

The 'Inter-Disciplined' Exhibition – A Case Study

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Abstract

This article contributes to the analysis and transparency of the practical processes of interdisciplinary exhibition-making. It identifies the academic discourse on *interdisciplinarity* as having the potential to provide a meaningful input to the formation of theory on temporary exhibition-making. The subject of enquiry is a recent case study from Germany. It investigates the relationships and decision-making processes that underpinned the production of the interdisciplinary exhibition *Weather Report – About Weather Culture and Climate Science* (Bundeskunsthalle, Bonn, 2017/18), which combined curatorial perspectives from the fields of art, cultural history and science. It traces the curatorial process, from forming an interdisciplinary team and negotiating conceptual ideas and methods, to object choices, interpretation and exhibition design. I argue that the complexity of interdisciplinary exhibition-making calls for a more precise and practice-oriented application of what is an often generalized notion of interdisciplinarity. By discerning between multi-, inter- and transdisciplinarity, and understanding the three terms as offering different qualities of interaction and integration, I suggest using these terms as a finer vocabulary for a detailed description and analysis of the practical processes of collaborative exhibition-making. Taking interdisciplinarity seriously also inevitably leads to the question of institutional consequences.

Key words: Exhibition-making, interdisciplinarity, museum practice, curating, art and science, climate change

1. Introduction

This case study¹ analyses the process of making the interdisciplinary exhibition *Weather Report – About Weather Culture and Climate Science*, which was shown at the Bundeskunsthalle (Kunst- und Ausstellungshalle der Bundesrepublik Deutschland) in Bonn from 7 October 2017 to 4 March 2018. Based on the assumption that the global problem of climate change cannot be solved by one discipline alone, the exhibition attempted a multi-perspective take on this topic, combining objects from the fields of art, cultural history and the natural sciences. I led this exhibition project as internal curator and exhibition manager of the Bundeskunsthalle together with a team of two external curators.

There were two main reasons for undertaking this retrospective case study. Firstly, as a PhD researcher working with concepts of interdisciplinary exhibitions and knowledge production, I wanted to investigate the curatorial work and actual production process of interdisciplinary temporary exhibitions, to gauge if and how this specific type of exhibition creates new knowledge during the collaborative curatorial process. In this case study, I take the exhibition *Weather Report* as an example, to reflect on how it worked as an interdisciplinary project by documenting critical moments and developments during the stages of its production. My perspective is that of a project participant, and as such I am especially interested in the internal, often unacknowledged, processes that happened before the exhibition finally

opened and was presented to the public. My focus primarily lies in the dynamics within our curatorial team. Although this internal perspective might be questionable, in terms of an impartial evaluation of the quality of both the curatorial work and the resulting exhibition itself, it nevertheless constitutes the second reason for writing this case study, which is to contribute to the transparency of curatorial processes (Norton-Westbrook 2015: 349). In this case I do this not so much for reasons of political legitimacy, but for a greater reflexivity on the practices of the profession itself.

In his introduction to the volume on museum practice in the *International Handbooks of Museum Studies*, editor Conal McCarthy finds a gap in the theorizing by museum professionals of 'the professional practice as such', and he states that 'the actual practice of curating/exhibiting/managing itself' is yet only rarely reflected on theoretically (McCarthy 2015: xxxix, xl). I aim to position this case study just there by specifically looking at the practical processes and methodologies of making interdisciplinary exhibitions. By examining their challenges and potential as well as the relationships and hierarchies amongst the involved participants, I also want to explore feasible collaborative standards for such exhibitions.

In order to understand what interdisciplinary exhibitions are and how they are conceptualized and produced, the method of individual case studies or 'ethnographies of exhibition-making' (Nicolescu 2016: 466) is particularly rewarding, as they can unveil and analyse the possibilities and limitations of exhibition-making practice from an insider's perspective. A 'critical' style of 'autoethnography', which acknowledges the researcher's standpoint but is 'accessible (...) to judgement and evaluation' (Adams *et al.* 2015: 89), helps to connect insider experience and knowledge to a larger academic discourse (Adams *et al.* 2015: 25). Writing a case study from the internal perspective of a case study participant promises to be a difficult task, though. Reflecting on your own practice can feel like 'a kind of crisis' (Macdonald and Basu 2007: 6). Firstly, because there is a certain secrecy going along with inner-institutional production processes, since disclosing the 'disjunctions, disagreements and "surprise outcomes" involved in cultural production' does not necessarily meet the objectives of an institution's 'impression management' (Macdonald 2002: 8), even in hindsight. Secondly, these everyday-procedures do not seem worthy of being theorized, since for the practitioner at least, they often seem to be routine activities or, as Sharon Macdonald put it in *Behind the Scenes at the Science Museum*, 'one of the problems that an ethnographer working in a relatively "unexotic" setting may face is how to defamiliarise the familiar' (Macdonald 2002: 7). Although I aim to shift my perspective from a participant to that of a retrospective observer – a 'participant-observer' (Macdonald 2002: 12) or 'participant academic' (Nicolescu 2016: 466) – this attempt at repositioning may raise valid questions about my ability to distance myself from my own role in the process of making this exhibition; nevertheless I plan to make up for this deficit by including the views of colleagues who were also able to critically reflect on my own actions during this process. My primary source for this case study are two long interviews with the external curators of this exhibition (see section 3).

As a theoretical framework for a finer understanding and a more detailed description of this exhibition I will use Julie Thompson Klein's taxonomy of interdisciplinarity (Klein 2010: 16). In this article the term interdisciplinarity will be used in two distinct ways: firstly, as a general term, and secondly, as a more specific and nuanced analytical tool (the latter set in italics throughout this text). Klein distinguishes three types of interdisciplinarity (here serving as the general term): multidisciplinary, *interdisciplinarity* (in a narrower sense) and transdisciplinarity; all three describe different qualities of interaction and integration (Klein 2010: 16).

Multidisciplinary 'is encyclopaedic in character' (Klein 2010: 17); it is akin to a 'pseudo interdisciplinarity' in that it can be described as juxtaposing, sequencing, coordinating, complementing and indiscriminate (Klein 2010: 16). 'It is essentially additive, not integrative' (Klein 1990: 56). Many projects that label themselves as being interdisciplinary are in fact multidisciplinary.

Interdisciplinarity (in a narrower sense) is described as an integrating, interacting, linking, focusing, blending, generalizing kind of collaboration, which enables at least a 'partial integration' (Klein 2010: 16).

The definition of transdisciplinarity is twofold, as it is either understood as 'full integration' or as 'transsector interaction' (Klein 2010: 16). Here, the second reading of this term will be more relevant.

In this case study, I aim to identify instances where these three forms of interdisciplinarity were at play, both during the production process and in the resulting exhibition itself, and to discuss their differences, benefits and limitations. I will also show that all three kinds of interdisciplinarity can be at work at the same time, and even in a meaningful way. Making an interdisciplinary exhibition means allowing for complexity, and it is this complexity that asks for a more precise, differentiated and practice-oriented usage of the general term interdisciplinarity. In a more critical sense, interdisciplinarity can also mean placing a heavy burden on a project by aiming to emulsify sometimes incompatible views, methods, and contents for political or institutional reasons, resulting in an 'inter-disciplined' project in an almost penalizing sense, as the title of my case study suggests. So, this is in truth also a story about coping with a not entirely self-chosen interdisciplinary collaboration.

