Videography and space

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Among the qualitative methods in empirical social research, videography describes an approach in which social science data are collected by means of videos and then analyzed using a specific methodology that combines observation, participation, and other ethnographic techniques. Videography is a method that is used in a wide range of social science disciplines to analyze social interactions and social situations in particular. Their subject matter extends to communicative actions of individuals (such as working on the computer) at the workplace or of large collectives, such as the audience in a soccer stadium. When developing the videographic methodology, to which we have contributed at great length (Knoblauch 2006; Tuma et al. 2013), we have concentrated primarily on the timelines of the actions and interactions so far. Temporality is also considered a key resource in other analytical approaches, yet little attention has been paid to spatiality until now. Although there are studies on individual spatial aspects of activities recorded by means of videography, a systematic review of the role of space in videography and in video-based interaction analysis is lacking to date. We aim to make an initial contribution in this regard. After a brief overview of the development and key characteristics of the videographic method (Section 1), we will illustrate the methodological significance of spatial aspects (Section 2). Afterward, we will address the role of spatial knowledge (Section 3), before discussing several social dimensions of space from a videographic perspective (Section 4) in order to broach open questions and perspectives raised by this method (Section 5).

1 Development and key characteristics of videography

The use of films and videos as data for the qualitative analysis of social life stretches back to the beginnings of the social sciences. However, a dedicated methodology was first developed in the last several decades, which has since established itself internationally. For example, Goodwin (1980) studied everyday interactions by means of video recordings, Erickson and Shulz (1982) used video to analyze school counseling sessions, and Heath (1986) carried out video analyses of medical treatments. Reflection on the methodology began in the 1980s and is still documented to this day in various anthologies (Knoblauch

et al. 2006; Kissmann 2009; Corsten et al. 2010). It is described in general terms in introductory methods books (Heath et al. 2009; Tuma et al. 2013; vom Lehn 2018), as well as in reference to fields such as the learning sciences (Goldman et al. 2007) and religious studies (Knoblauch 2011), albeit not yet in connection with spatial research.

In contrast to the wide range of standardized quantitative studies with audiovisual data in the social sciences, videography is markedly interpretative.[1] The basic assumption is that actions and interactions are guided by meanings, which are explained by the researchers and analyzed using scientific categories (Schütz 1962). Furthermore, all of these studies have a basic ethnographic foundation: Video data refer to what is happening situationally in the social world and are interpreted and analyzed by researchers. We call this method videography as it combines video analysis with focused ethnography (Knoblauch 2006). This must be distinguished from approaches that study *video products* created by the actors themselves: that is to say, *authentic* recordings produced in the field or videos that have been edited, produced, and designed (*YouTube* clips or other video documents that exist in the field). Even though some aspects of video analysis can certainly be applied to such data, in videographic studies, the researchers themselves create the recordings in the field before analyzing them. They are therefore not a form of visual analysis but rather video based ethnographies. In another study, we address in detail the diverse questions regarding access, the role in the field, the role of the camera, and its reactivity (Tuma et al. 2013). In this article, we wish to concentrate on the spatial aspects.

Essentially, we do not agree with the assumption that the recording simply "depicts" or "represents" the observed processes; rather, reflected research is aware of the fact that the data and analyses also always result from actions and interactions along with all of the associated perspectives and selectivities. Nevertheless, researchers can interpret data adequately by examining the situation in-depth and acquiring the necessary knowledge about it. Thanks to their involvement in and knowledge of the situation, they gain access to the viewpoints of the participants.

Initial observations of the researchers usually start long before the first recordings in order to determine their own role and the potential role of the camera in the field (as well as their *influence* on the field). Among other things, it is necessary for researchers to define a suitable focus for the recordings and to acquaint themselves with the field. The ethnographic knowledge acquired in the field should enable researchers to understand the actions recorded in the video. Essentially, the videography method consists of (a) collecting video data by means of on-site ethnography, (b) a preliminary indexing and coding of the data in accordance with the research question, and (c) the fine-grained analysis of the selected audiovisual data. The detailed analysis is performed in connection with the research question in the form of a sequential analysis of the recorded action and interaction (i.e., *video analysis*), as well as an interpretation of their visual and audible content. This makes it possible to identify specific forms, patterns, and structures of actions, categories, or institutions that are typical aspects of the respective field and that are addressed by the research question. By linking the institutional structures, the

1 Standardized forms of video analysis apply linguistic or numeric codes to relatively large segments of videos. It was even possible to automate this process in the last several years thanks to audiovisual software.

situational actions, and the knowledge of the actors, videography helps to analyze the communicative construction of these field aspects (Knoblauch 2020).

