

“Communicating Disaster – A Case for Qualitative Approaches to Disaster Research”

Report of a Research Group at the Center for Interdisciplinary Research (ZiF),
Bielefeld University

Disasters have always played an important role in society and it seems that catastrophes have been omnipresent over the past decades. The development of media technology and the emergence of new social media have quite radically changed the communicative processes concerning disasters. Due to a growing range of diverse media, we get immediate information not only on disasters close-by but also on those disasters that have taken place in the remotest corners of the world. The amount of information, pictures, or video snippets directly taken from a disaster site increases dramatically, and one extreme event seems to make way for the next, striving to gain our attention. But what does that tell us about the way we perceive and relate to such disasters? And what are possible ways of dealing with disasters modified by these altered informational and communicative dynamics? The conference with the somewhat provocative title: ‘Dealing with the Disasters of Others’ (26–28 January 2012) was the closing conference and the final of a number of activities by the interdisciplinary ZiF research group ‘Communicating Disaster’. This report reflects on the context and some general findings of the group.

The context of the research group

The research group was organised by Prof. Dr. Jörg Bergmann (Sociology, Bielefeld University), Prof. Dr. Heike Egner (Geography, University of Klagenfurt) and Prof. Dr. Volker Wulf (Informatics, Siegen University), coordinated by Dr. Sarah Hitzler and Marén Schorch (both Sociology, Bielefeld University). It provided a research setting for 29 renowned international researchers of the social, natural and information sciences as well as the humanities who spent working periods between a couple of weeks and several months at Bielefeld’s Center for Interdisciplinary Research (ZiF). The researchers tackled the topic in regular meetings and a range of workshops and conferences.

The group had set out in November 2010 to challenge classical perspectives of disaster research and establish a novel, communication-based approach. Traditionally, disaster research focuses on the planning, management, and mitigation processes of a

disaster, relying mainly on quantitative methods for analyses. A critical implication of this is that the researcher is usually too close to the rationalities and necessities of these practical fields and therefore unable to keep the distant view necessary for analyzing the social dynamics of disastrous events. But scientific concepts of disaster are always ‘second-order concepts’ (Schütz 1962), relying on the first-order concepts of disaster that will be found in the views and everyday activities of people, groups or organizations. In order to develop an analysis and scientific understanding of the social unfolding of disasters, it is crucial to get access to these activities in and through which events become disasters.

Drawing on reports by practitioners from the field of disaster prevention and management as well as on a critical review of the literature, various processes of oral, written, visual, and digital communication were identified as key elements of disasters.

A vast array of communicative activities precede, accompany, and follow a disastrous event and their analysis will not only provide an insight into the course a disaster takes but just as much into the ‘nature’ of a disaster itself. From this point of view, ‘there is no such a thing as a natural disaster’ (Hartman & Squires 2006); a natural event is never a disaster by itself, since any natural event needs the involvement of humans or their living spaces to turn out to be a disaster (cf. Felgentreff & Dombrowsky 2008: 13f.; Egner 2012: 57). It is only by its effects on people through material damage and casualties that an extreme event is perceived as disastrous. Macamo & Neubert (2008) show with their comparison of flooded regions in Germany, the U.S. and Mozambique, that even these effects are no ‘hard determinants’ but result from processes of interpretation and communication through which the disastrousness of the event is determined.

Zooming in and zooming out: Communication in disaster research

The idea of communication, of course, is no stranger to disaster research. It is predominately conceptualized as an imperative, as the right way of determining and passing on information to the appropriate addressees (e.g. Dynes 1998; Clausen &

Dombrowsky 1983). This perspective draws on the conduit model of communication such as described by Shannon & Weaver (1949) for technical purposes initially, which however has found great acceptance in communication studies. In the context of the ZiF research group, more elaborate concepts of communication were relied upon to do justice to the intricacies of communication in disaster scenarios. Niklas Luhmann's (1984) systems-theoretical understanding of communication as the main operating modus through which society and its sub-systems are processed was heavily drawn on, as well as ethnomethodological (Garfinkel 1967; Sacks 1992) insights which conceive of communication as a joint product of members of a society rather than a simple one-way transmission of information.

