# Chapter 13
# 'Big Interdisciplinarity': Unsettling and Resettling Excellence


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## 13.1 Introduction

This case study focuses on patterns of unsettling and resettling within an exemplary site of 'big interdisciplinarity'—the Germany-based *Interdisciplinary Laboratory Image Knowledge Gestaltung,* a large research cluster funded from 2013 to 2018 by the German Research Foundation within the *Clusters of Excellence* programme. This Cluster represented an international and multidisciplinary research group involving around 300 researchers embracing over 30 disciplines—from the natural and social sciences to the humanities, design, and arts. The explicit aim of the Cluster was to bring the natural sciences and humanities together in joint experiments (Bild Wissen Gestaltung 2015), while the Cluster saw itself as an experiment involving self-reflective feedback structures. Its self-proclaimed vision was not to dissolve the boundaries between disciplines, but rather to strengthen the disciplines through the ability to widen the range of possible-to-work-on research topics in interdisciplinary collaborations. Disciplinary differences were seen as engines of innovation, and hence explicit reflection on these differences was regarded as an essential element of the Cluster's work (Humboldt-Universität zu Berlin 2011).[1]

This cluster was the object of this study, which itself was part of the above self-reflective structures. This study focuses on the forms of knowledge, practices, and behaviours that intersect with differences of status, culture, disciplines, and *Erfahrenheit* (adeptness or acquired intuition, Rheinberger 2001, Fleck 1980; see

[1]The success of this interdisciplinary way of working was acknowledged by the German Research Foundation by granting a subsequent project on similarly broad interdisciplinary grounds, though with different research tasks.

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below) in the work and private life of this community. It applies a concept of a scientific community that, aside from epistemic phenomena, also accounts for those aspects from the sociopolitical world beyond the influence of the Cluster that impacted on the researchers' day-to-day work life, such as the funding conditions. The study uses ethnographic methods to identify whether and how researchers related differently to interdisciplinarity.

The study presented here takes the Cluster as a prominent example of the current scheme for fostering innovation in Europe. Previously, research in fields from cultural anthropology to the history of science and science and technology studies has investigated the 'projectification' (Torka 2018; Felt 2017; Vermeulen 2015; Midler 1995) of academia with regard to how it changes researchers' infrastructure and how they cope with organisational aspects. Since around the turn of the century, we have experienced a shift in research organisation in Europe toward more external and hence short-term funding for projects and the emergence of centres of excellence (see Sect. 13.3). While this shift is generally recognised, the claim that there is also a move toward interdisciplinarity or transdisciplinarity is contested (see e.g. Marcovich and Shinn 2011, Hubert and Louvel 2012, and the current discussion of convergence). Generally the term transdisciplinarity involves interaction between researchers from different disciplines combined with explicit collaboration with fields considered external to the sciences, such as industry, the hard-to-define public sphere, or politics (Huutoniemi 2010; Klein 2010). By contrast, interdisciplinarity—and this is the meaning that was applied in the *Interdisciplinary Laboratory*—refers to collaboration between different disciplines within the academic domain. Interdisciplinary collaboration usually takes place between fields of research that at least share some foundational education, which various authors call 'weak' or 'narrow' interdisciplinarity—such as literary studies and Romance philology, or biochemistry and molecular biology—in contrast to 'strong', 'wide', or 'broad' interdisciplinarity (Albert et al. 2017; Repko and Szostak 2016; Kastenhofer 2010; Klein 2010; Kelly 1996).

For this specific type of broad interdisciplinarity, I introduce the term 'big interdisciplinarity'. This interdisciplinarity is 'big' in the sense denoted above with the unusual number of disciplines spanning the entire academic spectrum. It is also and even more importantly 'big' in the sense of the concept of 'big science' (at least in some aspects). This concept was initially applied to science collaborations gathering around extraordinarily expansive instruments, involving big groups of scientists in large scale physics research, such as space research (Capshew and Rader 1992; de Solla Price 1963). Due to the general upscaling of science, the term became applicable to many more fields, such as large collaborations in biology with correspondingly big shared lab spaces (Vermeulen 2009a, b). I hence speak of 'big interdisciplinarity' with regard to the large number of researchers, the large scale of its funding, and the organisational format it necessitated.

