cameras as a way to deal with the bias of video and to collect up multiple perspectives (although the need to reflect on how an event is being framed persists no matter how many cameras are used). Indeed he asserts the need for those using video technologies 'to embrace diverse points of viewing to prevent the hazards of bias, misrepresentation and missed-representation'. The advantages of multiple perspectives is also embedded in much participatory research. From these perspectives multiple cameras are usually the preferred option.

More than one camera would usually be used where one camera view is not adequate to address the research aim and questions from the theoretical perspective being used. For example, research that wants to understand how people learn with computers may require video screen-capture data and video data of their interaction with and around the screen. Hall (2007:11) suggests the use of two cameras in contexts in which 'multi-party talk and work with physical artifacts is all contained in a small space'. He suggests the use of a 'wide' camera fixed on a tripod high in the corner of the room to capture the whole scene with microphones placed near the center of the space where the interaction is taking place. The camera is set up and run continuously to 'capture an outside-in view of the whole scene and audio environment'. This camera is complemented by a battery-powered 'follow' camera on a tripod or hand-held which 'moves through the action, panning and zooming so as to capture activity'. In line with the earlier discussion of Erickson's warnings noted earlier on the collection of raw video data, Hall notes:

'there is considerable controversy over whether camera operators should use panning and zooming. If researchers want to understand integrated social activity, they should not focus only on a part of that activity. For example, if people are working to construct or to make sense of something on a computer screen, it is not useful to capture only the screen. Likewise, since much of the participants' talk will be indexed to the computer screen and its objects without full description, neither will it do to capture only the people, and later to be unable to distinguish any particular object on the screen. The job of a person operating a follow camera is to stay with the proxemic shape of the interacting group (i.e., bodies in relation to each other and things), ideally keeping everybody in that group within the visual frame as they move around.' (Hall, 2007: 13)

Hall (2007:15) also suggests more than one camera be used in contexts, such as classrooms in which there are many 'local scenes of multi-party talk running in parallel, with periodic public talk at a 'center,'. In many classrooms, researchers want both a good recording of the teacher's actions and talk, and a sense of what is going on in one or more local groups. Here two or more cameras can run simultaneously, or can be used to scan across groups to capture activity at fixed intervals of time. He notes:

'This recording strategy will allow weaving together local and whole class contexts in a way that might allow an analyst to follow the movement and development of an idea in multiple directions. For example, the analyst could track ideas or utterances contributed by the teacher in public talk into local groups (sometimes with spectacular transformation), and could also follow ideas or utterances by students or teacher in local contexts back out into public talk (again with transformations)'.

When multiple cameras are used it is important to consider in advance how the data from different camera positions will be worked with at the sampling and analytical stage. Without this planning one video is likely to become dominant and the other neglected in the analytical process. Most digital video software applications are now able to support two or more video recordings to be viewed simultaneously or combined digitally into one time sequenced video. If multiple cameras are used the decisions regarding camera position, fixed or mobile need to be made remain and need to be planned to ensure coherence.

When to turn the camera on and off?

When to video, and when to turn the camera on or off may seem like a silly point to mention but it is central to data collection with video. For many an understanding of the setting is necessary for the setting up of the cameras and efficient video recording. For some researchers reflection on and conceptualization of the research questions alongside observation informs the strategy for video data collection (i.e. deciding on camera position, the use of time intervals or continuous sequences of video recording) and provides an anchor to focus the camera and analytical gaze in what can be an overwhelmingly rich data collection process. Erickson (2009) suggests observation be used to identify the full range of variation in types of events and to establish the typicality of these in terms of frequency so that the video recording is done with the goals of systematic sampling. Others prefer to use general research questions to frame the collection of the video, and to formulate more specific hypothesis through viewing the video. These generate new research questions which are then explored and further refined through multiple iterations to produce more complete explanatory hypothesis. The relationship between observation and video in a research design will determine when it will be used, and its place in the data set.

The question of when to turn the camera on and off became an important one in Lomax and Casey's study of midwifery consultations. Taking a reflexive stance to the process of video recording the consultations they noted that research participants would indicate when the camera should be turned on or off and that this revealed something of the professional and client understanding of what constituted a medical consultation as well as what was private or intimate. Similarly, Kress et al (2005) note that teachers' comments on when to turn on or off the classroom indicated their boundaries concerning lessons.