After introducing the exhibition *Weather Report* and its curatorial team in sections 2 and 3 of this case study, section 4 is dedicated to a detailed analysis of the interdisciplinary production process, starting with forming the team (4.1) and jointly developing the exhibition concept (4.2), moving on to negotiating and choosing objects (4.3), and finally struggling for a joint curatorial language for interpretation and exhibition design (4.4). The conclusion (section 5) will discuss possible institutional consequences and collaborative standards.

2. The exhibition *Weather Report*

The exhibition *Weather Report – About Weather Culture and Climate Science* was developed and staged by the Bundeskunsthalle in Bonn, a federal institution for changing temporary exhibitions without a collection of its own, in cooperation with the Deutsches Museum, Germany's largest science museum. In May 2017, whilst already entering the crucial phase of the production process, the exhibition became part of the cultural programme for the World Climate Summit COP 23 of the United Nations Framework Convention on Climate Change (UNFCCC) which took place in Bonn during the exhibition period from 6 to 17 November 2017. This perfect coincidence, and the resulting political elevation of the exhibition, had significant curatorial implications as it changed the exhibition concept by further increasing our level of political awareness.

The Bundeskunsthalle (Germany's national exhibition hall) in Bonn was opened in 1992 after decades of planning, and incidentally shortly after the political decision was made to move the capital to Berlin. Its large-scale and multidisciplinary exhibition programme was modelled after the Centre Pompidou in Paris (founded in 1977). Since 1992, over 250 temporary exhibitions have been conceptualized and staged at the Bundeskunsthalle, where I have been working as a curator and exhibition manager since 2002. Besides predominantly art and art history exhibitions, the institution has developed a special expertise in conceptualizing large cultural history exhibitions – often combining historical, geographic, scientific and thematic content in a multi- or even *interdisciplinary* way.

The main theme of the exhibition *Weather Report* considered how short-term weather events and long-term climate change influence human civilization and culture. Our central presumption was that the term *climate* is abstract, while *weather* is all around us. Thirty years of weather data are needed to identify a climate state; therefore, weather is climate made tangible, which makes weather far easier to grasp and communicate. Adopting an experimental and interdisciplinary approach, this large show aimed not only to unite these two rather artificially separated terms, but also to include objects from the realms of art, cultural history, ethnography and the natural sciences from all around the world – altogether up to 400 objects from around 100 lenders from all over Europe (Andreae *et al.* 2017; see also section 4.3 of this case study).

The original focus of the exhibition concept was on the poetic, existential and phenomenological qualities of the weather and humankind's approach to it. The latter oscillates between religious belief, superstition and attempts at rational explanation, and it does not follow a reputed historical chronology of increasing rationality. As the project developed, scientific themes such as the history of meteorology and current aspects of global climate change became more and more important, ultimately also because of our cooperation with the UNFCCC.

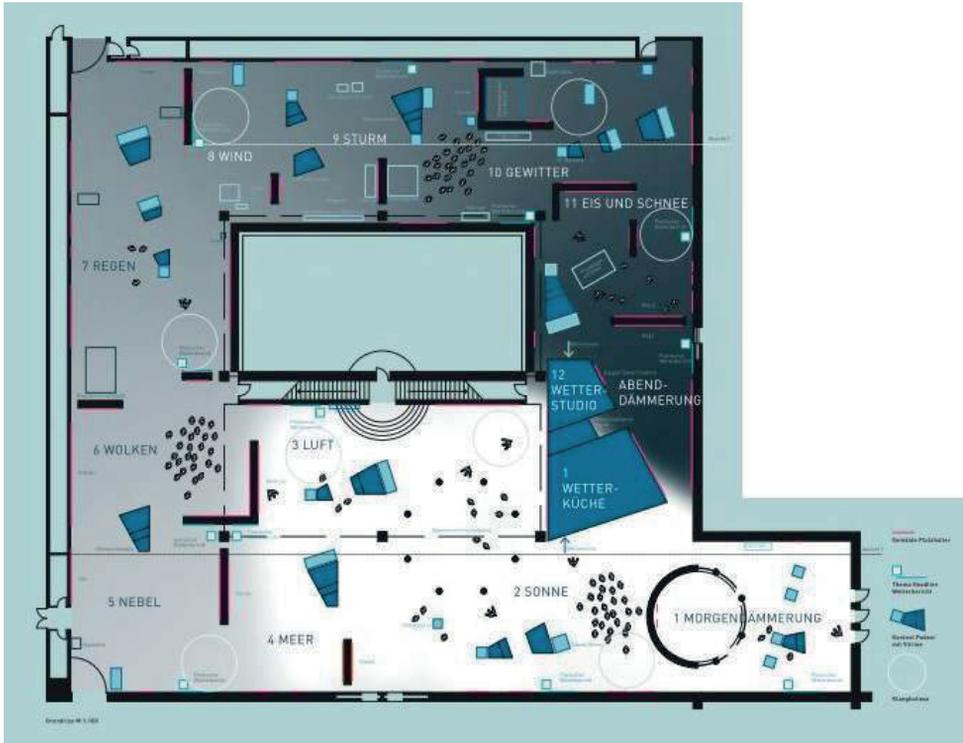


Fig. 1 First draft of the exhibition layout for Weather Report, 2017, © Bertron Schwarz Frey, Berlin/Ulm

The exhibition was divided into twelve rooms that described the constituting elements and diverse phenomena of the weather as it unfolds over the course of a day. The visitors would move from a mythically charged 'Dawn'² to rooms dedicated to 'Sun', 'Air' and 'Sea' (which together with the land masses form the four constituting elements of the weather system); then – on the exhibition's fictional time-scale around noon – moving on to 'Fog', 'Clouds', 'Rain' and 'Wind' in the afternoon, and from 'Gale', 'Thunderstorm', and 'Snow and Ice' into 'Dusk'. The exhibition grew darker from room to room (Fig. 1), culminating in a more or less apocalyptic night. The exhibition's intensifying weather threats during its fictional course of a day were on a larger timescale associated with the growing climate change threat.

The aim was to give equal billing to the wonder and beauty of the individual weather phenomena as well as to their still fragmentary scientific explanations. The exhibition clearly wanted to serve educational purposes, but mainly aimed to reach its visitors emotionally and aesthetically, in order to raise awareness of the essential importance of all weather phenomena in our daily lives and during our entire lifetimes (Fig. 2 and 3). Thus it also aimed to raise awareness of the immense contingency, complexity and fragility of the Earth's atmosphere, with its short-term weather and long-term climate systems.

3. The curatorial team

The curatorial team of this exhibition project was interdisciplinary in another more specific sense, as it involved curators from differing museum contexts, while other academic experts (non-museum-professionals) were involved as advisors or lenders, but were not part of the curatorial team. The most important external advisor to the exhibition was a renowned meteorologist and TV weather presenter, hereafter referred to as the *meteorological advisor*. The actual curatorial team consisted of two external guest curators from very different



Fig. 2 The exhibition room 'Sun' with historical parasols in the foreground, Parasolerie Heurtault, Paris. Photo: David Ertl, © Kunst- und Ausstellungshalle der Bundesrepublik Deutschland



Fig. 3 The exhibition rooms 'Gale' and 'Thunderstorm' with Germaine Richier's, Storm Man [L'Orage] and Hurricane Woman [L'Ouragane] in the foreground. Photo: David Ertl, © Kunst- und Ausstellungshalle der Bundesrepublik Deutschland

museological backgrounds, and as the institutional curator of the Bundeskunsthalle I took on a predominantly coordinating, organizing and synthesizing role. The two guest curators were an *art curator*, who had the initial idea for the exhibition, and a *science curator*,³ who joined the team at a later point in time. Although these titles might suggest that this curatorial team predominantly involved a meeting of different disciplines, it also, of course, involved the meeting of three very different individuals and personalities.