Previous studies on broad interdisciplinarity suggest that collaboration between the natural sciences and humanities is difficult due to incommensurable epistemic differences, which hinder the emergence of collaborative communities (Albert et al. 2017; Repko and Szostak 2016; Klein 2010). This study asks: is something like a

joint community and collaborative identity emerging? How do researchers stabilise their academic self-concepts when they cannot apply disciplinary frameworks? It shows that collaborative identities between the sciences and humanities can indeed be formed—with much extra effort and when a time span of several years of collaboration is allowed, which enables the development of interactional expertise (Evans and Collins 2010; Collins and Evans 2002; see below).

The unexpected results show that the new structure of 'big interdisciplinarity' in the Cluster, although it was perceived as a challenge in different ways by different members, provided an opportunity for those involved to form new (collaborative) identities. Crucial to the analysis of what occurs in this interdisciplinary structure is the awareness that disciplinary members maintain other—and sometimes competing—memberships in diverse sociocultural groups and subgroups aside from their professional training or experience. Interdisciplinarity costs time and produces different sorts of affect. For some it is an effort in scientific emancipation for which they sacrifice energy and even career opportunities; for others it is just another challenge in academic life, where they already experience difficulties in passing. In the context of the Cluster, it was not disciplinary identity that offered a sense of intellectual belonging to its members—researchers were thus 'unsettled.' I introduce this term to mark the productive and sometimes disorienting effect of detaching researchers from their known boundaries and disciplinary repertoires in interdisciplinary collaborations that involve not only epistemic and practical aspects in research but also affect. These researchers found other ways to identify, to 'resettle', be it in categories at the margins of or external to science, in the narrow interdisciplinary categories provided by the Cluster's structure itself, or in spaces of interactional expertise (Evans and Collins 2010, Collins and Evans 2002; see below).

The following section introduces the relevant concepts employed in this study—such as the specific notions of community, (intersectional) identity, interdisciplinarity, and expertise—and how they relate to each other. It also describes the empirical setting, in particular the setting for the interview study that generated the majority of the results discussed here. The third section is devoted to the funding context that shapes the Cluster's infrastructure and—in part—its epistemic and empirical practice. The fourth section, the analytical section, describes in greater depth the specificities of the Excellence Cluster *Image Knowledge Gestaltung* in relation to interdisciplinarity. Exploring the results of the interview study in detail, it unfolds the unsettling effects of interdisciplinarity, which simultaneously lead to the short-term stabilisation of other categories of identity and to new interdisciplinary identities. The fifth section summarises and discusses the results.

## 13.2 Communities, Identities, Interdisciplinarity, and Expertise

It is impossible to take the notion of community for granted in the case of an interdisciplinary community if we assume that disciplinarity provides that which is needed to be part of a scientific community: at a minimum, an overlap in identity and a common understanding of that community. A clearer understanding of this concept is therefore needed in order to discuss the type of community or types of communities we find (or do not find) in a large, temporary, and interdisciplinary research group such as a research cluster within the framework of the Excellence Initiative.

The notion of community has changed since its introduction into academic study (more specifically into sociology) by Ferdinand Tönnies, who distinguished between a romanticised concept of a good, traditional 'Gemeinschaft' [community] and society (Tönnies 1827). Weber criticised this idealised notion of a community of common destiny (groups whose members are mostly born into it, live and work together, and that offer their members social security), stressing the aspects of inclusion *and* exclusion as well as the (implicit or explicit) rules of behaviour that the group as a community necessarily imposes on its members (Weber 2002 [1922]). Thus for Weber a community does not necessarily only produce togetherness (belonging), but in doing so it shapes the acts of its members and provides a normative collective understanding of the shared community. Applying Weber to the concept of community distinguishes it from the very broad use of the term since the 1990s in empirical studies, such as studies of youth culture, in which a commonality of interest among the group's members is sufficient to constitute a community. A further distinction from Tönnies is useful for the description of a scientific community that is predominantly based on text—in Anderson's concept of an 'imagined community' (Anderson 1983), the community's members may not know each other personally but share more or less simultaneously experiences via print media, for example in a nation-state.

