NEEDS 2021

5th edition of the Northern European Conference
on Emergency and Disaster Studies

Östersund / online 21–23 September

Abstracts from the panel

On the epistemology of crises and disasters

RCR Risk and Crisis
Research Centre

PART OF MID SWEDEN UNIVERSITY

Crisis-as-practice: Conceptualizing the role of everyday work practices in crisis management

Corresponding Author:
Olof Oscarsson
Mid Sweden University Sweden
olof.oscarsson@miun.se

Author(s):

Although research on organizational crisis management is vast, it is sometimes insubstantial, particularly when it comes to understanding how an organization's routine practices are utilized in crisis management. This article presents a conceptual framework of crisis-as-practice as a complement to the "traditional" event and process approaches in crisis management research. By turning to practice theory, it is possible to emphasise the importance of apprehending crisis management as an accomplishment shaped by socially shared practices routinely performed in organizations. The article outlines a framework based on two theoretical constructs: (1) the three-element model of practice and (2) the distinction between integrative and dispersed practices that together can bring forward crisis management capabilities that are generally invisible in other research but which nonetheless have great value for people and organizations in the resolution of crises. The article concludes with a discussion of how the practice-based framework can widen the understanding of what crisis management is, who is viewed as a crisis manager, what crisis managers do, and what can be revealed through an analysis of crisis managers and their practices.

I became TRANS, how about you. - On transdisciplinarity and opening windows.

Corresponding Author:

Luc ROMBOUT

Antwerp University - Faculty of Sociology Belgium

luc.rombout@uantwerpen.be

Author(s):

This contribution will focus on reflections from ongoing doctoral research by the presenter.

With a professional background of practitioner, advisor and researcher we continue to be confronted with limited evolution in and expansion of the knowledge base and 'ways of doing' for the practitioners and the still omnipresent traditional compartmentalised view by researchers embedded in the traditional taxonomic view on sciences as separate entities.

The complexity of crisis is not the major issue in this discussion. It is the multi-facetted characteristic of crises and of the whole decision making and managing process.

Humans as key decision makers have their characteristics and relative fitness for decision making. And they are studied in psychology. They behave however in a group, team or in multiple teams, and are influenced by, but also impact upon the group dynamics themselves, which is studied more explicitly in social-psychology, communication science and sociology. Research on the decision making techniques can be found in political science, economics and mathematics or some other compartmentalised segment of the scientific world.

The successful integration of these research findings is hindered by differences in terminology, inductive, deductive or abductive research techniques and the challenge of integrating findings, the difficulty of experimentation, target groups and many other elements of the epistemology.

Back in the 1970s the term 'transdiscipllinarity' [Mahan, 1970] [Piaget] [Bernstein, 2015] [Lawrence (ed.), 2015] was created to point out that societal challenges and complex problems – like manned space travel or climate change – cannot be tackled by isolated research.

The research should transcend the boundaries of the traditional taxonomy of sciences and move towards new integrative fields of research on the one hand, and research should develop better methods for passing research knowledge on to the domain of practical implementation.

This contribution will contain links to the presenter's current doctoral research containing examples of theories and research where the still predominantly monolithic approach leads to structural incompatibilities between research domains.

Designing Immersive Simulation Exercises: Evidence from an Experimental Study

Corresponding Author:

Evangelia Petridou

Risk and Crisis Research Center Sweden

evangelia.petridou@miun.se

Author(s):

Jörgen Sparf[1], Olov Hemmingsson[2] and Kari Pihl[3]

[1]Risk And Crisis Research Center, Jorgen.Sparf@Miun.Se, SWE
[2]Risk And Crisis Research Center, Olov.Hemmingsson@Miun.Se, SWE
[3]Risk And Crisis Research Center, Kari.Pihl@Miun.Se, SWE

Simulation, the running of a model with appropriate inputs for the purpose of observing the outputs (Axelrod, 1997; Bratley, Fox, and Schrage, 1987), has become a recurrent feature of research in the natural sciences, but is also used to a degree in social sciences as it can contribute to the understanding of complex social processes (Gilbert, 2004; Sawyer, 2003). Computational simulations involve modeling and computer-aided simulation techniques (Gilbert and Troitzsch, 2005), while immersive simulations may range from narrative fiction and film (Mar and Oatley, 2008), to low-technology representations of real-life situations (see for example Scott and Pandey, 2000) and high-technology immersive simulations spaces (for example, IMTEL, 2019; MIUN, 2019). In this paper, we focus on immersive simulation and more specifically, we pay special attention to experimental design as a means of understanding how different kinds of information affect risk awareness. We conducted an experiment aimed establishing a causal mechanism between making people aware of possible risks in a controlled, simulated environment, and the observed awareness they exhibited during the experiment. The study has practical implications when it comes to the design of exercises for practitioners.