2 Basic methods and methodologies in spatial videography

Aside from (participant) observation, discussions and interviews are carried out with the stakeholders and documents and artifacts are collected as part of the field research; furthermore, photo and video elicitation methods are frequently used retrospectively. The reconstructed knowledge of the participants also contains spatial elements, which are necessary to understand the arrangement of different objects, devices, or tools, for example. In addition to spatial knowledge (including imaginations in some cases), ethnography itself is spatial in a unique sense, which is underscored by the metaphor of the "field." Fields can include delimited spaces, which are called *scenes* or *settings*. We often take into account the spatial character using *cartographies*, in which we sketch and record, for instance, the arrangement of furniture, appliances, or people in a certain room. However, by no means does the spatial character of these fields have to be closed-ended. On the one hand, videos can be recorded in motion, such as when studying accessibility in cities or when studying a wide range of mobile events. On the other hand, videographic studies can also examine the connection between multiple sites (*multi-sited*), such as the cooperation between different areas of operation in an airport (Goodwin/Goodwin 1996). When we take into account the references and potential influences of the digital communication technologies used in the field, even global spaces can be relevant from a videographic perspective, for example, for digital interactions in financial markets (Knorr-Cetina/Bruegger 2002). Virtual spaces often come into focus in the process, such as the visually represented worlds of computer games *in* which the players interact.

2.1 Spatial aspects of data collection

The spatiality of the data collection process plays an essential role in videographic recording: Namely, the exact position of the camera is decisive for the perspective of the recording and thus for the object. The focus of the camera has a spatial dimension as well; it determines the spatial *section* that is recorded. The use of multiple cameras introduces multiple perspectives. If they all have the same focus, then they result in the creation of a scene. This also applies to the use of 360-degree (and to some extent 3D) cameras, which produce an equally expanded spatial focus. They illustrate that the focus of the camera has a spatial dimension itself. This dimension, in turn, can vary based on the distance from the recorded object, which can present a certain scale: Focus can be placed on individual body parts and their movement (such as gestures, hands interacting with each other during medical operations and using instruments simultaneously); it can relate to the interactive space of different actors, but it can also encompass certain buildings or public spaces. Indeed, public spaces represent one of the few topics addressed in geographic videographies, as seen in the study *Social Life of Small Urban Spaces* by William H. Whyte (1980). An even more spatially extensive video study involved an international audience comprised of millions who had gathered on World Youth Day in Krakow for

the mass with the pope, which was transmitted worldwide and thus achieved global dimensions (Knoblauch et al. 2019). *Location tracking* technology (e.g., GPS) can help to determine the relation of the recordings to one another and to record movements within space.

For the videographic analysis of space, we can distinguish three kinds of focus.

First, a contextual focus on the field: that is to say, the institutional or organizational context of the social situations, interactions, and communicative actions that are the object of the recording.

Second, a focus on social situations: Videography typically concentrates on certain actions, interactions, and practices of one or more human actors in a spatial setting. As Erickson (2005: 1198) notes, it is denoted by a "focus" on the "characteristics of the situated performance as it occurs naturally in everyday social interactions."

Third, a focus on what the camera records: This can range from a 360-degree camera recording a large crowd in a stadium to a fixed camera that concentrates on physical interactions or a mobile camera that concentrates on moving hands or the head and is mounted on the moving actors. The focus of the recording can vary from the movement of individual body parts and interactions in dyads or groups to huge gatherings and spread-out spaces, which means it can take place on different scales. This applies to the situational and contextual focus accordingly.