The publication-based togetherness of scientific communities is explicit in Ludwik Fleck's and Thomas Kuhn's description of scientific work. Building upon a similar thought tradition, community theorist Joachim Gläser applies the notion of narratives, prevalent in not only publications but also oral communication—both formal and informal, such as corridor chats—and oral and written stories about the community's history (Gläser 2015). When Kuhn introduced the notion of scientific community (Kuhn 1989 [1962]), he envisioned a community based on rational relationships and a structure in which science is separate from, and uninfluenced by, society. By contrast, earlier work by Ludwik Fleck, which Kuhn's ideas were originally based on, is more helpful and, again, more realistic as it does not depict science as an endeavour distinct and separate from society. Instead, the particular scientific thought collective—Fleck's term for specific communities in the sciences—is a part of society with specific rules, rites, and learned ways of seeing influenced by tacit sociocultural beliefs (Fleck 1980 [1925], 1983 [1929]). Scientific communities are in most cases—very similarly to Fleck's thought collectives—

depicted as constituted by members of a specific discipline or as gathering around a research topic. This community's rules, rites, and ways of seeing shape the specific experiences of the discipline's members and their adeptness ('*Erfahrenheit*'), acquired intuition, and thinking with tools and hands (Fleck 1980; Rheinberger 2001). And they ultimately shape disciplines and disciplinary cultures. Belonging to a discipline then provides for cultural identity as well as for identity based on group membership. This helps explain why generally it is assumed that, in order to be able to develop an identity on the basis of a scientific community, this community will be a *disciplinary* community. We should, therefore, as a presumption of the study presented here—of a community based on broad disciplinarity—expect that it is *difficult* to build communities on broad interdisciplinary grounds.

Moreover, we may challenge the assumption that the 'natural sciences' and 'humanities' are fundamentally distinct and incommensurable realms; indeed, between different disciplines of these fields, we can find similarities in epistemes, practices, and even in research objects. And even if we appreciate the differences in approaches and values between the more distal disciplines in these larger fields (Albert et al. 2017; Huutoniemi 2010), we can acknowledge that shared expertise can grow and bridge the gap to some extent: experience and being-experienced are not solid states but can change, and with the experience the expertise thereby acquired changes. Expertise, described by Collins and Evans (2010, p. 54) as a result of 'successful socialization', can be disciplinary, but it can also be generated among members of distant disciplines: Collins and Evans introduced the term 'interactional expertise' (Evans and Collins 2010; Collins and Evans 2002) to explain and justify how social scientists conducting fieldwork in areas of the natural sciences gain competences in those fields *without* sharing expertise in the respective *practices*. They distinguish between expertise as novice, contributory expertise of those within the field, which affords learned practices, and interactional expertise acquired by a 'deep sharing of discourse' (Evans and Collins 2010, p. 53).

As stated earlier, the Cluster under investigation in this study was subject to a specific funding structure. We will see further below that this funding structure had an influence on the community-building in the Cluster. This is not surprising in a non-internalist concept of epistemic models of scientific communities: critiquing internalist and functionalist concepts of such models, Karin Knorr-Cetina contributed the finding that much scientific work by a research group is achieved and guided by factors external to the respective community. Such non-epistemic factors shape day-to-day scientific work life and comprise factors that are restrictive and productive in equal measure, like technical infrastructure, career schemes, and funding opportunities (Knorr-Cetina 1981, 1982, 2003). She concludes that scientific communities understood as 'specialty' communities are 'largely irrelevant to scientific work'. Rather, the scientific collectives that shape research on a day-to-day basis are *transepistemic*. They 'include scientists and non-scientists, and encompass arguments and concerns of a 'technical' as well as a 'non-technical' nature' (Knorr-Cetina 1982, p. 101; see also Knorr-Cetina 2003).

Identity so far as depicted above could be understood as monolithic. We didn't discuss yet how biographic aspects of identity alien to the narrower scientific context

shape the relationship between an individual's identity and that of the community. Gläser (2015) proposes a sharp definition of community as an 'identity-based collective'—the narratives of the community functioning as the medium of this identity construction. With narratives providing for identity construction and the narrated identity providing for community, identity is easily pictured as rather solid and solidifying. For this paper, it is helpful to depart from such an identity conception as solid, coherent, and consistent (even in scientific communities) and to focus on a more amalgamated or—to use a term introduced in gender and identity studies—a more intersectional identity (Crenshaw 1991; Choo and Ferree 2010). It is also relevant for the findings discussed further below that the community's identity is not just the sum of its member's individual identities. Gläser suggests that 'the collective self-perception, relying on the intersection of individual self-perceptions, constitutes a community'[2] (Gläser 2007, p. 86). In science (and probably in most other fields as well), this reading contrasts with the finding that not all individual self-perceptions or aspects of fragmented self-perceptions are equally welcome and that not all members of a community are equally privileged in the shaping of its image. Specifically, the image of the scientific persona (Daston 2003) may restrict certain self-conceptions from entering the scientific community's identity.