The ways in which a video camera is used, the choice of camera, its position, whether it is fixed or mobile, and how many cameras are in use shape the data collected. All data collection tools and processes shape the data collected – the questions asked in a survey or interview, however, video is a technology that makes these decisions easily visible in the data recorded. One consequence of this is that video can itself be a useful part of methodological reflection to consider researcher positioning and assumptions by analysing when the camera is turned on/off, the direction and alignment of the camera 'gaze' with participants and so on.

EXERCISE: CAMERA POSITION TRADE 'OFF'

The use of video to collect data often involves 'trade-offs', often between detail - demanding a tight-frame/video close-up and the bigger picture of the context - demanding a wide-frame/video long-shot. It may also mean making decisions about how to capture both detail and the bigger picture: by changing camera position during video recording, using a roaming mobile camera or using more than one camera.

How would the way you video record interaction in the classroom affect how you could answer the following research question:

- a fixed video to record the whole class
- a fixed video focused on small pairs changing every 15 minutes
- a mobile camera focused on and moving around with the teacher

How much video to collect?

As noted earlier in this paper video recording can lead to overwhelming amounts of rich video data. It is for this reason that the collection of video data needs to be planned and managed with analysis in mind, and to avoid the collection of video data that is not necessary and that the researcher will not have time to analyse. There is no universal 'right amount' of video data to collect rather the amount of video data required needs to be determined by the research approach, aim and questions of a study and pragmatic questions of time and resource. The amount of data to be collected will also depend on the approach to the analysis and the time and labour intensity of that approach.

Logging video data

Alongside good planning at the data collection phase, effective ways to sample and reduce the data are required to get a productive overview. The challenge is to balance complexities and reductionism: the need for an overview with the potential danger of isolating details and failing to understand the representative character of events.

Video logs, event logs, narrative summaries, vignettes, visual diagrams and maps (e.g. of participant turn taking - Barron, 2009) can be used to help see patterns of interaction and to condense and maintain the complexity and meaning of video data. This is particularly important as video can be time consuming to watch and review and logs provide an easy way into the data and support the sharing of data across teams. These can be used to provide an overview of a video recording, describe key moments, and locate episodes in a video and can be imported into digital applications and time stamped to retrieve episodes. Flewitt (2006) explores the use of video to collect dynamic visual data in education research and proposes that using visual technologies to collect data can give new insights into classroom interaction and established methodological practices. Drawing on data from ethnographic video case studies of young children communicating at home and in a preschool playgroup, she discusses methodological and ethical dilemmas encountered in the collection, logging and transcription, or representation, of dynamic visual data.

Most Computer Assisted Qualitative Data Analysis packages can be used with video files although they vary in the types of features they offer. There are a range of digital applications such as Interact, Transana, DRS, Hyper-media, ATLAS.ti, NVivo, Observer, Qualrus that can be used to log and code video data, primarily using time-stamped technologies to link codes and enable the indexing of video records, transcripts and video. The Computer Assisted Qualitative Data Analysis network (CAQDAS at <http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/index.htm>) provides a range of resources, working papers and training on the use of these applications. Notably the working paper *Using & Preparing Multimedia Data in CAQDAS* (downloadable at <http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/resources/workingpapers/index.htm>) provides a comparative discussion of applications for video analysis with a focus on technical aspects of video preparation, storage and management. They conclude that ATLAS.ti, DRS, NVivo and Transana, provide the most flexibility for working with video (although Observer and Interact are not discussed in the paper). Mavrikis and Geraniou (2011) provide a useful discussion of the potentials and challenges of Transana for analysing video data. Snell (2011) provides a review and critique of the application Observer for video analysis.