The systems-theoretical concept of communication describes communication as an autopoietic process in which the three elements of information, message and understanding are indispensable ingredients of any communication. In this perspective, neither the participants nor the information or the question of understanding can be separated from the sequential unfolding of a communication. Participants may change their situated identities in the course of a communication, the information might be ambiguous, and how a recipient has understood a message can only be seen in his or her subsequent contribution to the communication. Thus, communication is anything but determined or clear; communication rather is contingent and its effects even more so. The ethnomethodological understanding in which communication is an on-going sequential accomplishment between actors comes to a similar conclusion, highlighting the necessity of paying attention to the actual unfolding of communicative situations rather than post-hoc reports.

Each of these approaches opens up new perspectives for disaster research which have up to now been neglected and which, borrowing an image from photography, can be described as *zooming out* to get an encompassing, distant view, and *zooming in* for detailed close-ups. In terms of research, this translates into the use of a framework of second-order observation on the one hand and of a qualitative research methodology on the other.

Qualitative methods are essential tools when analyzing the microstructures of communicative processes of disasters. In contrast to quantitative practices traditionally embraced in disaster research, the empirical focus of qualitative approaches takes the lived-in-a-world terms as a basis: the first-order observations of those who experience, witness, report,

cope or deal in some ways with a disaster. This touches upon an epistemological challenge for the interdisciplinary research group which assembled researchers from more traditional disaster research areas such as natural scientists, engineers, and management experts, who were used to working with a mostly positivist epistemological stance, as well as researchers from the social sciences and the humanities who found a common link in a general statement against 'naturalism'.

One implication of this challenge surfaced in ongoing discussions of the issue how the notion 'disaster' ought to be defined, and whether it was necessary at all to agree on a shared definition (cf. Quarantelli 1998). The prevailing positivistic notion with its emphasis on definitions based on standardized aspects such as the amount of damage, number of victims, or other countable items was regularly met by the critique that standardization *à tout prix* reduces the complexity of a disaster to a great extent, for instance by ignoring vulnerabilities, socio-cultural differences of assessment as well as the socio-economic context of a disaster. At the same time, it cannot be dismissed that standardizations and clear underlying definitions can serve as a stable *tertium comparationis* which renders possible comparative research as well as being indispensable for a number of practical fields connected to disasters, such as insurance companies, disaster management institutions, or relief organisations (Dombrowsky & Neubert 2011).

A way out was sought by supplementing existing positivistic definitions with a definition embracing a relativistic perspective. Such a definition is necessarily more flexible and less clear-cut, while creating a link to the life world of the people affected and thereby allowing contextualized research that includes the everyday-life understanding of a disaster. The supplementary working definition agreed upon read: 'A disaster is a breakdown of established social order and the ordinarily expected coping strategies within a community or society.'¹ Obviously, this approach entails the challenge of contextualized terminology: The definitions and understandings will differ in regard to local understanding and interpretation and this poses obvious restrictions on comparative research. Resorting to a qualitative research perspective thus brings about a reduction of

¹ Vollmer (2012) makes a strong point of not reducing what he calls 'disruptions' to spectacular instances of disastrous events. This perspective has been considered but ultimately addresses issues beyond the already diverse interests in disasters represented in our group.

the scope of its analytical results, but will permit better and more precise understanding of the idiosyncrasies, inherent dynamics, and situatedness of a disaster and of those affected by it.

Using the distanced, zoomed-out perspective of *second-order observation* on the other hand is necessary in order to confront research traditions that mingle closely with planning, management and mitigation perspectives on disasters and thereby run the risk of adopting the terms and needs of the actors in the field.

Rather than relying on first-order observations (simultaneous distinctions and denominations of things) which remain within the system of the disaster, second-order observations (simultaneous distinctions and denominations of observations) such as described by von Foerster (1984) and Luhmann (1992) allow to step out of the immediate complexities of the field, forming a reflexive perspective on how the first-order distinctions came about.