2.2 Analyzing video recordings

Video data have a very special relationship with what is recorded since videos are considered a mimetic medium. They record visual and acoustic objectifications. Videos make it possible for observers to recognize aspects such as sound and voice, as well as bodies, objects, and visualized space in the recording. As a result, video data offer an extremely rich and tremendously dense body of data that is objectified so as to be suitable for interpretation and analysis by other researchers, too. As a visual medium, videos allow for a special form of intersubjectivity: namely, analysis by others who first saw the situation in retrospect upon closer observation. Video analysis shares this characteristic with photography but stands out from this method due to one unique feature. In contrast to photography, videos are a temporal medium that enables researchers to analyze the sequence of actions, interactions, and other social processes covered by the video recordings. Historically, the transition has been fluid, as we see with the famous studies of motion by Muybridge with series of photographs that answered question such as whether horses continue to touch the ground at all times when galloping. However, this particular temporal feature of video analysis makes it possible to observe physical actions as they take place chronologically.

This temporality is taken into account in video analysis by means of sequential analyses. *Sequential analysis* refers to the temporal course of communicative actions in what are called (action) *turns*, such as physical positions, movements, vocalizations, or other technical objectifications. Sequential analysis examines how the relevance of communicative action is constituted in time: that is to say, how actions are shaped *reflectively* in the course of their performance so that they are understood by others and thus result in subsequent actions. These turns can be interpreted because they always relate to what

preceded them and to what follows them. In the analysis, the series of actions are retraced and divided into turns in order to understand how these sequences are shaped by the actors themselves. The interpretation of the actions concentrates on the meaningful interplay of turns in relation to one another. The underlying principle of the analysis is that we not only can describe the order unfolding from turn to turn in these series of actions but can also systematically understand it.

Sequentiality also represents a unique resource in terms of securing the research findings because it makes it possible to validate the interpretations. Interpretations of the first verbal and physical turns are used in order to predict subsequent turns; the empirical form of the next rounds or turns makes it possible to decide which interpretation of the first rounds was chosen by the actors and is therefore valid (for the term sequentiality, see Knoblauch 2020: 193 et seqq.). Sequential analysis uses the technical possibilities of the video devices, which are both an audiovisual recording and playback device; this includes the virtually limitless playbacks, as well as time loops and zooming. All of these techniques are not just related to scientific methods of comparison, they also exhibit spatial aspects: The monitor on which we watch the video itself represents a visual surface. This makes it possible enlarge something small, to select specific sections, or to repeat certain sequences of pictures and thus make them present at the site of analysis. Moreover, the temporal sequences themselves feature spatial references. They focus on the movements of the human body itself (such as gestures, i.e., the *motility*) as well as the movements of bodies in space (i.e., their *mobility*).

While motility and mobility are spatio-temporal phenomena, the second step in videography, the analysis, essentially entails another spatial phenomenon. In addition to the temporal sequence of the images, the individual images themselves represent an object of analysis. In contrast to the sequential analysis, this is an analysis of the elements that are present simultaneously. Here we refer to the juxtaposition of the bodies that characterize the space, which Löw (2016) refers to as an "arrangement." In both ethnography and image theory, it has long since been discussed that (visual as well as audiovisual) representations can by no means be considered illustrations but rather follow their own conventions of representation. In response to this, quite elaborate hermeneutic approaches have been developed that are devoted to image analysis, both with regard to photographs (Müller/Soeffner 2018) and with regard to individual images (Raab 2008) and partial sequences or moves (Reichertz/Englert 2010). Therefore, the hermeneutic analysis of visual elements offers a useful approach to analyzing space by using the spatial knowledge of the researchers. Apart from the hermeneutic perspective, the semiotic perspective focuses more on the materialized forms, attempting to interpret them as cultural signs and explaining them within the structural context of their signs. Goodwin (1994), for example, chose such a semiotic approach.

While these methods are aimed at the image, at the image's relationship with the reality studied and, consequently, the relation between reality and image as a highly controversial problem of representation, we propose treating video recordings like ethnographic data. Because they were collected as part of the ethnography, they are field documents whose status is related to both the researchers' and the field subjects' experiences in and with the field. The video recordings are not merely observed epistemically like field protocols; they are used in the (especially early) data sessions to elicit and ex-

plicate ethnographic knowledge of the field on the basis of audiovisual objectivations. As noted previously, their spatial dimension is often complemented by cartographies, which record the spatial distribution and allocation of the people and of the material or technical elements. Camera positions are then sought following an initial ethnographic survey.