The art curator is an independent artist and very experienced senior exhibition curator who had worked at the Bundeskunsthalle for more than twenty years until his retirement in 2014. He had been developing the idea for this exhibition since 1999, but it took many years until the project made it into the institution's scheduled programme. His approach on exhibition-making is rooted in the conceptual tradition of the 1970s *Musée Sentimental* by the Swiss artist Daniel Spoerri, who invented a new, associative, poetic, and anti-authoritarian take on historical exhibitions, including objects of everyday life, which withstood traditional museological material categories, narratives, and conventions. Objects were chosen according to their emotional and anecdotal qualities – meaning the stories behind them – rather than their established historical or art historical value (Plessen *et al.* 1979: 15). In this spirit, the art curator has curated a number of very successful exhibitions in the history of the Bundeskunsthalle, often approaching natural science themes from an artistic point of view, for example in the exhibitions *Arctic – Antarctic* (1997) and *Outer Space* (2014).

The science curator is a member of the curatorial staff of the Deutsches Museum Bonn, the Bonn branch of the Deutsches Museum in Munich, Germany's largest science museum, which contributed a significant number of loans to the exhibition. His original expertise was military history (a surprisingly useful discipline in connection to the field of meteorology), but during his museum career he has become a very experienced science curator with wide-ranging interests in the discipline. His work focuses on the history of natural sciences as well as on new scientific inventions and developments, and he is especially interested in innovative ways of communicating complex content to a general audience. He joined the curatorial team in 2015, two years before the opening in 2017.

As the third team member, I led this project as the institutional curator and exhibition manager of the Bundeskunsthalle in a mainly organizing and synthesizing role from late 2014. Having originally majored in Chinese studies, I started working at the Bundeskunsthalle in 2002 and initially focused on ethnographic and cultural history exhibitions, simultaneously also developing a strong interest in contemporary art and natural science topics. As a curator, or more precisely an exhibition-maker, I see myself more and more as a thematic generalist, while at the same time becoming a 'bridge-specialist' (Klein 1990: 131), as I am especially drawn to complex and interdisciplinary thematic exhibitions that require an 'intercultural competence' (Lerchster and Lesjak 2014: 86) alongside other curatorial and management skills.

Of this team of three, the art curator, who had originally suggested the project, was more or less forced by the institution to enter into the collaboration with the science curator, the latter having the task of adding a more educational approach to the already existing artistic exhibition concept. These unequal tasks and conditions ascribed to the two external curators – explained in detail later in this case study – along with a tight time schedule were not ideal (but perhaps also not entirely untypical) for establishing a creative interdisciplinary team. The process of negotiating a joint exhibition concept (and of clarifying which type of exhibition was intended in the first place) oscillated between collaborative creativity and individual resistance.

While analysing our team structure, power-balance and production process in greater detail, I will draw on two interviews that I separately conducted with both external curators shortly after the exhibition closed its doors in March 2018. For these interviews I developed a set of general questions for external exhibition/museum curators and university-based academics (who, during the process of exhibition-making, become curators), who collaborated in interdisciplinary exhibitions co-curated and managed by myself at the Bundeskunsthalle. The fifteen questions aimed at gaining a retrospective analysis of the process of making the exhibition, starting from jointly developing an exhibition concept, through negotiating and choosing objects in an interdisciplinary team, to finding a joint curatorial language for interpretation and exhibition design. The questions focused especially on key issues and

moments of decision making. They also allowed for a deep feedback conversation, which in itself was a most valuable undertaking. This allowed me to reflect on my own curatorial and managing role in this team system – especially my role of enabling and suppressing individual and even joint creativity, as the following discussion will show.

4. Interdisciplinary exhibition-making: thickening the plot and being ‘inter-disciplined’

4.1 Forming an interdisciplinary team

Admittedly, the curatorial team had a difficult start. The beginning of an *interdisciplinary* collaboration is important in terms of the development of the project content as well as for the social aspect of the team structure, and getting both elements right can help avoid future conflicts (Lerchster and Lesjak 2014: 79). The literature emphasizes the need to clarify the roles of each team member regarding his or her professional identity, research interests, aims and motives, as well as the distribution of space, both literally and figuratively speaking (Lerchster and Lesjak 2014: 83-5). Furthermore the team members should start working together in an atmosphere of openness and trust (Lerchster and Lesjak 2014: 85). The actual circumstances of our exhibition project unfortunately did not allow for such a clear and open beginning to our teamwork.

When I was assigned with the task of realizing the exhibition *Weather Report* (scheduled for autumn 2017) in late 2014, the idea for this project had just been revived, after having been postponed for an indefinite period around the year 2000. By 2014, the topic of weather and climate had become a matter of increasing public concern and had therefore finally been included in the scheduled programme of the Bundeskunsthalle. The art curator, a former colleague, had been developing the idea since 1999, and had from the beginning adopted a multidisciplinary approach, consulting with a large number of academics, artists, and museum curators to compile a preliminary database of around 500 possible exhibits. He had even started to set up an advisory board, but up to this point he understood himself as the inventor and sole curator of this exhibition.

In 2015, the art curator's renewed enthusiasm for his rediscovered project was dampened by the institution's condition that he must collaborate with a science curator. This decision by the artistic director of the Bundeskunsthalle was explained by the notion that the art curator's previous exhibitions on natural science topics had been of exceptional artistic quality but might have profited from a clearer educational structure. So, in early 2015, shortly after I took on the project, we started to form a new curatorial team that included the science curator from the Deutsches Museum – a very desirable institutional partner for the Bundeskunsthalle regarding both its scientific reputation as well as its potential for loans – and occasionally also the meteorological advisor mentioned above.

Instead of being clear about the roles, aims and territories of each team member right from the start, the science curator diagnosed the initial situation in hindsight as ‘unclear and unhappy’.⁴ Despite the attempt to integrate and encourage him by reassuring him that the exhibition concept was still open for discussion and yet to be re-developed in a joint effort – and also out of an initial indecisiveness on our institutional part – there was the underlying yet clear message that the basic structure of the original concept by the art curator (describing different weather phenomena during the course of a day) was ‘sacrosanct’.⁵ This meant that the science curator should keep to only adding an informative layer on top of it – a clearly limited space for creativity. He instantly had the suspicion that this exhibition was supposed to be an art exhibition disguised as a science show, instead of both disciplines meeting on an equal footing. And from the start, he felt he was the ‘junior partner’⁶ with everybody willfully trying to convince him that we were all meeting at eye level.

For the art curator the situation at the beginning of this new working relationship was likewise rather unhappy, as he had a clear idea of the exhibition and was trying to evade any kind of substantial curatorial interference. Feeling that he had been ‘inter-disciplined’ in an almost penalizing sense, he initially still hoped that the science curator's input would only be ‘supportive’⁷ of his own ideas by substantiating them with scientific facts and objects, while at the same time not altering his artistic concept.

