Practicing Evidence – Evidencing Practice. How is (Scientific) Knowledge Validated, Valued and Contested?

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Practicing Evidence – Evidencing Practice
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„Embrace evidence“ has been the rallying cry of many of the „Marches for Science“ over the last three years. „Evidence“ is hard to define and by extension alters when it is considered from different perspectives. In spite of this, or perhaps because of this, it has become a central and essential concept for the sciences. A seemingly fundamental premise is that evidence is grounded in scientific inquiry and linked to actions and performances. Evidence understood in this way legitimates both research and results. In addition to the focus on scientific practice, the topic of „evidence“ is currently of great relevance to society in general: it is an important reference point in evidence-based policy; but simultaneously, in debates about „post-truth“ or „alternative facts“, scientific inquiry and the production of evidence is called into question.

The „Practicing Evidence – Evidencing Practice“ conference was hosted by the interdisciplinary DFG research group 2448 of the same name, with the aim of discussing the processes and performances of evidence and its validation. Contributors were asked to consider what does (and does not) count as evidence in different (scientific) contexts? How does context affect evidence production and performances? What effect does it have on the concept and performance of evidence when it is challenged in scientific or societal debates? The panels of the interdisciplinary conference and pre-conference workshop were thus closely linked to the thematic focus areas of the organising research group, which aims to explore the scientific and social arrangements of the production, performance and application of evidence.

Spokesperson for the group, KARIN ZACHMANN (Technische Universität Munich), underlined two dimensions of evidence in her introduction: first, as an epistemological, subjective, immediate certainty (self-evidence); and second, as a discursive and intersubjective reliable sign (evidence for something else). Project Co-ordinator SARAH EHLERS (TU Munich) emphasized the necessity of historical methods within the perspectives of social science, in order to understand the referential function of evidence. Thus, it was the importance of context which was highlighted in both the introductory speeches and the conference as a whole. Focusing on context is to focus not on either the production or the utilization of evidence, but to highlight the interface, where the different but inextricably linked logics of making and using of credible knowledge come together. Evidence can be seen as a performance of data, information and knowledge which raises claims for validity and justifies positions.

In her opening keynote, ANGELA CREGGER (Princeton University) focused on the questions of why and when evidence is produced. She presented scientific, legal and social debates surrounding alleged toxic substances and chemical testing procedures. Tests – for example the Ames Test, established in 1973 in order to prove the connection between genetic mutations and chemicals – played a key role in the debates. Cregger’s examples made clear that scientific arguments are not enough to validate the (commercial) use of chemicals, especially in the United States. Rather, legal, economic, social and political contexts must be used to understand how and why scientific knowledge has an influence in decision making, and whether the expertise of scientists and their inquiries should be considered or not.

In the first panel „Evidence for Epistemologies“, JOSEPH FREEDMAN (Alabama State University) gave a philosophical and historical overview of evidence and its connection to scientific methods between the 16th and 18th century. UTE DEICHMANN (Ben-Gurion University of Negev) referred to the relationship between evidence, theory, and scientific beliefs by means of the conflict in early molecular biology between Linus Pauling and Francis Crick. Deichmann emphasized the necessary role subjectivity also plays in science, as a means of completing scientifically collected...
data to establish theories. In order to understand how new evidence practices (mathematics) gained ground in (electrical) engineering and pushed school culture ahead in US engineering, ADELHEID VOSKUHL (University of Pennsylvania) broadened the view and reconsidered the context of migration between 1890 and 1930. Drawing together the discussion, KARIN ZACHMANN’s comment noted how all three panellists had observed, at distinct points in time and in separate subject areas of knowledge, how ideas about what guarantees the credibility or probability of knowledge differed. Scientific methods, data and mathematics had all been used as warrantors for evidence.

ANJA BAUER (Alpen-Adria-University Klagenfurt) began the second panel „Evidence for Policy“ with an analysis of computer models and their supportive role in public policy. Bauer discussed the effects of the proliferation of modelling approaches, the integration of models into a model network, and the pros and cons of openly-accessible models. STEFFEN KRÄMER (Berlin) compared two different public tools for data-collecting and analysis. With examples from humanitarian mapping and disease surveillance he outlined the intermediary role scientists play in validating this „evidence“. KARI LANCASTER (University of New South Wales/London School of Hygiene and Tropical Medicine) focused on the performativity of evidence-based intervention in health issues. She drew attention to the performative element of science by presenting examples of drug policy and public health policy. In her comment, RUTH MÜLLER (TU Munich) questioned the appropriacy of a relationship between politics and science, evidence and evidence practices. Müller discussed in which ways the framing of socio-political aspects as subjects of scientific inquiries is problematic.