References

Axelrod, R. (1997). Advancing the art of simulation in the social sciences. In *Simulating Social Phenomena*, 456, 21-40. DOI: https://doi.org/10.1007/978-3-662-03366-1_2

Bratley, P, Fox, B. & Schrage, L. (1987). *A guide to simulation* (2nd ed.). NY: Springer-Verlag

Gilbert, N. (2004). Agent-based social simulation: dealing with complexity. Retrieved from CRESS: Center for Research in Social SImulation website: http://cress.soc.surrey.ac.uk/web/home

Gilbert, N., & Troitzsch, K. G. (2005). *Simulation for the social scientist*. Maidensheah, UK: Open University Press.

IMTEL (2019). Innovative Immersive Technologies for Learning. *Norwegian University of Science and Technology.* Retrieved 25 February, 2019 from https://www.ntnu.edu/ipl/imtel

Mar, R., & Oatley, K. (2008). The Function of Fiction is the Abstraction and Simulation of Social Experience. *Perspectives on Psychological Science*, 3(3), 173-192. DOI: https://doi.org/10.1111/j.1745-6924.2008.00073.x

MIUN (2019). RCR Lab. *Mid Sweden University.* Retrieved 1 March, 2019 from https://www.miun.se/en/Research/research-centers/RCR/rcr-lab2/

Methodology, Objectivity and Cultural Specificity in Multimethod Disaster Studies: Insights from the 2017 Bihar Floods Study

Corresponding Author:
Eila Romo-Murphy
H-C-R Finland
eila@h-c-r.org

Author(s):

Alankrita Anand[1]

[1]The University Of York, Anand.Alankrita@Gmail.Com, IND

While cross-cultural research is challenging, disaster-related research is even more challenging. It is difficult to organize not knowing where a disaster will strike and therefore which culture might be affected. In such a scenario, standardised questionnaires can facilitate cross-cultural data collection and analysis. One such questionnaire, developed by Euroqol, focuses on measuring health status. It was utilized in an empirical, multimethod study on the 2017 floods in Bihar, India; additionally, a media questionnaire was administered to affected citizens and face-to-face key interviews were conducted with the relief network.

The multimethod approach was an advantage, because it enabled looking at flood recovery from the perspectives of both citizens and relief network. Both groups appreciated the media's role in disseminating information; the citizens valued the mediated information on health and sanitation, while the relief network valued the disaster-recovery radio broadcasts as a functional mediator between them and the citizens.

Three interesting methodological issues emerged in the study.

1. An analysis of the self-reported health questionnaire yielded no statistically significant differences between the genders. However, other studies have found that women are more prone to ill health after disaster, and women themselves have evaluated their health lower than men's. One explanation could be the methodology of self-reported questionnaires - women giving themselves a better rating than their actual feeling could be due to being resilient and needing to do their usual household chores despite sickness or injury. On the other hand, the similarity in ratings could be because mediated health and sanitation information helped women mitigate the adverse effects of the flood.
2. The study included three different groups - interviewers, relief network representatives, and rural citizens with varying levels of education. All these groups had different opinions of whether radio works in disaster mitigation or not, and also different takes on how the government manages public health. All these viewpoints appear valid from the respective perspectives, but the researcher's task is to formulate the narrative as close to the reality as possible. Therefore, methodology can critically affect the objectivity and reality of the research findings.
3. The interviewers approached villagers with questions that were not giving anything tangible in return; the idea was to gather feedback on radio broadcasts. However, many villagers pictured interviewers as aid providers, based on their previous experiences with humanitarian organizations' volunteers. This clash in viewpoints may have affected the responses, and consequently the results.

Causal modelling of knowing how to prepare: A concept for a 'strategic Bayesian operations room' exercise

Corresponding Author:

Tapio Reinekoski
Tampere University Finland
tapio.reinekoski@tuni.fi

Author(s):

Marko Ahvenainen[1], Nina Janasik[2] and Annukka Lehikoinen[3]

[1]University Of Turku, Marko.Ahvenainen@Utu.Fi, FIN
[2]University Of Helsinki, Nina.Janasik@Helsinki.Fi, FIN
[3]University Of Helsinki And Kotka Maritime Research Centre, Annukka.Lehikoinen@Helsinki.Fi, FIN

Constructing situational awareness from uncertain knowledge in crises is crucial for taking decisive action. Gaining such insight is a very 'Bayesian'[1] practice in the sense that observations of new information update prior beliefs and result in a new posterior understanding. Priors and posteriors are not only distributed across people, organisations, and devices, but they also extend in time, from acute operative management to long-term strategic planning. To systematically take on these dimensions in crisis governance, we present a 'strategic Bayesian operations room': a table-top exercise for diagnosing long-term risks with causal modelling.