Adopting observation theory to disaster communication and disaster research allows a deeper insight into the social practices related to disasters as well as the dynamics and processes of the social constructions of disasters. Combining this approach with an understanding of communication as an autopoietic and dynamic process provides a range of new insights into the nature of communication processes in disaster contexts, shedding light on who defines what, when, how, in which context, and with what consequences in the processes and dynamics of disaster related communication (Metzner-Szigeth 2009; Egner & Pott 2010; Egner 2012; Egner et al. 2013).

Time and space of disasters

While these theoretical and methodological reflections opened up the research topic, two forms of heuristic were relied upon in order to provide more structure: a temporal and a spatial dimension. Following Kant's assumption, time and space are *a priori* notions to the very possibility of comprehending sensory perceptions. Both are ways of rationally organizing the course of chaotic events, imposing distinctions in sensemaking on both the first level of observation, i.e. the perspective of those affected, and the second level of observation, i.e. the perspective of academic analysis.

The *temporal dimension* is regularly relied upon in the discussion of disasters. Clausen (1983) defined disaster as an extreme social change characterized

by the three dimensions 'rapidity', 'radicality', and 'rituality', while Keller (2008) draws a distinction between slow-motion disasters (cf. Mosley 2008 on the smoke pollution of industrial Britain) and fast-forward disasters: rapid extreme events like earthquakes or tsunamis invalidating every-day-routines and normalities, unsettling or even destroying beliefs in the control of technical processes or, even deeper, the trust in the world-as-taken-for-granted.

The unfolding of a disaster is often captured in the imagery of a cycle. The 'disaster life cycle'² is applied in most emergency management strategies and identifies six central functions for management activities: preparation, response, recovery, mitigation, reduction and prevention. The research group took this understanding of a circular unfolding and progression of disasters as an organizing starting point in order to single out the forms of communications disasters will engender. As the temporal dimension of 'before', 'during' and 'after' can be identified for every disastrous event, despite their diversity in cultural setting, type, length and degrees of the events, this allows for a comparatively stable framework even in regard to a very heterogeneous notion of disaster.

However, while such a model allows for circularity of the entire disaster event (pointing out that 'after' a disaster is 'before' the next), it proved to be ill-prepared for the circularity of communications which take place during its course. In discussing and analyzing communication related to the phase of coping with a disaster, for instance, it may be necessary to go back to different aspects of alarm communication – not just the first alarms, but also the ensuing warning and alarm communicating in a disaster site. The circularity becomes even more obvious when talking about evaluations of coping strategies, effective warning etc. in order to provide a basis for understanding and defining future risks. Communication concerning evaluation, blaming, false or failed alarming will often start as soon as awareness of the onset of a disastrous event arises – and thus will also affect other phases of the temporal heuristic. Rather than providing a helpful structure, the classic temporal understanding of a disaster unfolding turned out an impediment to the analysis of communicative processes.

The finding, however, that communication within unfolding disasters does not adhere to clear-cut

² Mostly known from FEMA (Federal Emergency Management Agency) in the USA that in turn is based on the works of (amongst others) Roberts 1994 and Faulkner 2001.

phase models did not render the concept of time worthless. As a crucial first-order distinguishing variable for the actors within a disaster event, it resurfaced at a number of points. The media, for instance, aim to present up-to-date, 'new' news even in situations in which no new information is available, and resort to reorganizing existing information (Bergmann 2011). Social media may speed up reactivity to specific situations of distress but may also ventilate obsolete information, producing false alarms (Starbird & Palen 2011).

In addition, a very promising second concept for the analyses of communicative processes crystallized at various points of the discussion: the concept of space, or, more specifically, of *spatialisation*. The social understanding and manipulation of space proved to be highly consequential for the understanding of disasters and disaster-related activity. Most processes connected to disasters generate spatial effects which create differences that in fact produce a difference: 'Space and spatial or space-related semantics, just as risks, can be conceived as media of communication that fulfil the function of contributing to social structuring and order formation.' (Egner & Pott 2010: 231) This is already tied to the fact that extreme events leading to a disaster always happen somewhere; they literally 'take place'. Emergency call takers for instance make an effort to establish early-on and in precise detail the location of the reported incident, and partly deduct from this information the course of action, such as whom next to notify (Bergmann 1995; Fele 2008) – a task which turned out to be more problematic in cases of mobile phone emergency calls.