In the second keynote of the conference, HARRY COLLINS (Cardiff University) addressed the relationship between democracies and science. Using the example of the detection of gravity waves, Collins introduced the effects of a five sigma confidence level in scientific results and the dimensions of statistic accuracy – and the possibility to fail therein. Collins emphasized the importance of collaboration between scientists and the necessity of face-to-face meetings. He portrayed science as a valuable provider of checks and balances in pluralist democracies. Science should be understood as „craftwork with integrity“. In the discussion, the question of whether this slogan is enough was raised: science is also understood as a search for truth and a task such as this differs from the ones of craftwork. Further discussion covered the aspects of marginalization in, and by, scientific communities and the handling of „anti-scientific arguments“.

In the third panel „Narrative Evidence“, CHRISTIANE ARNDT (Queens’s University) presented an analysis of visual narrations and evidence production in historic anti-vaccine movements. She argued that pictures in anti-vaccine publications tried to tell a story, with viewers then taking an active part in perceiving images and producing evidential stories about the harm of vaccination. Here, evidence is closely linked to established codes which lie beyond such images. HELENA BILANDZIC and SUSANNE KINNEBROCK (University of Augsburg) presented their project about the investigation of „evidencing practices“ used in science journalism to support scientific findings. Their empirical case study on the coverage of science in mass media concluded that there are different strategies of evidence production. The reference to authorities, followed by narratives and the presentation of data are the most relevant evidence practices. JILL HOBBS (University of Saskatchewan) examined the role of narrative stories in the communication of food technologies. As an example she cited a case study where participants were asked what kind of genetically modified food they would purchase after reading logical-scientific or narrative sources of information about modification. Framing, access to information, and narratives had an impact on the decision of potential customers. MARIACARLA GADEBUSCH BONDIO (Rheinische Friedrich-Wilhelms-University of Bonn) commented on the various roles narratives play in the (re-)production and adjusting of evidence: she discussed the results of the transformation of scientific data to narratives.
and the consequential loss of information; and emphasized the ambivalent character of narratives regarding to evidence production and communication.

„Communicating Evidence“ was the title of the fourth panel. ALYSSE KUSHISNKI (Université de Montréal) focussed on the role of charts, diagrams and models in rendering and mediating data. Even though such modes of presenting data have an important function in mobilizing scientific and political ideas, their status is ambivalent because of the restrictive character of modes of aesthetic visualisation. DANA WILSON-KOVACS (University of Exeter) provided a detailed look at practices of evidence production in digital forensics from a sociologist and ethnographic perspective. She investigated the circulation and transfer of criminal evidence in regard to the complexity of the field. These practices are situated, contextual and often external from laboratory conditions. SABINE MAASEN (TU Munich) laid great stress on the presentation and interdisciplinary application of evidence as well as on the generative dynamic of evidence and evidencing practice; the ethical, political and social dimensions of evidence.

In the fifth panel, „Material Evidence“, WILLEMIJN RUBERG (Utrecht University) first outlined the relation between evidence and psychoanalyses in the Netherlands in the mid-20th century. After having presented several key cases from her study, she concluded that even though psychoanalysts and their vocabulary were accepted as experts in courtrooms, the contents of their assertions were often rejected. YI LU (Harvard University) discussed archives and private collections of documents in China. After several interventions by the Chinese government, many documents from former official archives are now part of private collections. This is an ambivalent development: on the one hand, documents are saved from destruction; on the other hand, private collectors are faced with accusations of profiteering and dubious motivations. By drawing on examples from linguistic, archaeological, geographical and ethnological scientists in Latin America in the late 19th and early 20th century JULIA RODRIGUEZ (University of New Hampshire) underlined the role of „land as evidence“. The significance of land is threefold: as landmass, as landscape and as soil. In her conclusion Rodriguez asserted that evidence is necessarily connected to places and the accessibility provided by local persons. Concluding the panel, STEFAN ESSELBORN (TU Munich) commented on the materiality of evidence, the relation between materiality and both expertise and performance, and the possibilities of transformation and de/recontextualisation of evidence. In the subsequent discussion, the ethics of the relation between accessibility, power and local knowledge were in light of recent debates about restitution prominent.

In the sixth panel, „Alternative Evidence“, SARAH BLACKER (York University) presented two case studies regarding environmental contamination in the Canadian settler-colonial context which concerned knowledge dynamics between scientists and voluntary participants. It is scientists analysing the collected information who have a key position in such methodological approaches. YUNUS D. TELLIEL (Worcester Polytechnic Institute) focussed on the role of „scientific miracles“ as a genre of evidence in religious literature. He outlined the ongoing debates between religion and secular discourses in science. Research should be open to attitudes and sensibilities of evidence-seeking agents from both discussions. ELIZA VIANNA and LUIZ ALVES (Federal Institute of Alagoas) described the influence of activists from the Pela Vidda Group on the development of health care in Brazil. They showed how patients and political agents were able to create evidence about the treatment of AIDS. Patients transformed their role from a passive target group for treatment to providers of expertise by, for example, translating scientific literature and informing medical personnel. In her comment SARAH EHLERS (TU Munich) recapitulated and stressed the relationship between evidence and its evidence seeking subjects in these three very different groups outside of the classic scientific world. In the process of evidence production, both scientists and activists engage in the translation and meditation of information.