We carried out the exercise with expert officials of a city in Finland. The initial scenario involved an industrial logistics accident and a chemical spill in an urban area, with the scope of the short-term outcomes represented as a Bayesian network model. The participants were to follow the model's causal logic and discuss how the causal mechanisms and mediating factors related to the accident could unfold and endanger the city's long-term goals. The participants were also asked to describe and quantify the strengths and uncertainties of the causal links that they identified. After all this input was coded into a calculable Bayesian network, we presented the model and the preliminary analyses that we ran on it to the participants. Their task with this new knowledge was to diagnose what they considered critical risks for the city.

We derive three strands of approaches and results. First, the participants found the exercise to be an attractive method for communicating across expertise boundaries and for taming uncertainties into risks for which to prepare strategically. Second, the *probability*-based model amplified two kindred socio-cognitive notions: articulations of what is both *plausible* and *possible*. We conclude all three categories to be at play when assessing causal mechanisms and viable courses of action. Further, and third, the exercise enacted two 'separate but mutually constitutive' modes of *qualculation*[2], that is, of both quantifiable and qualitative judgment. They were prominent when translating the deliberations into model features as well as in the participants' evaluations of the worth of the city's ecosystems, financial stability, and health and safety.

[1] Bayes, T & Price, R (1736). An essay towards solving a problem in the doctrine of changes. *Philosophical transactions (1683–1775)* (53), 370–418.

[2] Callon, M & Law, J (2005). On qualculation, agency, and otherness. *Environment and Planning D: Society and Space* (23), 717–733.

How to get a feel for the (unknown) real? – Emergency exercises and the production of synthetic experience

Corresponding Author:
Markus Jenki
Centre for Security and Society University of Freiburg Germany
markus.jenki@css.uni-freiburg.de

Author(s):

Sabine Blum[1] and Nils Ellebrecht[2]

[1]Centre For Security And Society University Of Freiburg, Sabine.Blum@Soziologie.Uni-Freiburg.De, DEU
[2]Centre For Security And Society University Of Freiburg, Nils.Ellebrecht@Soziologie.Uni-Freiburg.De, DEU

Safety concepts for railway tunnels deal with low probability-high consequence scenarios. They combine various methods and technologies, tools, measures and people, in order to envision, prevent and prepare for coping with potential future tunnel emergencies. As the lecture will argue, simulation exercises of different types and scales – always dedicated to allow participants *to get a feel for the real* – play a key role in this undertaking. When looked at more closely, though, answers to the question of how (and why) to achieve this goal are far less straightforward than the oft-heard call for "realism" amongst planners and practitioners might suggest.

In fact, as the presentation will argue by drawing on empirical examples, the "feel" for the real sought for in simulation exercises, has to be

1. understood in cognitive, physical and affective terms
2. analyzed by differentiating between different groups of actors, participating in different roles and functions, bringing in different organizational backgrounds and expectations.

Emergency exercises can be conceptualized in terms of a "doubling of reality" (Luhmann) which allows for observations and experiences otherwise not available to participants as well as observers. They promise to render present and offer a chance to familiarize oneself with emergency scenarios exceeding routine processes, know-how and skills so as not to be overwhelmed and unprepared should a disastrous event resembling them ever become real. The problem, though, is not only that first-hand experience to draw from is scarce and thus the making of exercises amounts to a process of invention. What is more, it is by no means clear whether experts do have the same things in mind, when discussing the 'realism' vs 'artificiality' of such a scenario. Or when reflecting on the specific value and importance of (synthetic) experiences generated by staging and enacting, or else, analytically probing into it.

The lecture will zoom in on heterogeneous (im)material means and dispositions that different actors mobilize and display in order to produce and/or undergo 'realistic' synthetic experiences. Empirical material drawn from interviews, documentation and ethnographic observations during different phases of the exercise cycle will be used to illustrate how different dimensions of 'realism' are thereby addressed and 'enhanced'. The overall aim is to get a better understanding of the multi-faceted character of 'realism' and the aspired 'feel for the real' by means of simulation exercises.