As stated earlier, this study draws on an intersectional conception of identity, viewing differences of disciplines, culture, language, social background, and gender, as well as other forms of categorical differentiation between individuals, as co-constitutive in identity construction as well as in the research practices and forms of knowing that go with it. Some of these co-constitutive traits are explicit (formal and can be taught); others are implicit (informal and learned by experience); some are conceived rather as individual traits, others as acquired throughout enculturation and socialisation processes as a distinct, field-related habitus (Bourdieu 1977). Such differences made by and between researchers can be analysed in combination, while acknowledging that 'disciplinary members maintain other—and sometimes competing—memberships in other cultural groups and subgroups, which include but are not limited to ethnicity, gender, sexuality, class, region, age, marital status, or even additional professional training and experience' (Reich and Reich 2006, p. 54). In the empirical study, specific differences between Cluster members based on usual categories were not taken as given from the outset but had to be identified from the material produced in the study. Not all aspects of difference are effective simultaneously but rather emerge as empirical factors in specific situations. In order not to reify categories, the study therefore centred on the processes in which 'people [are] recruited into categories' and yet still 'have choices in their subject positions' (Choo and Ferree 2010, p. 134).

In addition to regularly published mathematical data and statistical analyses of the diverse membership composition and public appearances within the Cluster, I used ethnographic methods in one empirical setting in which we held a one-day workshop

[2]Translation B.B.v.W.

with about 40 participants, and I conducted 20 semi-structured interviews with three graduate researchers, seven PhD candidates, five postdocs, and seven professors. The interviews took a minimum of an hour, with most of them lasting between 90 and 100 min. In addition, we conducted a study with the working title 'Diversity Moves' on the bodily use of space during oral presentations. The full results of this additional experiment will be expanded upon elsewhere (Bock von Wülfingen 2021) as this article focuses on the interview study.

As we have seen in the discussion of the concept of scientific community above, non-epistemic factors that are beyond the immediate influence of a research community contribute significantly to the shaping of day-to-day work in a scientific community. Funding structures and governance will therefore be discussed in the following section.

## 13.3 Context: The Excellence Initiative Funding Scheme

The Excellence Cluster *Image Knowledge Gestaltung* is part of a specific funding scheme that reflects a shift in research organisation and practice that can be observed across Europe. This shift marks a new direction in EU research policy since the early 2000s aimed at fostering what was then called 'excellence in science' (European Commission 2016). Excellence in this context is a rather evaluative aspect, a policy-tailored adaptation of the contested idea of quality (Hallonsten and Silander 2012). The fundamental characteristics shared by all the centres of excellence and programmes that have sprung up since then in Europe, from Gibraltar to Estonia, and shared with this Cluster are as follows: they are funded under a directive that requires them to be innovative, competitive, temporary, collaborative (interdisciplinary), and theme oriented.

This shift toward competitive funding schemes has been particularly significant in Europe, where universities have traditionally been more reliant on public funding (Bennetot Pruvot and Estermann 2014). German universities experienced major cuts in public spending on higher education in the early 2000s. These cuts were intended to mobilise universities to act in a more business-oriented way. They were closely followed by an intense problematisation of the resulting lack of university teachers and gaps in infrastructure. One reason for the general acceptance of the Clusters of Excellence national funding scheme when established in 2005 was that it promised to alleviate the tense situation, enabling the federal government to invest in research while at the same time contributing to a competitive funding environment administered by the German Research Foundation (DFG). A total of €4.6 billion was invested over the whole 10-year programme until 2018 (DFG 2013). The programme was split into two application phases. It was intended to create incentives for specialised and prominent universities and provided for a total of 46 Clusters of Excellence lasting five or—in most cases—10 years in total. After this decade of project-oriented, short-term funding, criticism of the continually required applications for funding (a topic that also emerged as an issue in the interviews of this case

study) was such that politicians reacted: after the international evaluation of the programme (Internationale Expertenkommission zur Evaluation der Exzellenzinitiative 2016), the Ministry of Education and the government jointly decided to extend the Clusters of Excellence programme and to render the funding provided more reliable. Another call for applications was issued and the funding period extended to 7 years. This time 57 clusters were selected for funding with a total of €385 million (DFG 2018). For 2025 an evaluation is scheduled to choose from these a smaller pool of clusters. The resulting clusters and the respective universities that initiated them shall after another funding period be subjected to another selection that results in the creation of so-called 'federal universities' (Tagesspiegel 2016), receiving ongoing federal funding.