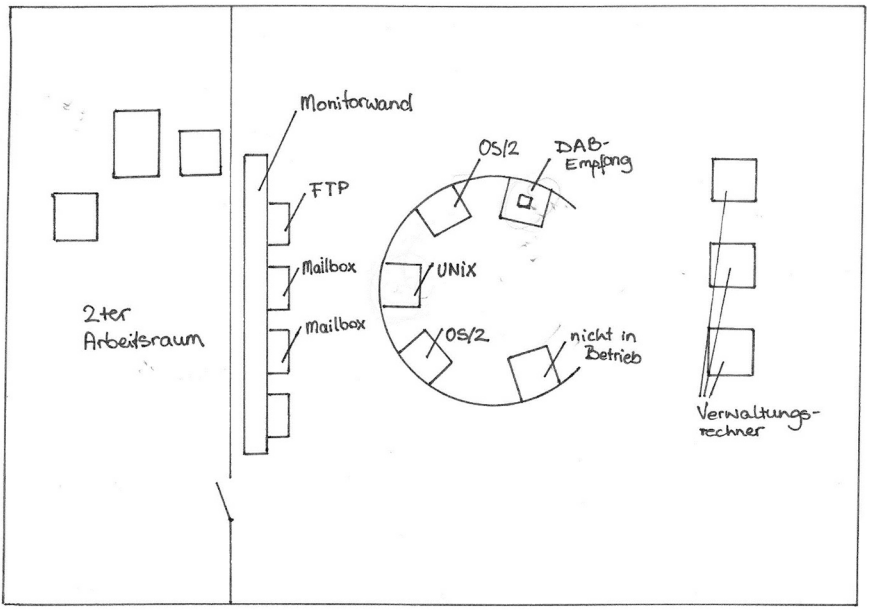

Fig. 1: Spatial sketch from a project on working in control centers with distribution of individual technical workplaces related to specific tasks and an adjacent second room (Knoblauch 1998: 313).

3 Spatial knowledge

In the ethnographic study of the spatial aspects of interactions, the specific knowledge of both the participants and the researchers about the spaces plays a crucial role, especially when interpreting the videos. Because this spatial knowledge is subjective and embodied, it cannot be observed by means of video recordings, but it is still relevant for the interpretation and analysis of the data. Even the "translation" of the two-dimensional recording into a three-dimensional understanding is based on the *underlying spatial knowledge of the lifeworld*. Similarly, the understanding of an individual's orientation based on visual glances in the room, for example, is based on *habitualized spatial knowledge*, which we use to "read" material objects when walking (Knoblauch 2017). Spatial knowledge also includes practical knowledge, which is acquired as specialized knowledge and routinized over time, as is the case in a soccer game. Bourdieu and Wacquant (1992: 21) illustrate, in reference to Merleau-Ponty, how the relationship between players

and the field gives rise to a "cohesion without concept." "The player incorporates it [the playing field] into his body and feels, for example, the direction of the 'goal' just as directly as the vertical and horizontal planes of his own body." (Merleau-Ponty 1980: 193, own translation)

This specialized routinized spatial knowledge can be acquired by means of participant observation of the activities in the respective fields. Participation not only includes the structures of the space from a practical-pragmatic perspective but also introduces a view of the imaginations and affective dimensions of the space and its social impacts. This dimension of space is also evident in classic ethnographies, as illustrated compellingly by Anderson (2015) in his study *Black in White Spaces*, which shows how spaces are structured by powerful regimes of action and how those spaces are reflected in subjective experiences of exclusion. To this day, capturing these dimensions systematically in videographies is essential for further research.

Like all knowledge, the various forms of spatial knowledge are unequally distributed across levels of society. This applies in particular to *explicit spatial knowledge*, which is objectified in different ways, often linguistically and graphically, for instance, as topographic maps, *Google Maps*, or architectural plans. Its distribution follows the patterns of social inequality, while at the same time being connected to specialized knowledge, institutions, and professions with special approaches. By means of categories, coding, and classifications, such objectifications exert power over spatial relationships; however, they are also the subject of disputes.