The place that a disaster 'takes' is never just a single co-ordinate on a map. Localizing a disastrous event will necessarily create new social spaces; a distinction is drawn between a space for those affected by an event and a space for those who are not. An accident is cordoned off, separating a 'site of the accident' which may only be accessed by authorized professionals of disaster management from an area where everyday life is to continue just as before, the border between both often reinforced by curious bystanders trying to get as close as possible in order to catch a glimpse. While such a new social order is usually of a temporary nature in the case of an accident, other demarcations have longer lasting and more drastic consequences. One of the first reactions to the nuclear event in Fukushima Daiichi in the wake of the major earthquake and enormous tsunami in March 2011 for instance was the installation of a 10 km evacuation zone around the nuclear

power plant by the authorities. Although this zone was installed on the basis of guesses rather than factual information, it had very concrete consequences for the people living or staying within it who all of a sudden were labeled as 'affected'.

While such demarcations often set off as temporal solutions, they have a tendency to stabilize. In her work on evacuation camps and refugee movements, Inhetveen (2010) speaks of 'precarious topographies'. Initially planned as ephemeral spaces, they often remain for years, contributing to the manifestation of new social structures in an area. The plain fact that victims of a disaster are forced to leave behind their homes and relocate at all is of course another aspect of how understandings of space become pertinent (Bakewell 2011). Potentially meeting already precarious conditions, such effects may be particularly severe in developing societies (Collins 2009).

Spatialization becomes pertinent not only in cases of actual disastrous events, but plays a great role in risk assessment and pervades our daily lives. Risk maps, for instance, are intended to be an instrument to enhance the safety of a community or a region, marking off areas which are safe for building, skiing or camping, while denoting others which are out of bounds (Bründl et al. 2009). The apparent 'absoluteness' and 'truth' of such maps however may well cause a false sense of security and invite imprudent behavior, resulting in the creation of new risks for their users. Drawing lines to demarcate spaces thus is a highly consequential, intrinsically social and political, and far from unambiguous activity. This necessitates closer inspection of the processes and actors through which such demarcations come about in order to understand more closely which factors, rationalities, and interests play a role.

Spacialization also is a contingent element of our daily lives, as can be readily experienced when trying to find one's way in an unknown environment. What is merely annoying in everyday situations can turn highly dangerous in situations of disaster. We rely heavily on geo-semiotics, on signs bearing pictograms or written information, in order to navigate our way. Geo-semiotics pre-structure our social spaces via a form of communication that is non-oral but situated nonetheless, gaining the impact of facts (Habscheid 2012). It is crucial to understand how such structuring comes about and how it is dealt with in emergency situations, where orientation and clear, unique information are essential for those affected.

Finding new topics

The perspectives sketched out above – the overall subject of communication, the concepts of time and space as structuring heuristics allowing comparison, the theoretical claims of ethnomethodology and second-order observation theory, and our qualitative methodology – identified a number of topics which are not well established within traditional disaster research and provided the chance to shed new light onto other, already discussed topics:

- The role of cultural and historical relativity in the definition of what a disaster is was addressed, stimulated by the work of Dieter Neubert, Greg Bankoff, Stephen Mosley, Katharina Inhetveen, and Carsten Felgentreff who presented empirical case studies of historical and cultural aspects of various disaster events.
- Disaster communication was investigated from a micro perspective with the aim to reveal intrinsic patterns of e. g. alarm communication (the group joined forces with a research network working on emergency calls all over Europe, of which Jörg Bergmann, Giolo Fele, Ilkka Arminen and Thomas Ley are members) or to analyze how media correspondents structure their reports on disasters (which was investigated by Ruth Ayaß).
- Since it is nearly impossible to observe an actual ‘live’ disaster, the role and explanatory power of simulation was debated regularly. Technical simulations such as CERN’s particle physics simulation (Martina Merz) and social simulations such as disaster scenarios for disaster management or operative teams (Stefan Strohschneider, Stefan Kaufmann) were analyzed, members of the research group took part in LÜKEX 2011, a nationwide disaster set-up at the administrative level simulating an attack on crucial IT systems (Marén Schorch), and furthermore the research group hosted an ethnological art project on emergency provisions which worked with psychodiagnostic tools (Xperiment!).
- Research in the context of CSCW (Computer Supported Cooperative Work) and current developments of web-based technology and content (mainly social media) were intensely discussed with regard to their impact and potential for information management and communication of a wide range of actors in disasters (Monika Büscher, Leysia Palen, Andrea Kavanaugh).
- Several researchers pointed out that an awareness of the communicative peculiarities of disaster situations is a crucial prerequisite for the adequate design of tools and spaces (Volker Wulf, Volkmar

Pipek, Gunnar Stevens). The increasing role of technology for disaster management on the other hand makes relevant the implications of its breakdown in critical situations (Jörg Potthast).

Finally, a topic that turned out to be of central relevance to discussions at several points concerned the role of *media* in the definition and shaping of disasters. While already addressed by Wenger & Quarantelli in 1989, this topic has gained new importance with the quick rise of social media over the last couple of years. Media take on a special position in disasters as they literally serve as mediators, seemingly bridging the distance between those affected and those not affected by the event. Media do not restrict themselves to objective reporting but adopt an active role in collective disaster management efforts by addressing and challenging the demeanor and the achievements of actors in the field, such as politicians, organizations, or managers (Rusch et al. 2007). They also produce a paradoxical sense of involvement among viewers who, immersed in increasingly ‘authentic’ information such as footage produced by mobile phones or seemingly first-hand accounts in blogs and internet forums, may have the impression of immediate participation; at the same time, however, they are aware of the detachment that sitting safely in front of a TV set or computer necessarily implies (Bergmann 2012b). This paradoxical experience is a crucial condition for the willingness to become engaged, either through donations to relief organizations or by choosing the same medium to react, such as collecting, selecting and playing back information to relevant actors via social media such as blogs or twitter. This dependency traditionally accords control to the media which are in the position to direct their users’ attention and, to some degree, level of involvement and engagement. However, the more the established media become supplemented by what Gunawardene (2012) calls ‘citizen media’, the more this influence can be de-centralized and democratized.

The title of our closing conference, ‘Dealing with the Disasters of Others’, was inspired by the works of Sontag (2003) and Chouliaraki (2006). While the general everyday perception seems to be that disasters are on the increase, for most of us disasters are not based on first-hand experience but on second-hand information – disasters are mostly the disasters of others. The media, media recipients, disaster management, politics, and not least researchers are confronted with the paradoxical form of involvement sketched above: *doing something* with

the disaster while not really being affected by it. This paradox needs to be reflected with respect to how the positioning of non-affected media, recipients, relief organizations, researchers etc. affects participation and various forms of involvement (Bergmann 2012a). Such reflexivity seems to be important specifically for research on disasters in order to avoid the traps of either adopting a naïve humanistic or a purely technological approach toward disaster response. As researchers we can always resort to a distanced point of view but the danger is not only to disregard the uniqueness – the *haecceitas* (Garfinkel) of every single disaster but also to lose sight of the victims. While the research group has only begun to sketch out a perspective for a field of mainly qualitative disaster research on communication, this perspective has already led to a number of new questions and tasks, a few tentative answers and a range of new cooperations, bringing together academics and practitioners from diverse disciplines and backgrounds. Most of the work remains to be done in order to further develop the field. The year at the ZiF may have planted a handful of seeds.