But the science curator – despite his own initial scepticism and the art curator's noticeable resistance – proved to be as enthusiastic as the art curator himself, and was determined to enter into an *interdisciplinary* 'battle',⁸ striving for nothing less than an integrative new exhibition concept. Against all institutional odds – such as a narrow time frame and the fact that I was simultaneously still curating and managing an earlier exhibition project which opened in 2016 – we embarked on this endeavour together, me trying to support and encourage both curators, while still searching for my own curatorial standpoint in this project. As the institutional curator and exhibition manager, I was struggling with the aforementioned initial indecisiveness of our institution, which on the one hand embraced this interdisciplinary experiment and its necessarily open result (Heimerl *et al.* 2014: 304), and on the other hand kept the (in our context, conventional) concept of an art exhibition with a few engaging scientific add-ons on standby, as a 'tried and tested formula' (Macdonald and Basu 2007: 18). We all felt that 'interdisciplining' this project meant to be taking a risk, yet the unforeseeable result promised to be at least innovative, or as Sharon Macdonald and Paul Basu put it: 'Experimentalism (...) is a risky process of assembling people and things with the intention of producing differences that make a difference' (Macdonald and Basu 2007: 17). What we tried to do was nothing less than creating a new – and on this scale unprecedented⁹ – exhibition, in which different fields of knowledge and different categories of objects would be allowed to 'interact with each other, generating new and unanticipated outcomes' (Macdonald and Basu 2007: 9).

4.2 Concept development: negotiating ideas, methods and identities

When integration and interaction become proactive, the line between multidisciplinary and interdisciplinarity is crossed (Klein 2010: 18).

The joint revision of the original exhibition concept by the art curator required the transformation of an originally multidisciplinary – mainly additive and only loosely structured – concept into an *interdisciplinary* one by negotiating, linking, focussing and integrating (Klein 2010: 16) our mutual ideas and stories. The first step was to ask the science curator to develop and formulate his own ideas for an exhibition about weather and climate, if possible by keeping the basic structure suggested by the art curator consisting of a sequence of twelve rooms: Dawn, Sun, Air, Sea, Fog, Clouds, Rain, Wind, Gale, Thunderstorm, Snow and Ice, and Dusk. The original concept mainly concentrated on art works and anecdotally charged historical objects associated with each of these weather elements and phenomena.

An apparently not uncommon sense of mutual unfamiliarity (Heimerl *et al.* 2014: 303, 306) was palpable between both curators (and in hindsight confirmed by both interviewees), when the science curator set out to revise the exhibition concept. Before the revisions began, we had mutually agreed on the most important premise of this exhibition: all rooms should include objects from the fields of art, cultural history or ethnography and the natural sciences, and these objects should not be divided by disciplines, but should be allowed to freely associate with each other. The science curator then developed a series of what he called 'weather stories' and 'climate histories' for each of the twelve rooms in which he wanted to unfold the history and future perspectives of meteorology and climate science.¹⁰

Perhaps the most prevalent research theme of both disciplines is the improvement of short- and long-term weather and climate change forecasts. Longing for a clear structure, the science curator therefore suggested combining each weather phenomenon to its matching meteorological measurement: in the room 'Sun', for example, we measured the temperature, in the room 'Air' the air pressure, in the room 'Fog' the humidity etc., because only the collection of such diversified weather data allows a forecast. These measurements would be represented through historical and modern instruments, culminating in an additional educational room at the end of the exhibition called 'Weather Studio', in which the complexity and prevailing uncertainty of forecasts were explained. We all welcomed this idea and together with our meteorological advisor planned yet another educational room at the beginning of the exhibition called 'Weather Kitchen', which was dedicated to the explanation of the global weather system, its immense contingencies and visible human influences.

With this additional narrative the science curator had successfully 'thickened' our 'plot'¹¹ (Rugoff 2015: 44) and had added a convincing structure to it. But, when asked during the

interview whether he had been able to tell his story or whether he had to leave out important content for compromise's sake, he answered that he had only realized about thirty per cent of his own ideas.

In this collaboration I felt like a rejected organ during a transplant. It fills me with great melancholy in hindsight that I never succeeded in entering the art curator's cosmos to initiate a truly harmonic interplay between us.¹²

This disillusioned and disillusioning reflection originated in his notion of never being able to participate fully in developing the content with his counterpart in this collaboration. The art curator not only had a very different approach towards exhibition-making in general, but also had a decidedly artistic, non-academic and rather evasive way of researching and conceptualizing. While the science curator's ideas and concepts were scrutinized by the curatorial team in great detail, the art curator's original ideas – manifested in his extremely inspiring but only loosely connected choice of objects, bursting with stories around them, rather than in larger structured narratives – were mostly treated as established facts. During the entire process both curators saw some of their ideas being rejected by the curatorial team, but admittedly in unequal proportions. This is mirrored in the quantitative proportion of their chosen objects, since the art curator contributed around three quarters of the final list of loans. This disparity was also due to his immense preliminary work in setting up a research database that largely covered the artistic and cultural history aspects of the exhibition's theme.

I am making exhibitions like a sculptor, I create. Which objects will I dare to bring together? What happens when two unfamiliar objects meet? Will there be a spark, or even a lightning between them? By the way, forming a team can be a similarly creative process.¹³

The art curator's idea of an exhibition as an artwork – a 'sculpture' on its own, a 'sumptuously laid table' on which 'the crumbs are as important as the centrepieces'¹⁴ – was not made for compromise, and in hindsight the art curator in fact also confirmed that this collaboration for him had involved 'too many compromises'.¹⁵ For the science curator the main purpose of an exhibition was conveying knowledge in a creative and attractive way, but he was *curious* to cross boundaries by entering the unfamiliar art world and experimenting with object categories and their interpretation. Ruth Phillips convincingly argues 'that wonder and curiosity can move us to accept messiness' (Phillips 2019: 338). Curiosity thus expresses 'a willingness to recognize and accept the irreconcilable multiplicity, plurality, and hybridity of the world' (Phillips 2019: 338). The science curator's curiosity was stifled, however, when the art curator was only reluctantly willing to admit him into his realm, which the science curator experienced as 'more unfamiliar than expected'.

Our teamwork might be compared to the experiment of trying to dissolve iron filings in water. At the beginning you have the impression of an increasingly homogenous emulsion, but then you see the iron filings slowly separating again'.¹⁶

The science curator also described this collaboration as more like working in 'parallel universes',¹⁷ in which each curator defended his individual creativity. We did have moments of collaborative creativity, but these were the exception rather than the rule. Our experience is reminiscent of Ken Arnold's notion that while

research-led art curators still seem predominantly concerned with questions circumscribed by the world of art, (...) science curators seem often intent on reaching out from their home territory into other domains. Certainly the considerable number of projects that champion an intermingling of science with art seem more likely to originate from science than the art side of the divide (Arnold 2015: 333).

In our case, the processes within our curatorial team proved Arnold right, but the overall decision for this art-science collaboration was made by a mainly art-oriented institution, a fact we perhaps should be proud of in the light of Arnold's statement. In his interview, the art curator described his own attitude towards working on this exhibition as 'dancing and playing',

while his colleague, the science curator, was 'walking'¹⁸ on a self-restricting line (referring to his 'science trail' through the exhibition, a line the science curator had only retreated to out of resignation). So, who was the freer thinker? Regarding the openness and flexibility needed to enter into an *interdisciplinary* collaboration, the answer is not what one might expect.