4 Social dimensions of videographic space

By no means does videography refer solely to the recording of videos. As a social science method, it has a special object, which we broadly describe as communicative action. Communicative action includes interactions between people but also refers to isolated embodied actions, such as walking or typing a text. Action is always guided by knowledge, although embodied actions also include objects (writing) or technology (typing on a keyboard or a screen, controlling devices remotely), which can have both a symbolic and an operative character (Knoblauch 2020). Communicative action can be described temporally based on sequences, but it also has a spatial character, which comes to the fore in the simultaneous observation of recordings in particular. In line with spatial theory as described by Löw (2016), the analytical perspective of videography conceives spatiality as the relationship between the actors and to the things in the space (but from the ethnographically reconstructed, "asymmetrical" perspective of the actors).

For all intents and purposes, Hall's classic studies on *proxemics* (1962) can already be regarded as an example of audiovisually analyzed spatial relations in interactions between people. Most notably, he investigated the interactive and subjective meaning of spatial distance between people, where what is perceived as "normal" can vary considerably in different cultures. Scheflen (1973) used psychiatric discussions as an example to illustrate the role played by changes in posture in interactions between people sitting. In doing so, he founded context analysis, which also emphasizes the spatial dimension of human interactions. A more recent example is what is known as the "*face formation*," as

introduced by Kendon (1976). This refers to the spatial arrangement of people facing one another, which in turn indicates their type of participation, attention, etc. To be more precise, the term *body formation* (Knoblauch 2013) should be used as the circular positioning of the bodies is what differentiates between interior, ancillary, and outside spaces, which call for individual rituals, if they are to be accessed by other people.

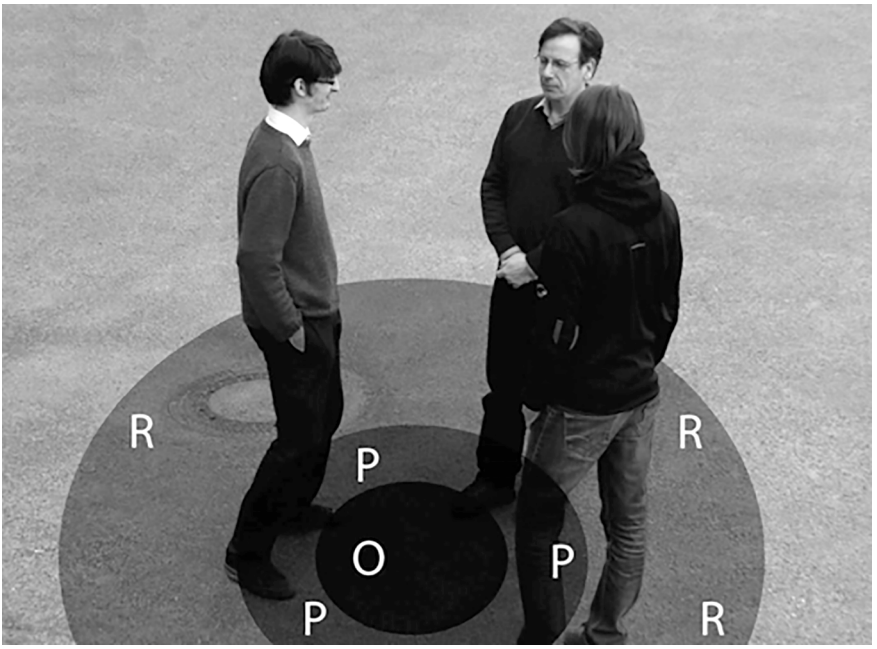

Fig. 2: The face formation with the internal o-space, the p-space formed by the bodies, and the r-space in which new rites of spatial passage to and from the formation can be expected (Knoblauch 2013: 119).