The past scheme, ending in 2018, was heavily invested in the lowest pay level of research—the PhD level. Only a minor fraction of funding went into full professorships as the universities were meant to finance these contracts after the termination of the cluster funding. However, in contrast to the usual funding of short projects addressing individual researchers, teams, or networks, excellence schemes of this scope with a duration of 5 years and more are aimed at the institutional level and involve strategic choices by, and require commitment from, the institutional leadership (Bennetot Pruvot and Estermann 2014), for instance when it comes to promises to consolidate the cluster's structures and research programme.

The instable funding situation (competition and terminability) was reflected in the structure and epistemology of the Excellence Cluster *Image Knowledge Gestaltung* as well as in the interviewees' accounts in explicit or tacit terms.

## 13.4 Communities and Identities within the Interdisciplinary Cluster *Image Knowledge Gestaltung*

The concept of this cluster involves strategic components that distinguish it from other clusters and specifically address the objective of successful interdisciplinary collaboration. These components will be described in Sect. 13.4.1. The remaining parts of this section are devoted to the results of the interviews, elaborating on how the members' academic identities were challenged by the aims and structure of the Cluster (see Sects. 13.4.2 and 13.4.3); on different ways they made sense of it, stabilised their identities, and resettled at the margins (Sect. 13.4.4); in narrower interdisciplinary contexts (Sect. 13.4.5); or in interdisciplinary interaction more generally (Sect. 13.4.6).

**Fig. 13.1** Interdisciplinary Laboratory. Cluster of Excellence *Image, Knowledge Gestaltung* (Claudia Lamas, Image Knowledge Gestaltung 2016)

### *13.4.1 The Interdisciplinary Composition of* Image Knowledge Gestaltung

The Cluster of Excellence *Image Knowledge Gestaltung* involved about 300 members, covering about 36 disciplines. The Cluster was part of a group of six clusters that the German Research Foundation grouped under the humanities and social sciences, while all the other 37 clusters of this funding period were grouped under the natural sciences and medicine. It was the only cluster to explicitly involve the natural sciences to a similar degree as the humanities, social sciences, arts, and design.

The directors until 2016 were a professor of cultural history and theory with expertise in architecture and a professor of art history with publications relating to the history of science. Since 2016, a professor of materials science has joined these two professors on the board of directors.

The Cluster consisted of a number of research areas, all of which were required to represent a good mix of these fields. All members worked together in experimental research groups, which ideally followed an empirical methodology. They worked on issues such as the evolution of form in nature and culture, historically neglected machines for the transmission of sound, or the development of an application known as a CarePad for use by patients in clinics (Fig. 13.1).

As is typically observed in interdisciplinary research units (Klonk 2016; Vermeulen 2009a, b), an important architectonic feature is a large shared space called the *Interdisciplinary Laboratory* for individual or group work and plenaries. This fosters face-to-face communication, a feature the Cluster emphasised. Members were encouraged to work on-site on the two floors of the old workshop building hosting the Cluster. Weekly face-to-face meetings were promoted. There was a fixed weekly talk, the LunchTalk, where members ate their lunch while listening to presentations. The interior design expressed a mobile and flexible mode of being and included sofas and desks on wheels. The furniture could be easily adapted to the needs of individuals or groups (comparable to descriptions of the James H. Clark Center at Stanford by Hall 2003).

Another distinctive feature was the self-reflective component in the Cluster's structure, epistemology, and practice mentioned above: the Cluster was seen as an experiment in conducting interdisciplinary research. This research applies both quantitative and qualitative research methods, involving statistics, the computational tracking of work objects and subjects, and ethnography. My own research on effects on identities and diversity within the Cluster was also subsumed here. The self-reflective component was not extant in other German clusters of that and earlier funding periods (for a discussion of a French cluster, cf. Cointe, this volume).

In general, interviewees from all status groups described the Cluster as a great opportunity for themselves and for the research community in general. They welcomed the fact that the creation of the Cluster *Image Knowledge Gestaltung* had opened up a space for interdisciplinary collaboration within a community that is usually strictly divided into disciplines, thereby enabling them and others to pursue research interests that would otherwise not be seizable. Much enthusiasm was expressed in the interviews about the sheer audacity and effort required to establish such a cluster.