To take the art curator's metaphor further, I was aptly described as 'marching'¹⁹ through this process. These almost poetic descriptions of our differing work styles and attitudes have actually helped us to articulate and explore our roles within the team and within our institution at large, and it seems that poetry can offer a revealing 'alternative voice to the dominant organisational discourse' (Armitage and Ramsay 2020: 213). 'Exhibitions as a product are a complex interaction of institutional norms, wider cultural and political agendas (...) and (...) conventions' (Souhami 2011: 9). My role was to enforce and live up to these norms, agendas and conventions, and at the same time I tried to create free spaces for creativity within the curatorial team. *Interdisciplinary* exhibitions especially require a certain amount of experimentation, which itself needs time, space and other resources in order to flourish (Macdonald and Basu 2007: 17, 18), and these collaborations need time for negotiation and compromise, but time was a rare commodity in this project. And all too often I indeed felt like 'running' through the process. We did 'negotiate' this exhibition 'into being' (Macdonald 2002: 7) by reaching perhaps a partial integration, but many creative ideas were suppressed during the process, and not only because of mutual resistance on the external curators' part. As the exhibition manager, I myself had to suppress our respective individual creativities time and again, including my own. In a good sense, this perhaps served the task, which was to stimulate and insert a larger, new layer of joint creativity to the exhibition concept. In a more problematic sense, my workload in this institutionally-regulated collaborative process forced me to press on with the production process just to meet institutional deadlines and eventually the opening date. No wonder the science curator equally and rightly described me as 'dedicated but overburdened'. There are several reasons why we only partially achieved a creative synthesis of ideas and contents, required for characterizing this exhibition as *interdisciplinary* in the stricter sense defined above (Klein 2010: 16). Our exhibition, although having its *interdisciplinary* moments and aspects (for example its thematic instead of disciplinary order), largely remained multidisciplinary in combining its diverse contents and objects in an accumulative rather than integrative way. But what we did achieve was a multi-perspective and convincingly 'thickened plot'.

4.3 Object lessons: Blurring the lines

The exhibition *Weather Report* comprised 370 objects and 38 videos, graphics, audio-installations (soundscapes), and both informative and inclusive interactive stations from, altogether, 106 lenders from all over Europe. 168 lenders had been contacted with loan requests out of which we received 62 refusals. As the Bundeskunsthalle is an institution without a collection of its own, the exhibition completely relied on loans. In his book with the telling title *Müde Museen* [Tired Museums], Daniel Tyradellis identifies a weak spot when he observes that the practical requirements of loan negotiations and the resulting time pressures too often serve as arguments for preventing further changes and improvements to an exhibition's contents and main ideas, and thus for suppressing creativity, to put it in the terms I have used earlier. He criticizes the accumulative practice of researching and securing loans as a predominant part of curatorial work, which eventually leads to a significant lack in deeply thought-through and carefully developed exhibition concepts that are allowed to grow and improve during the exhibition-making process (Tyradellis 2014: 73-5). Referring to museum collections, Gabriela Nicolescu speaks of 'curators (...) trapped in these everyday practices', restricting their own imagination (Nicolescu 2016: 485). A strong, diligently developed concept (without a preconceived outcome) is even more necessary when it comes to meaningfully uniting the often disparate voices and materials in interdisciplinary thematic exhibitions, such as *Weather Report*.

It is a fact that the acquisition of loans constituted the major part of the work, especially in terms of my own workload. But I cannot say that the process of choosing, requesting and securing loans was altogether ruled by constraint. Although both curators had developed their lists of objects separately, it was when we discussed objects, the stories behind them, and possible connections between them, that we had our best moments of creativity and playfulness within the curatorial team. In an ideal setting, the 'continuous balance between liberty and constraint' and the need for compromise lead to a 'particular porosity' of museum displays, a productive space open for free ideas and interpretation on the curators' and audience's part (Nicolescu 2016: 486). Our intentionally disparate choice of objects left a lot of this desirable 'porosity' or 'interstices' between them. For the art curator these spaces – open to be filled with free thinking – could not be wide enough, while the science curator opted for closer-knit references and connections between the chosen objects. For example, in the exhibition room dedicated to 'Air', the science curator narrated and explained the discovery and measurement of air pressure and the layers of the Earth's atmosphere with a number of outstanding scientific instruments, amongst them the original Magdeburg hemispheres and pump by which Otto von Guericke proved the existence of vacuum in the mid-seventeenth century (Andreae *et al.* 2017: 118, 119). But what unfolded around him was very different. The materiality and the natural (and increasingly artificial) components of air, the aerosols, were for instance exemplified by twelve life size plaster casts of animal noses (sense of smell), an alto saxophone by Adolphe Sax junior (sound waves) and the wing skeleton of a black-headed gull (Andreae *et al.* 2017: 121) alongside an old propeller (the dream of being able to fly). Watercolours by J.M.W. Turner spoke of ash-contaminated air after the eruption of Tambora, leading to a year without summer in 1816 (Andreae *et al.* 2017: 110, 111), while an eighteenth-century Chinese acupuncture mannequin (Andreae *et al.* 2017: 112, 113) referred to a possible cure for the unwanted symptoms of weather sensitivity.

Although the science curator reported in retrospect that he had often felt like making a separate science exhibition within a larger and for him seemingly unpredictable art and cultural history exhibition, he nevertheless enjoyed the inspiring one-two passes with the art curator and me that evolved from often surprising object encounters. In his catalogue foreword, he wrote that the exhibition presented historically and thematically connected objects of different material categories which had often only been separated in the first place due to the specialization of museum collections (Andreae *et al.* 2017: 13).

Luisa Melloh, who completed a substantial BA dissertation on the exhibition in the field of sustainable development, described her 'first most obvious observation' when visiting the show, 'that this exhibition wants to bring together what belongs together' (Melloh 2018: 27). In this atmosphere of open dialogue the objects themselves became 'accessible at multiple levels' (Thomas 2010: 9), blurring the lines between 'cultural' and 'natural' as well as 'human and nonhuman' (Baker 2015: 63, 73). In an old hiking boot and sock lacerated by lightning (Andreae *et al.* 2017: 270), displayed in the exhibition chapter 'Thunderstorm', nature had forcefully manifested itself in a human product of everyday life, reaching us at the level of 'conscious thought' (Baker 2015: 63) as well as speaking to our 'affective intelligence' (direct sensation) about the 'preconscious' (Baker 2015: 69) qualities of weather phenomena. Our exhibition was therefore not just stuck somewhere in between being multi- and *interdisciplinary* in a narrower sense, but even had its transdisciplinary moments – or moments of 'transector interaction' (cp. Klein 2010: 16) – by enabling a dialogue between disciplines from the fields of science, cultural history, and art, and the realm of everyday life: at times, even within a single object, like the old hiking boot, for example. Antique scientific instruments were admired for their aesthetic value as well as the complexity of their function, whereas an exquisite landscape painting by Thomas Enders turned into a climate change witness, depicting a long-lost glacier of the Austrian Alps in 1832 before the beginning of industrialization. The re-contextualization of this particular painting is a telling example of knowledge produced in this exhibition, showing that works of art – apart from the well-known (and historically earlier) examples of Dutch paintings depicting the Little Ice Age – can make a significant contribution to climate science (Andreae *et al.* 2017: 296, 297).