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More detailed information about the multiple activities, workshops and conferences as well as reports of the events and publications can be found on our website:

<http://www.uni-bielefeld.de/ZiF/FG/2010CommunicatingDisaster/>

References

- Bakewell, O., 2011: Conceptualising Displacement and migration: Processes, conditions, and categories. Pp. 14–28 in: K. Koser & S. Martin (Hrsg.), *The Migration-Displacement Nexus: Patterns, Processes, and Policies*. Oxford: Berghahn Books.
- Bergmann, J., 1995: Alarmiertes Verstehen: Kommunikation in Feuerwehrrufen. Pp. 283–328 in: T. Jung & S. Müller-Doohm (Hrsg.), „Wirklichkeit“ im Deutungsprozess. Verstehen und Methoden in den Kultur- und Sozialwissenschaften. Frankfurt a.M.: Suhrkamp.
- Bergmann, J., 2011: Disaster as media loops. *ZiF-Mitteilungen* 2/2011: 7–8.
- Bergmann, J., 2012a: The Disastrousness of Disaster. Paper at the Closing Conference ‘Dealing with the Disasters of Others’, ZiF Research Group ‘Communicating Disaster’, Bielefeld, 28 January 2012.
- Bergmann, J., 2012b: Der Tsunami im Wohnzimmer: Die medienvermittelte Katastrophe. Forthcoming in: J. Piepenbrink (Hrsg.), *Ende des Atomzeitalters*, Bonn: Bundeszentrale für Politische Bildung (in press).
- Bründl, M., H. Romang, N. Bischof & C. Rheinberger, 2009: The Risk Concept and Its Application in Natural Hazard Risk Management in Switzerland. *Natural Hazards and Earth System Sciences* 9: 801–813.
- Clausen, L. & W.R. Dombrowsky, 1983: Einführung in die Soziologie der Katastrophen. Bonn: Osang.
- Collins, A., 2009: *Disaster and Development*. London: Routledge.
- Chouliaraki, L., 2006: *The Spectatorship of Suffering*. London: Sage.
- Dombrowsky, W.R. & D. Neubert, 2011: Standardkatastrophen und die Grenzen der Planbarkeit. Ein Streitgespräch. Ed. By Manuela Lenzen. *ZiF-Mitteilungen* 2/2011: 25–30.
- Dynes, R.R., 1998: Coming to Terms with Community disaster. Pp. 109–126 in: E.L. Quarantelli (ed.), *What is a Disaster? Perspectives on the Question*. London, New York: Routledge.
- Egner, H., 2012: Risk, Space and Natural Disasters. On the Role of Space and Nature in Risk Research. Pp. 57–77 in: C. Mauch & S. Mayer (ed.), *American Environments. Climate, Cultures, Catastrophe*. Heidelberg: Winter Universitätsverlag.
- Egner, H. & A. Pott (eds.), 2010: *Geographische Risikoforschung. Zur Konstruktion verräumlichter Risiken und Sicherheiten*. Stuttgart: Steiner.
- Egner, H., M. Schorch & M. Voss (eds.), 2013: *Learning from Calamities. Interpretative Patterns, Patterns of Practices and Communication on Disasters and Catastrophes* (forthcoming).
- Faulkner, B., 2001: Towards a Framework for Tourism Disaster Management. *Tourism Management* 22: 135–147.
- Fele, G., 2008: The Collaborative Production of Responses and Dispatching on the Radio. *Forum: Qualitative Social Research*. <http://www.qualitative-research.net/index.php/fqs/article/view/1175/2616>
- Felgentreff, C. & W.R. Dombrowsky, 2008: Hazard-, Risiko- und Katastrophenforschung. Pp. 13–29 in: C. Felgentreff & T. Glade (eds.), *Naturrisiken und Sozialkatastrophen*. Berlin: Springer.
- Foerster, H. von, 1984: *Observing systems*. Seaside, Calif: Intersystems Publications.
- Garfinkel, H., 1967: *Studies in Ethnomethodology*. Englewood Cliffs, N.J.: Prentice-Hall.
- Gunawardene, N., 2012: Breaking News on a Restless Planet: Covering Disasters in a Networked Society. Keynote at the Closing Conference ‘Dealing with the Disasters of Others’, ZiF Research Group ‘Communicating Disaster’, Bielefeld, 27 January 2012.
- Habscheid, S., 2012: *Texte in Aktion. Zur praktischen Situierung eines „situationsgelösten“ Sprachgebrauchs – am Beispiel von Sicherheitshinweisen im öffentlichen Raum*. Forthcoming in: F.-J. Klein, C. Frevel & C. Patzelt (eds.): *Gli uomini si legano per la lingua*. Festschrift für Werner Forner zum 65. Geburtstag. Stuttgart: ibidem (in press).
- Hartman, C. & G.D. Squires (eds.), 2006: *There is no Such Thing as a Natural Disaster – Race, Class, and Hurricane Katrina*. New York, London: Routledge.
- Inheteen, K., 2010: *Die politische Ordnung des Flücht-*