The shared, but never explicitly mentioned, feature of the biographies of nearly all members of the Cluster was that they did not adhere exclusively to one particular academic field. Instead, they had either switched from one or more disciplines to their current one, or they had gathered a couple of years' professional experience outside academia; in some cases they still worked outside the university environment. The interviews discussed in more depth in the following section showed that members were unaware of this shared trait. Instead, a large number of the interviewees expressed unease about their mode of belonging in respect to the Cluster. For many, not sharing disciplinary identities with their collaborators was 'unsettling'. As mentioned in the introduction, I use this term in the following discussion to denote the productive delocalising effect that arises when an individual cannot rely on his or her habitualised vocabulary and conduct to bond with others in an academic environment. The 'unsettling' lack of (shared) disciplinary points of reference also posed an emotional strain and required members to create and adopt new schemes, positions, and interaction rituals to resettle.

### 13.4.2 Unsettling (Inter)Disciplinarity

The interviews show that, across all status and gender groups, inter- and transdisciplinarity was perceived as a great challenge and one that can only be overcome with much additional effort.

Many statements referred to unnamed *others* who seemed intellectually unsettled by the different demands; this was especially evident in reactions to the presentations given in the Cluster context (e.g. at the LunchTalks) that drew on various disciplinary backgrounds. It was also expressed in answers to the question about the necessary conditions for successful interdisciplinary cooperation. One might expect interviewees to refer to inter-disciplinary overlaps as a necessary condition; however, the interviewees' own discipline was never even mentioned. Instead, nine statements described having the self-confidence to distance oneself from one's own discipline as a necessary condition for collaborations, while others in a similar vein described the inability to let go of the standards of one's own discipline as a major obstacle to collaboration. A lack of ability to distance oneself from or let go of one's habitualised disciplinary standards was reported in early career members who had just finished their master's degree.

This added insecurity and extra labour could suggest that those groups who already struggle to find their place in the academic workspace might be expected to exhibit greater interdisciplinary discomfort. Comments in the interviews indicate that it is in fact the degree of academic acculturation that is decisive in determining whether the interdisciplinary work environment is perceived as a challenge: the more stable the academic culture is ingrained, be it by the provenance of a family with academic parents or long-term work in academia, the easier is the interdisciplinary work.[3] There was also agreement by all status groups that a self-assured personality was required for the ability to work in interdisciplinary teams.

Here we come to the crucial issue of disciplinary or simply academic identity intersecting with other self-concepts. This is where apparent differences in the identity stabilisation in the interdisciplinary context were observable, which I call the (re)settling. They appeared to be related to the specificities of the Excellence Cluster *Image Knowledge Gestaltung* as an explicitly interdisciplinary endeavour, and these findings will be expanded upon in the following section.

### 13.4.3 Resettling and Status

Besides disciplinary differentiation, one of the most obvious factors of difference in academic research communities is the status of researchers. Universities have instruments for democratic representation, the largest and most powerful of which is the academic senate. This body includes a whole range of status groups: professors,

[3]Gender was not mentioned as explanatory factor, however.

non-professorial faculty, management, postdocs, and students. Temporary research institutions, such as the Clusters of Excellence, have a different governance structure: one to three directors, together with the management and a steering committee, shaped day-to-day life in the cluster.[4] The German Research Foundation as the funder of the Clusters of Excellence does not require PhD candidates and postdocs to be involved in their governance. This was the case in the first years of *Image Knowledge Gestaltung*. In some interviews conducted in 2014, this structural phenomenon was viewed critically, especially in relation to the age gap between the steering committee and Cluster members. After 2 years, the *Interdisciplinary Laboratory Image Knowledge Gestaltung* amended its rules so that the steering committee subsequently included two postdocs with full voting rights.

Nearly all of the researchers shared the impression that a lack of time, which was in fact coproduced by the needs of the interdisciplinary Cluster as such, hampered interdisciplinary collaboration. This time-related issue intersected with academic status, as it was perceived differently in different status groups. Assistants and postdocs stressed that members with a permanent contract (in nearly all cases these were professors) were not existentially dependent on the Cluster in the same way as early-stage researchers. They could therefore not readily understand the impact of temporary contracts. One interviewee pointed out that creative freedom also required social security. At the same time, there was an apparent comprehension that the Cluster was subject to structural conditions beyond the control of the board of directors, which created some mutual understanding and bonding across status groups. Some of the professors raised the issue that the extra work involved in conducting interdisciplinary research was not taken into account in the amount of time granted by the funding initiative.