Despite all the controversies and the parallel, instead of collaborative, developments within and beyond the curatorial team, we all became more and more convinced as the

exhibition development progressed that the theme of the exhibition urgently required this multi-perspective approach. In her article 'The Liquid Museum', Fiona Cameron argues that museums should try more 'radical ideas', instead of retreating to a position that provides a 'safe place' (Cameron 2015: 347) of 'certainty' (Cameron 2015: 348) in a world of uncertainty. Instead of 'cleansing' an exhibition's theme of its 'controversial aspects', museums should 'embrace complexity' (Cameron 2015: 349) and 'acknowledge (...) nonlinearity' and 'unpredictability (...) in the way the relations between human societies and nonhuman actants operate as open-ended processes' (Cameron 2015: 350). Cameron explicitly applies this to the global matter of climate change.

In our case the diversity of objects and contents created a complex bigger picture in which nonhuman things such as the air, the sun and the oceans also emerged as 'stakeholders' (Cameron 2015: 357) in their own right, 'outside of human-centered linear historical time and space' (Baker 2015: 68). In the room 'Sea', human and nonhuman works of art like August Strindberg's psychologically charged, dramatic and timeless seascapes (Andreae *et al.* 2017: 128, 129) and the sadly beautiful specimen of a dead Caribbean Elkhorn coral, bearing witness to the acidification of the oceans caused by the increased uptake of carbon dioxide (CO₂) from the atmosphere (Andreae *et al.* 2017: 134), stood side by side and seemed to belong to each other quite naturally. Cameron states that breaking the 'human/nature divide' may 'help build (...) affective relationships between humans and the nonhuman world' (Cameron 2015: 357). This is exactly what we tried to achieve, although at first it might sound idealistic: we wanted visitors to simply fall in love with the weather around us in order to find the emotional and rational determination to protect our climate. As an institution we were operating as what Cameron calls a 'soft power' instead of a 'hard disciplinary power' (Cameron 2015: 375) within the climate change debate, but we were subtly but persistently trying to sneak into people's hearts.

While COP 23 was taking place in Bonn, this strategy was especially welcomed by a group of professional weather presenters called *Climate without Borders* from TV stations around the world. During a discursive public tour on 16 November 2017, they became extremely inspired by the exhibition's new narrative, which enriched their own strategies for creating a broad public support for climate action.

4.4 Interpretation and exhibition design: The fear of complexity

As much as the curatorial team enjoyed the juxtaposition of disparate materials in order to draw a bigger picture, this process also saw a number of conflicts rooted in diverging working cultures around research and interpretation. These differences between the art curator and the science curator were reminiscent of Simon Sheikh's distinction between an artistic research practice which 'is not necessarily concerned with authorisation' (Sheikh 2015: 46) and a 'scientific model of research' (Sheikh 2015: 37). While these differences were still mutually accepted during the process of compiling the list of loans, they became ever more perceptible and evident when it came to trying to find a joint curatorial language for public relations and press purposes, interpretation, and the exhibition catalogue. A mutually agreed short text for public relations and press purposes was achieved surprisingly quickly, but we struggled to find a single poster and book cover motif that represented the exhibition in all its diversity. This mirrors Macdonald and Basu's observation that experimental exhibitions can be 'hard to place' regarding their genre (Macdonald and Basu 2007: 19). We also encountered this problem when we tried to find a publisher to produce a book that fits into more than one category, namely art, science and cultural history. When both curators took on the task to write about their chosen objects for the label texts and the accompanying book, I was confronted with a severe problem, at least from our institutional perspective: while the science curator delivered too much text, the art curator did not seem to write enough. The science curator was used to a systematic and encyclopaedic method of interpretation and advocated for a highly educational approach, whereas the art curator did not want to provide the audience with preconceived explanations, in order to allow for ambiguity and free association. He strived for 'poetical and suspenseful'²⁰ connections between intentionally unfamiliar objects and feared that too much text in both the exhibition and the catalogue would hinder such an inspiring interplay.

This perhaps foreseeable but yet unexpected methodological discrepancy led the book editor (an art historian) and me to extend the art curator's texts and cut the science curator's contributions in order to create a homogeneous flow to the texts, supporting the desired blending of diverse object categories, instead of unwillingly dividing them methodologically. But while the science curator largely supported this editorial strategy, the art curator was against it and could not be convinced otherwise until the end of the project. Linn Burchert's review of the exhibition catalogue, written from an art historian's perspective, makes it clear that this methodological gap is still apparent, however, and has not been levelled out completely. She criticizes the catalogue, noting that, although the exhibition attempted to contribute to the question of the role of the arts in recent sustainability debates, the choice and interpretation of art works was lacking 'thematic contouring and analytical depth', as opposed to the systematically treated science themes in the exhibition (Burchert 2018: 215). This raises a fundamental question regarding *interdisciplinary* collaborations, as they obviously involve not only the negotiation of different bodies of knowledge but also a variety of methodologies (Heimerl *et al.* 2014: 299). Are these diversities to be levelled out or to be made transparent? This question in itself should be a matter of discussion within an *interdisciplinary* team. But in this case these differences were not kept nor overcome as a result of negotiation and compromise but were (or at least were attempted to be) institutionally suppressed by me, in my function as exhibition manager responsible for the timely delivery of a final product. Did I then perhaps contribute something positive after all, by acting as a third curator or 'bridge-specialist', constructively synthesizing disparate contents and ideas in order to create something new? Both explanations are true to a certain extent, but the act of suppression remains apparent in the fact that we ignored the art curator's wishes instead of jointly trying to convince him.

Another controversial matter within the curatorial team, which was quite revealing regarding our struggle with *interdisciplinarity*, was the exhibition architecture and design. We had mutually agreed that all rooms should include objects from the fields of art, cultural history and the natural sciences, and that these objects should not be divided by disciplines but should be allowed to freely associate with each other. This turned out to be difficult to communicate to the exhibition designer, who instead recommended a clear 'science trail' throughout the exhibition in the form of distinctly coloured (blue) islands. We spent some time arguing for a more integrative, floating architecture that did not clearly distinguish between object categories, but eventually surrendered to the more conventional and educationally more convincing idea of the designer.

As much as we enjoyed the inspiring originality and complexity of our choice of objects, we were also afraid of a confusing kind of ambiguity that would lack a clear narrative and engaging structure. This fear, based on previous experiences in earlier exhibition projects, had been the initial reason for matching the art curator with an educationally more experienced science curator. At the beginning of our discussions with the designer, the science curator had also advocated for an integrative exhibition design that was not divided by disciplines, but the idea of a clear structured exhibition narrative was his priority as well as that of our institution, especially given the tight time schedule which regrettably did not allow for more complexity in this late phase of the production process. The emerging, distinctive 'science trail' did perhaps deepen the science curator's notion of having created 'an exhibition within the exhibition', but from the audience's perspective – judging from frequent guided tours through the exhibition and our docent's feedback – this trail was welcomed as a visible additional narrative (apart from the exhibition's equally visible overall storyline of evolving weather phenomena during the course of day) in the midst of an inspiring but also enigmatic environment (Fig. 4 and 5).