The undeniable value of an interdisciplinary and international workshop and con-
ference to the study of evidence was clear in the discussion which closed the event. Even though the notion of evidence differs across times and disciplines, it provides a common ground through which to better understand the development of knowledge societies. On the one hand, evidence always has a political and social dimension. On the other hand, the concept of evidence offers a possibility to talk about broad social phenomena. Furthermore, conference papers and the discussions that followed made clear that research on the topic evidence needs to reflect the status of science in society, regarding aspects of trust or responsibility. Therefore, the relation between democracy and science is reciprocal, with both having an impact on the fundamental procedures of the other. Although epistemological problems still exist, “evidence” has the potential to bring together different perspectives: either regarding the impulses of non-scientific agents or in the perspective of scientific interchange.

Conference Overview:

Opening Keynote
Angela Creager (Princeton University, USA). To test or not to test? Science and evidence in environmental regulation.

Panel I: Evidence for Epistemologies
Chair: Stefan Esselborn (TU Munich, Germany); Comment: Karin Zachmann (TU Munich, Germany)
Joseph Freedman (Alabama State University, USA). Evidence and the scientific method as understood in academic philosophy during the 16th, 17th, and early 18th centuries.
Ute Deichmann (Ben-Gurion University of Negev, Israel). Data, theory, and scientific belief in early molecular biology: Pauling’s and Crick’s conflicting notions about the genetic determination of protein synthesis and the solution to the ‘secret of life’.
Adelheid Voskuhl (University of Pennsylvania, USA). Engineering evidence and technological practices in the second Industrial Revolution.

Panel II: Evidence for Policy
Chair: Sascha Dickel (Johannes Gutenberg University Mainz, Germany); Comment: Ruth Müller (TU Munich, Germany)
Steffen Krämer (Berlin). Separating urgency and validation – A comparative reading of humanitarian mapping and disease surveillance.
Kari Lancaster (University of New South Wales, Australia • London School of Hygiene and Tropical Medicine, UK). Evidence-making intervention: new ways to think about evidence, policy and interventions in health.

Keynote
Harry Collins (Cardiff University, UK). Evidence and expertise in pluralist democracies.

Panel III: Narrative Evidence
Chair: Jutta Roosen (TU Munich, Germany); Comment: Mariacarla Gadebusch Bondio (Rheinische Friedrich-Wilhelms-University of Bonn, Germany)
Christiane Arndt (Queen’s University, Canada). Practicing evidence by visual narration in the historic Anti-Vaccine movement.
Helena Bilandzic and Susanne Kinnebrock (University of Augsburg, Germany). Narratives as evidencing practice in the science coverage of genomic research.
Jill Hobbs (co-author Yang Yang) (University of Saskatchewan, Canada). Communicating novel food technologies through narratives: evidence from a Canadian consumer survey.

Panel IV: Communicating Evidence
Chair: Susanne Kinnebrock (University of Augsburg, Germany); Comment: Sabine Maasen (TU Munich, Germany)
Alysse Kushinski (Université de Montréal, Canada). Charting course: rendering, evidencing and mediating data.
Dana Wilson-Kovacs (University of Exeter, UK). Practices of evidence production in digital...
forensics.

Panel V: Material Evidence

Chair: Fabienne Will (Deutsches Museum, Germany); Comment: Stefan Esselborn (TU Munich, Germany)

Willemijn Ruberg (Utrecht University, the Netherlands). Psychoanalysis and the practice of forensic psychiatry in the Netherlands, 1930–1960.

Yi Lu (Harvard University, USA). The dustbin of history: archives as material evidence.

Julia Rodriguez (University of New Hampshire, USA). No ‘mere accumulation of material’: land as evidence in early Americanist anthropology.

Panel VI: Alternative Evidence

Chair: Helmuth Trischler (Deutsches Museum, Germany); Comment: Sarah Ehlers (TU Munich Germany)

Sarah Blacker (York University, Canada). Adjudicating what counts as ‘sound science’: practices of rendering data into evidence in Canadian environmental science.


Eliza Vianna and Luiz Alves (Federal Institute of Alagoas, Brazil). When patients mobilize evidences: activism and the production of knowledge on AIDS in Brazil

Final discussion and concluding remarks

Tagungsbericht Practicing Evidence – Evidencing Practice. How is (Scientific) Knowledge Validated, Valued and Contested?