Sampling video

Choice is an essential part of video analysis and it is important to make clear what choices are made, using what criteria, and for what purpose/rationale. Sampling of video clips, episodes or fragments (some researchers prefer the latter term as it serves as a reminder that the clip is taken from a larger whole) enables a move from the stage of reviewing whole events to increasingly shorter segments. These episodes or fragments are a unit of analysis that means they need to have a clear start and end point. They can be defined in many different ways: theoretical criteria such as turn taking or other interactive structures; deviant cases or breakdowns in routines (e.g. mis-understandings); the practical concerns of the participants and so on. Goldman et. al. (2007) explain the importance of sampling and its connection to the purpose and theoretical basis of the video analysis. They point to the work of Hugh Mehan (1979) who investigated question-answer sequences in whole group lessons in inner-city elementary school classrooms:

‘Mehan videotaped lessons in a range of subject areas during an entire school year, transcribed every lesson, and then identified every question-answer pair and every topically-tied sequence of such pairs. He then showed that the vast majority of the instances were of the three-part sequential “I-R-E” form: initiation by the teacher (by asking a question the teacher knows the answer to), response by the student (saying something related to the question), and evaluation by the teacher (concerning the correctness or appropriateness of the student response). What Mehan did that was methodologically rare at the time was to perform an exhaustive, contrastive analysis on an entire corpus of instances. Every instance of a question-answer sequence in his data set was accounted for analytically. The “data” were obtained by coding, according to its I-function, R-function, and E-function, every transcribed turn of speech in every transcript Mehan had.’ (Goldman et. al., 2007:22)

Goldman and colleagues distinguish three ways of thinking about video selection, 1) inductive, 2) deductive, and 3) narrative-evolving.

Inductive approaches are considered most apt for sampling when working with ‘raw’ video data sets that have been collected with broad questions in mind but without a strong orienting theory. The process is usually to view all of the video data repeatedly and in increasing depth where the research team agree on major events, themes and identify key moments of importance and to describe the structure of the event.

A deductive approach to video data is appropriate for sampling when the researcher has a strong theory and clear research questions. This approach involves identifying or creating a suitable video dataset and systematically sampling from it to examine specific research questions. Goldman et al cite the example of Alibali and Nathan (2007):

'They examined how a teacher used gestures in explaining mathematics to middle-school students under the hypothesis that gesture is more prominent and important in introducing new topics. They selected video clips in which the teacher either reviewed old topics or presented new ones. Next, they discovered facts about the clips related to the research questions. For example, how many gestures and what types of gestures did the teachers use? Finally, they developed a coding system to categorize the facts and calculate the frequencies of the occurrences, statistically comparing, in this example, "new topic" and "old topic" samples. This coding approach was then used to investigate future samples.' (Goldman et al, 2007:26)

Narrative-evolving approaches to sampling video within a documentary tradition, is quite different than the two previous methods as 'selection proceeds during recording as well as during post-recording phases. Such selection is not only intimately intertwined with the researcher's meaning-making processes but also may involve participants as collaborative partners in selection. The study is adapted reflectively as participants are observed and consulted.' (Goldman et al, 2007: 26). Here then sampling is seen as an evolving practice.

Transcribing video data

The use of video recording in social research raises methodological questions about transcription. How do researchers transcribe gesture, for instance, or gaze, and how can they show to readers of their transcripts how such modes operate in social interaction alongside speech? Should researchers bother transcribing these modes of communication at all? How do they define a 'good' transcript? These questions are addressed by Bezemer and Mavers (2011) who explore multimodal approaches to transcription and offer a framework to account for transcripts as artefacts, treating them as empirical material through which transcription as a social, meaning making practice can be reconstructed. They look at multimodal transcripts produced in conversation analysis, discourse analysis, social semiotics and micro- ethnography, drawing attention to the meaning-making principles applied by the transcribers. They argue that there are significant representational differences between multimodal transcripts, reflecting differences in the professional practices and the rhetorical and analytical purposes of their makers. This issue together with processes of transcription is related to the theoretical stance applied to the data to be picked up in future MODE working papers.

Coding video

One way to look across a set of video data is to code it. Coding is an inherently theoretical process and is connected with practices of observation that are embedded in concepts of scientific methodology. The extent and ways in which researchers code their video data varies considerably. Some researchers undertake systematic coding using pre-established coding schemes drawn from theoretical approaches and disciplines, others build codes from their data and or the literature on a specific area, while some researchers remain at the case level and descriptive analysis without the use of coding. It is common within studies of play for coding to be undertaken on short episodes of video recordings for example a sample taken every five minutes and for this to be coded with existing categories based on codes of play (e.g. Berkhout et. Al 2008). Barron and Engle (2007:34) liken the process of developing a coding scheme to the processes of generating research questions and argue that it 'benefits from iterative cycles of work, distributed expertise, and moving across different levels of analysis'.