Regarding other design decisions the institution supported the art curator's ideas. While the science curator advocated a 'high-context' (Spock 2015: 386-8) exhibition design more frequently used in science museums, the art curator and I spoke in favour of an elegantly reduced 'low-context' design, in order not to outshine the great disparity of art works and historical and scientific objects. This choice was more in line with an art museum's conventions but was in hindsight perhaps not 'meaningful' (Spock 2015: 386) and 'captivating' (Spock 2015: 398) enough, and we might have perhaps reached a more interesting result if we had had more time. The sequence of rooms had a colour palette that ranged from white, through lighter to darker shades of blue, towards a dark grey. The rooms were thus increasingly darkening and



Fig. 4 and 5 The exhibition rooms 'Air' (above) and 'Fog' (below). The blue islands served as a distinct 'science trail'. Photo: David Ertl, © Kunst- und Ausstellungshalle der Bundesrepublik Deutschland

at the same time becoming narrower, starting from wide rooms like 'Dawn', 'Sun', and 'Air' in the beginning of the exhibition towards a rather claustrophobic end in the last two rooms called 'Snow and Ice' and 'Dusk'. This architecture subtly tried to correspond to the global threat of climate change without using the usual 'depictions of natural disasters' or 'images of Climate Change mitigation methods' that have proven to be of 'limited efficacy' to 'spur both Climate Change awareness and action' (Melloh 2018: 13-5). We added immersive measures such as occasional soundscapes, multi-sensual inclusive and interactive stations conceptualized by our education department and hands-on demonstrations developed by the science curator.

Apart from the institution's final decisions, the exhibition design was, at least to a certain extent, the result of negotiations and compromise. Although in hindsight each of the two curators regretted the necessity of too many concessions, it was just these compromises that elevated the exhibition, at least gradually, from a mere multidisciplinary towards an *interdisciplinary* collaboration, because a certain amount of interaction and even integration was involved. And although these compromises might have weakened and blurred the traditional forms of presentation and interpretation of both art and science contents and objects respectively, we managed to create something new and innovative by acknowledging the complexity of the topic, intentionally complicating the exhibition-making process, and thus 'reconfiguring the way in which exhibitions work' (Macdonald and Basu 2007: 16).

5. Conclusion: institutional consequences and possible collaborative standards

This case study showed that interdisciplinary (in the general sense of the term) exhibitions do not necessarily belong to either the multi-, *inter-* or transdisciplinary type (Klein 2010: 16). By understanding these three terms as describing different qualities of interaction, they can serve as a finer vocabulary for a detailed description and analysis of the practical processes of exhibition-making – all three are applicable even in one and the same case. The exhibition *Weather Report* was mainly multidisciplinary in its choice of themes, objects and even methods, as it lacked integration in these aspects. But it was *interdisciplinary* in some of its curatorially negotiated measures to unite disparate materials, and it even had its rare transdisciplinary moments. Taking a multidisciplinary collaboration to a more interactive and thus *interdisciplinary* level means achieving a closer degree of integration amongst its participants, methods and contents. This is hard work and requires openness and flexibility – and a certain amount of experimentation – on all sides, coupled with the need for a larger amount of institutional resources (cp. Heimerl *et al.* 2014: 308), in contrast to monographic or mono-disciplined exhibitions.

When trying to formulate a number of feasible collaborative standards, *interdisciplinary* projects (similar to participatory projects) first and foremost need a longer time frame – and thus also larger financial²¹ resources – for negotiations and joint decision-making processes. The increasing speed of producing temporary exhibitions stands against a more thoughtful and independent way of conceptualizing and realizing exhibitions, which can be adjusted to the individual case at hand (Hegewisch 1991: 13-4). Apart from resources, *interdisciplinary* exhibitions need equality and transparency amongst the curatorial team members, regarding their roles and salaries, the decision-making procedures and shared access to project development tools, such as, for example, databases. Different methodological approaches must be negotiated in order to develop a joint methodological canon for the exhibition at hand. Emotional and intellectual differences in expression and understanding should not be disregarded or even eliminated. And the collaborative process should allow for joint critical feedback.

Another aim of this case study was to contribute to the transparency of the exhibition-making processes from a curatorial and management perspective. Undertaking this retrospective research and conducting interviews with my co-curators in this exhibition project was, in itself, both a revealing and healing process that unveiled conflicts but also possible solutions, both personally and institutionally. In an ideal setting we would have developed a joint curatorial language and also a joint approach to interpretation and exhibition design, but in this exhibition these approaches remained at least partly unresolved. But our discussions during the production process and the retrospective interviews were immensely inspiring

and thought-provoking, especially with regard to institutional resources and consequences. Although the curatorial team has not succeeded in reaching a complete consensus – if at all possible or desirable – the mere fact that we saw the project through, despite all conflicts and contradictions, corresponds well with the determination needed to pursue the aim of climate protection despite all political odds, scientific complexities and social uncertainties. This type of interdisciplinary exhibition is certainly not useful for all themes, but it proved to be very meaningful in this context, especially as the global issue of climate change cannot be solved by one discipline alone, but requires joint forces by political organizations, universities, cultural institutions, and all parts of society.

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Notes

- ¹ This article was first drafted in 2018 shortly after the exhibition had closed. By the time it is published, our perception of the problems and dangers of climate change has altered considerably: The Fridays for Future Movement, starting in 2019, brought a yet unknown public attention to the topic that we could only have dreamt of in 2017 and 2018. However, the early months of 2020 briefly silenced this new spirit of optimism and activism, as the worldwide Coronavirus pandemic suddenly felt like a complete game changer, overshadowing all other societal and political issues. But apart from us having stood in awe and wonder at amazingly low pollution levels during the economic lockdown in spring 2020, the problem of climate change itself has not yet changed for the better. Instead, it still requires urgent action, including by museums and other cultural institutions.
- ² This first room named 'Dawn' presented an array of weather gods from different parts of the world (Andreae *et al.* 2017: 66-73) along with art works by Gerhard Richter (Andreae *et al.* 2017: 65) and Hiroshi Sugimoto (Andreae *et al.* 2017: 61). Although this entrance to the exhibition might have seemed like a chronological start, putting religious belief and superstition before scientific explanation and rationality in a historical timeline, references to the irrational aspects of our relationship with the weather were made throughout the exhibition.
- ³ I will use these anonymized titles when referring to both curators throughout this case study. Both curators are aware of the fact that their names can be easily identified, but we mutually agreed that the names would perhaps be distracting from the focus of this paper on the processes within our curatorial team.
- ⁴ Science curator, interview by author, digital recording, 8 March 2018, Bonn. All direct and indirect quotes from the science curator are drawn from the interview I conducted and digitally recorded with him on 8 March 2018 in Bonn. The interview recording cannot be openly accessed and will be deleted after a mutually agreed time period.
- ⁵ Science curator, interview, 8 March 2018.
- ⁶ Science curator, interview, 8 March 2018.
- ⁷ Art curator, interview by author, digital recording, 18 March 2018, Overath. All direct and indirect quotes from the art curator are drawn from the interview I conducted and digitally recorded with him on 18 March 2018 in Overath. The interview recording cannot be openly accessed and will be deleted after a mutually agreed time period.
- ⁸ Science curator, interview, 8 March 2018.
- ⁹ At least in Germany, the topics weather and climate, and more recently climate change, have been dealt with in exhibitions either in the field of science or art, but not combining both fields on a larger scale.