While body formations assume permanently recognizable forms, interaction ensembles constitute complex figurations of bodies that situationally change in the course of interaction and communication processes. For example, Schmitt (2012) shows how different requirements for cooperation between different participants (directors, actors) and their devices (movie camera, microphone) result in equally different spatial *interaction ensembles*. Von Wedelstaedt and Meyer (2016) use the term *interkinesthesia* to denote coordinated spatial choreographies of movement in a well-rehearsed team, such as a handball team on the offensive.

If we look closer at how material space is relevant in the interactions between people, then we are talking about an *architecture-for-interaction* (Hausendorf et al. 2016). In contrast, Linke (2018) uses the term *configuration* to refer to the ways in which material and cultural objects themselves serve to arrange interactions or even individual actions spatially. In her historic studies, she demonstrates how dinner tables with their arrange-

ment and type of seating, cutlery, dishes, and other decoration characterize not only how people eat but also how well they behave. Similarly, Böhme (2015) uses camera recordings from a bird's-eye view to show how the spatial arrangement of boxes, computers, and supervisory personnel create a "laboratope," which allows economists to conduct experiments. Such configurations can by all means take on larger spatial dimensions, as illustrated by the numerous studies on urban spaces, such as in geographic videographies (Garrett 2011).

In no case should the objects be reduced to "*affordances*" in an ontological manner (Wineman/Peponis 2010); instead, the efficacy of the spatial objectifications can be determined in connection with the forms of communication that the human actions assume. This can be recognized based on "*activity shapes*," which have often been illustrated for the spatial orientation and walkways in shopping centers or supermarkets (Gomez et al. 2012). The *spatial syntax* approach offers an appropriate, somewhat formal answer to the question of how materializations guide spatial communicative action. For example, the relations between different rooms are mapped with regard to their borders. In this case, special focus is placed on who can be accessed first and last from where—but without studying the actual behavior since space is understood as inherently social here (Bafna 2003).

While the first approaches mentioned above look at space from the perspective of interaction and the last approaches look at interaction from the perspective of space, one approach appears to integrate both perspectives and allows to address the interplay between material and human spatial aspects under the term *social ecology*. Even if this alludes to the (rather deterministic) spatio-sociological tradition of the *Chicago School*, these studies nevertheless attempt to relate the spatiality of interactions between people and the configurations of objects, technologies, and built spaces to one another. This applies, for instance, to the analysis of interactions and communicative action with regard to images and artistic artifacts in museums (Heath/vom Lehn 2008).

5 Conclusion: Synthetic spaces

Without a doubt, there is still a lot to be done in order to integrate issues from the social research of space into the methods of videography. Spatiality poses even more of a challenge since both the social spaces to be studied and the method itself are subject to the mass digitalization of communication. For example, the fact that digital sign systems can be coupled directly and at the same time translocally with material technology brings a new cause-and-effect relationship into play. Now typing on a keyboard, pushing a button, and touching a screen can have immediate consequences for the indirect or direct environment: A signal is transmitted to a train, a floodgate opens, or a rocket is launched. We refer to these cause-and-effect relationships that are governed by signs as mediatization. They are relevant for video analysis because they link the visual technologies that can be observed by audiovisual means (such as the monitors at which people work) with other spaces that have to be taken into account as part of the observed situation. These cause-and-effect relationships become more complex to the extent that the technology becomes intra-active: that is to say, they interact with each other on their

own, thus producing their own perceptions and processing algorithmic functions as *artificial intelligence*. Such relationships extend beyond the assumption of the parallelization of "real" and "virtual" spaces and emphasize the mediatized connection between *synthetic spaces*, as they can be called in line with Knorr-Cetina (2009): spaces that are created from the simultaneous merging of actions at places of interaction (e.g., in a control room) with their communicative and translocal interplay (with sales representatives), and potentially the involvement of digital infrastructures in the coordination of activities (Janz/Tuma 2022). The question of how such synthetic spaces can be studied represents a challenge at present, not just because these technologies are constantly evolving. Studying these synthetic spaces may contribute to not only an understanding of the contemporary refiguration of space (Knoblauch/Löw 2020) but also the adjustment of the methodology to these changes and to the requirements brought about by the digitalization of video data with regard to data archives, 3D simulations, big data, and artificial intelligence.

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