In an ethnographic study of cultural differences in mothers and toddlers contributions to collaborative tasks and forms of guided participation by Angelillo et al. (2009) describe an approach to coding and investigating patterns in their data that combines qualitative and quantitative methods. Through close ethnographic analysis of a few cases they devised a coding scheme based on what could be seen in their data that could be applied across their cases. The scheme built on their understanding of the kinds of interactions that might differ across the four cultural groups building on their previous work and was extended through the observation of the video data. Once these phenomena were identified, the team worked to refine the categories so that the phenomena could be reliably coded. They used these codes alongside visual methods to condense the video data and explore patterns across participants. They used diagrams as a kind of ethnographic shorthand to abstract patterns of their video dataset to represent roles and labour in the families. Using this diagrammatic method of coding and representing the video they reduced 25 minutes of video data to one page of A4 paper. This enabled them to make comparisons across their data and to produce codes that they could apply to their video data as well as the visual representations.

As already noted, the value of coding and the extent to which it is systematized and validated in relation to inter-coder reliability. Erickson (e.g. 1986) has written extensively about possible roles of coding and subsequent quantification in qualitative research and the potential synergies between these approaches. This issue together is related to the theoretical stance applied to the data to be picked up in future MODE working papers.

Conclusion

This working paper has mapped the scope and use of video for data collection and shown that video is a significant resource for many contemporary social researchers across a range of fields. The different uses of video have been mapped including its use in participatory research, videography, video interviews, the analysis of existing videos, and video based fieldwork. The key qualities and features of video as a research tool and video data have been outlined and these have been mapped to the different potentials and constraints of video for social research. Video raises many considerations for social researchers, including what is the status of video data, when does video become data, to what extent do video recordings reflect, distort or remediate social events? These questions have been examined and discussed throughout the paper. Finally this paper has provided an introduction to the theoretical and practical questions and decisions involved in setting up a video based study including the choice of camera, camera position and use, processes of logging, sampling, coding and transcribing video data.

Suggested further reading

Video in Qualitative Research (2010) by Heath, Hindmarsh and Luff is the first methodological book to provide practical guidance on the use of video in social sciences, with a particular focus on situated interactional analysis social interaction in everyday life. It is based on the authors' substantial experience of qualitative video-based studies of a wide range of organisational environments, as well as less formal public environments, all of which draw on ethnomethodology and conversation analysis.

Video Analysis: Methodology and Methods (2006) edited by Knoblauch, Schnettler and Raab and *Video Interaction Analysis* (2009) edited by Kissmann are two excellent edited volumes that bring together collections of papers from the field of qualitative interpretative video analysis to provide an overview of the possibilities and challenges of video analysis. Both focus on micro analysis of video data within workplace settings by authors within linguistic anthropology, conversation analysis, sociology, ethnography and phenomenology.

Researching Experiences (Gjedde and Ingemann, 2008) situates video based research within a phenomenological approach to explore experiences in a variety of settings including the museum, news photography, and interactive digital media.

Participatory Video: Images that Transform and Empower (White, 2003), is focused on participatory and action-research and explores the potential of video as a catalyst for the development and transformation of disadvantaged people and communities. It showcases examples of how video, in the form of video documentation and video diaries, is being utilized for development purposes.

Video Research in the learning sciences (2006) edited by Goldman, Pea, Barron and Derry is an excellent book for anyone thinking of using video in a formal or informal learning context. It consists of 35 chapters written by leading American scholars in the field of video based research and covers all aspects of this process including theoretical frameworks, practical issues and empirical examples.

Video Based Social Research: Theory And Practice is a Special Issue of The *International Journal Of Social Research Methodology*. It consists of six papers that demonstrate a range of different approaches to the use of video including participatory research, ethnography, social semiotics, and ethnomethodology. The papers focus on a variety of research topics including work-based practice, the production of identity and community, digital music and urban youth culture, and teacher education.

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