- ¹⁰ For the majority of the curatorial team members, including the meteorological advisor and the involved staff of our institution, it was important from the start that our exhibition should take a stand for climate protection based not only on scientific evidence but also in a political sense, for example, regarding the social imbalance of global pollution. This politicization of the original exhibition concept was a joint achievement of the curatorial team.
- ¹¹ Although relating to group art shows and their potential to create new layers of content, I find Rugoff's straightforward and unpretentious word choice of a 'thickened plot' very useful for describing our practical process.
- ¹² Science curator, interview, 8 March 2018.
- ¹³ Art curator, interview, 18 March 2018.
- ¹⁴ Art curator, interview, 18 March 2018.
- ¹⁵ Art curator, interview, 18 March 2018.
- ¹⁶ Science curator, interview, 8 March 2018.
- ¹⁷ Science curator, interview, 8 March 2018.
- ¹⁸ Art curator, interview, 18 March 2018.
- ¹⁹ Art curator, interview, 18 March 2018.
- ²⁰ Art curator, interview, 18 March 2018.
- ²¹ I am aware of the fact that our institution is fortunate in having such funds to allow for multidisciplinary input by hiring external experts as co-curators or advisors, as our internal team of curators would not be able to cover the expert knowledge required for the wide scope of our institution's programme.

References

- Adams, T.E., Holman Jones, S. and Ellis, C. (2015) *Autoethnography: Understanding Qualitative Research*, Oxford: University Press.
- Andreae, S. et al. (2017) *Wetterbericht: Über Wetterkultur und Klimawissenschaft* [Weather Report: About Weather Culture and Climate Science], Dortmund: Kettler.
- Armitage, A. and Ramsay D. (2020) 'A Poetic Approach to Researching Silence in Organisations', in Jenna Ward and Harriet Shortt (eds) *Using Arts-based Research Methods*, 209-36, Cham (Switzerland): Palgrave Macmillan.
- Arnold, K. (2015) 'From Caring to Creating: Curators Change Their Spots', in Conal McCarthy (ed) *International Handbooks of Museum Studies: Museum Practice*, 317-39, Hoboken, NJ: Wiley.
- Baker, J. (2015) 'Anarchical Artifacts: Museums as Sites for Radical Otherness', in Andrea Witcomb and Kylie Message (eds) *International Handbooks of Museum Studies: Museum Theory*, 63-77, Hoboken NJ: Wiley.
- Burchert, L. (2018) 'Kunst instrumentalisiert im Kontext von Klimakonferenzen' [Art Instrumentalized in the Context of Climate Summits], *Zeitschrift Kunstchronik*, 2018 (4) 214-22.

- Cameron, F. (2015) 'The Liquid Museum: New Institutional Ontologies for a Complex, Uncertain World', in Andrea Witcomb and Kylie Message (ed) *International Handbooks of Museum Studies: Museum Theory*, 345-61, Hoboken NJ: Wiley.
- Hegewisch, K. (1991) 'Einleitung' [Introduction], in Bernd Klüser and Katharina Hegewisch (eds) *Die Kunst der Ausstellung: Eine Dokumentation dreißig exemplarischer Kunstausstellungen dieses Jahrhunderts* [The Art of the Exhibition: Documenting Thirty Examples of Art Exhibitions of this Century], 8-15, Frankfurt am Main, Leipzig: Insel.
- Heimerl, K. et al. (2014) 'Doing Inter- und Transdisziplinarität' [Doing Inter- and Transdisciplinarity], in Gert Dressel, Wilhelm Berger, Katharina Heimerl and Verena Winiwarter (eds) *Interdisziplinär und transdisziplinär forschen: Praktiken und Methoden* [Interdisciplinary and Transdisciplinary Research: Practices and Methods], 297-312, Bielefeld: transcript.
- Klein, J.T. (1990) *Interdisciplinarity: History, Theory, and Practice*, Detroit: Wayne State University Press.
- (2010) 'A Taxonomy of Interdisciplinarity', in Robert Frodeman, Julie Thompson Klein and Carl Mitcham (eds) (2010) *The Oxford Handbook of Interdisciplinarity*, 15-30, Oxford: Oxford University Press.
- Lerchster, R. and Lesjak B. (2014) 'Forschungsteams organisieren' [Organizing research teams], in Gert Dressel, Wilhelm Berger, Katharina Heimerl and Verena Winiwarter (eds) *Interdisziplinär und transdisziplinär forschen: Praktiken und Methoden* [Interdisciplinary and Transdisciplinary Research: Practices and Methods], 79-89, Bielefeld: transcript.
- McCarthy, C. (2015) 'Introduction: Grounding Museum Studies: Introducing Practice', in Conal McCarthy (ed) *International Handbooks of Museum Studies: Museum Practice*, xxxvi-iii, Hoboken NJ: Wiley.
- Macdonald, S. (2002) *Behind the Scenes at the Science Museum*, Oxford: Berg.
- Macdonald, S. and Basu, P. (eds) (2007) *Exhibition Experiments*, Malden MA, Oxford, Carlton: Blackwell.
- Melloh, L. (2018) *The Stories We Tell: Examining Climate Change Narratives Through the Art and Science Exhibition Weather Report*, University of St Andrews: BA dissertation.
- Nicolescu, G. (2016) 'The Museum's Lexis: Driving Objects into Ideas', *Journal of Material Culture*, 21 (4) 465-89.
- Norton-Westbrook, H. (2015) 'The Pendulum Swing: Curatorial Theory Past and Present', in Conal McCarthy (ed) *International Handbooks of Museum Studies: Museum Practice*, 341-56, Hoboken, NJ: Wiley.
- Phillips, R. (2019) "'Making Fun' of the Museum: Multi-disciplinarity, Holism, and 'The Return of Curiosity'", *Museum and Society*, 17 (3) 316-41, <https://journals.le.ac.uk/ojs1/index.php/mas/article/view/3216/2990>.
- Plessen, M.-L., Spoerri, D. and Herzogenrath, W. (1979) *Entwurf zu einem Lexikon eines Musée Sentimental de Cologne: Reliquien und Relikte aus zwei Jahrtausenden 'Köln incognito'* [Draft for an Encyclopedia of a Musée Sentimental de Cologne: Relics and Relicts from 2000 Years 'Cologne Incognito'], Cologne: Kölnischer Kunstverein.

- Rugoff, R. (2015) 'You Talking To Me? On Curating Group Shows that Give You a Chance to Join the Group', in Paula Marincola (ed) *What Makes a Great Exhibition? Questions of Practice*, 44-51, Philadelphia: The Pew Center for Arts & Heritage.
- Sheikh, S. (2015) 'Towards the Exhibition as Research', in Paul O'Neill and Mick Wilson (eds) *Curating Research: Occasional Table*, 32-46, London: Open Editions.
- Souhami, R. (2011) *Exhibition Production as Processes of Translation, University of Manchester: PhD thesis*.
- Spock, D. (2015) 'Museum Exhibition Tradecraft: Not an Art, but an Art to It', in Conal McCarthy (ed) *International Handbooks of Museum Studies: Museum Practice*, 379-92, Hoboken NJ: Wiley.
- Thomas, N. (2010) 'The Museum as Method', *Museum Anthropology*, 33 (1) 6-10.
- Tyradellis, D. (2014) *Müde Museen: Oder wie Ausstellungen unser Denken verändern könnten* [Tired Museums: Or How Exhibitions Can Change our Ways of Thinking], Hamburg: Edition Körber.

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