- lingslagers. Akteure – Macht – Organisation; eine Ethnographie im Südlichen Afrika. Bielefeld: transcript.
- Keller, R., 2008: Wissenssoziologische Diskursanalyse. Grundlegung eines Forschungsprogramms. Wiesbaden: VS.
- Luhmann, N., 1984: Soziale Systeme. Grundriß einer allgemeinen Theorie. Frankfurt a.M.: Suhrkamp.
- Luhmann, N., 1992: Beobachtungen der Moderne. Opladen: Westdeutscher Verlag.
- Macamo, E. & D. Neubert, 2008: Erwartungen an Sicherheit. Subjektive Katastrophenwahrnehmungen und Bedingungen der Bewältigung am Beispiel Mosambiks und Deutschlands. Pp. 858–874 in: K.-S. Rehberg (ed.): Die Natur der Gesellschaft. Verhandlungen des 33. Kongresses der Deutschen Gesellschaft für Soziologie in Kassel 2006, Volume 2. Frankfurt a.M.: Campus.
- Metzner-Szigeth, A., 2009: Contradictory Approaches? – On Realism and Constructivism in the Social Sciences Research on Risk, Technology and the Environment. *Futures* 41(2): 156–170.
- Mosley, S., 2008: The Chimney of the World. A History of Smoke Pollution in Victorian and Edwardian Manchester. London: Routledge.
- Quarantelli, E.L. (ed.), 1998: What is a Disaster? Perspectives on the Question. London: Routledge.
- Ramirez, L., M. Betz, T. Dyrks, M. Scholz, J. Gerwinski & V. Wulf: Landmarke – An ad hoc Deployable Ubicomp Infrastructure to Support Indoor Navigation of Firefighters, in: Personal and Ubiquitous Computing (PUC), in press.
- Roberts, V., 1994: Flood Management: Bradford paper. *Disaster Prevention and Management* 3(3): 44–60.
- Rusch, G., H. Schanze & G. Schwering, 2007 (eds.): Theorien der Neuen Medien. Kino – Radio – Fernsehen – Computer. Stuttgart: Metzler.
- Sacks, H., 1992: Lectures on Conversation. Oxford: Blackwell Publishing.
- Schütz, A., 1962: Collected Papers I: The Problem of Social Reality. Dordrecht: Nijhoff.
- Shannon, C.E. & W. Weaver, 1949: A Mathematical Model of Communication. Urbana, IL: University of Illinois Press.
- Sontag, S., 2003: Regarding the Pain of Others. New York: Picador/Farrar.
- Starbird, K. & L. Palen, 2011: “Voluntweeters”: Self-Organizing by Digital Volunteers in Times of Crisis. Proceedings of the ACM 2011 Conference on Human Factors in Computing Systems (CHI 2011), Vancouver, CA. <http://www.cs.colorado.edu/~palen/voluntweeters/StarbirdPalen.pdf>
- Vollmer, H., 2012: Punctuated Cooperation. The Sociology of Disruption, Disaster and Social Change. Cambridge: Cambridge University Press (in press).
- Wenger, D. & E.L. Quarantelli, 1989: Local Mass Media Operations, Problems, and Products in Disasters. Newark, DE: University of Delaware/Disaster Research Center.
- Wulf, V., M. Rohde, V. Pipek & G. Stevens: Engaging with Practices: Design Case Studies as a Research Framework in CSCW, in: Proceedings of ACM Conference on Computer Supported Cooperative Work (CSCW 2011), ACM-Press, New York 2011, 505–512.

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