### *13.4.4 (Re)Settling at the Margins of Academia*

Beyond *academic* status, several researchers marked their identity as not being academic at all. Five out of the thirteen non-professorial interviewees described themselves as not being representative of the Cluster. They offered different reasons for this, such as cultural differences due to atypical (non-academic) career paths, age, or having parents without high school qualifications. These members stemmed from all fields and they all shared an obvious feeling of unease. They described their difference as a personal defect in expressions such as 'I don't have the others' middle-class background'. They expressed unease when asked about their biography or referred to a 'class problem'. Several of them stated that moving in academic circles did not feel normal, which resulted in them never feeling confident. Even

[4]This is similar to other temporarily funded research institutions in Germany, such as the Max Planck Institutes (cp. Schikowitz, this volume, for a case study of a temporary research funding initiative in Austria).

among the full professors, one interviewee described having been selected for a professorial position as 'mere luck'.

### *13.4.5 Resettling in the Interdisciplinary Neighbourhood*

With the absence of a disciplinary context, some members closed ranks within the broader, next-of-kin interdisciplinary field. Regardless of the interviewees' field of research and across the full spectrum of academic disciplines, more than half of all participants, aside from the professors, expressed in the interviews that the respective other field of research was represented more strongly in the Cluster and gaining more support from its governing boards. This perception did not reflect the absolute numbers of people involved in the different fields. It is also relevant that there was no incident described in which the interviewees' own group was perceived as larger or better represented than one of the others. For instance, one interviewee stated: 'The natural sciences and humanities go together well; design disciplines are rather at the margins'. Another said that the design disciplines were constantly flattered.

### *13.4.6 Resettling in the Interactional Space*

Even though they sometimes shared some of the modes of identity stabilisation[5] mentioned in Sects. 13.4.2, 13.4.3, 13.4.4 and 13.4.5, many members of the Cluster resettled in the broader space of interdisciplinary interaction. Those participants who had already gained much experience in interdisciplinary work welcomed the realisation of interdisciplinarity within the Cluster or even the complete dissolution of disciplinary demarcations as a liberation from disciplinary restrictions. Indeed, some named interdisciplinarity as a key criterion for good research.[6] As their status and experience increased, members were more likely to express enthusiasm and a sense of relief at being freed from the restrictions of disciplinary boundaries, with this feeling being strongest among the professors.

In more general terms,[7] the work atmosphere between Cluster members changed between the founding of the Cluster in 2013 and mid-2015 in such a way that, when difficulties in understanding the other's approach emerged, reactions became more interested and respectful, resulting in the more frequent articulation of clarifying questions about the meaning, sense, and comparability of different terms and techniques. Another shift was observable in the following one-and-a-half years:

[5]Cp. identity breach, identity trouble, identity repair mentioned in the chapter by Cuevas-Garcia, this volume.

[6]Cp. the figure and choreography of the 'polymath' in Schikowitz, this volume.

[7]This insight draws on participant observation, field notes, and members' reports.

members from the humanities, design, and natural sciences began to actively apply 'alien' terminology and to cite prominent authors or studies that their co-researchers from the respective other fields rely on, or they would swop roles and read the other's part in a talk on a joint project, thereby reflecting the active development of new interdisciplinary techniques (Jany and Razghandi 2017). The changes between 2014 and 2016 described in the interviews indicate that more members became aware of their ignorance of others' research fields and methods, and began to listen, instead of promoting their own method(s) in opposition to others'.

## 13.5 Summary and Conclusions

What types of collective identities emerge in broad interdisciplinary constellations such as the Cluster of Excellence *Image Knowledge Gestaltung* empirically studied here? The formation of collaborative identities in 'big interdisciplinarity', i.e. between people in a large group formed by members of very distant disciplines at opposite ends of the academic spectrum, is usually deemed difficult, if not impossible, due to seemingly incommensurable epistemic differences. The results of this study show that collaborative identities can emerge in big interdisciplinarity under certain circumstances. This is based on sometimes distressing, individual efforts,[8] entailing detachment from one's own disciplinary framework, which I call 'unsettlement', and the resettling of the researchers, i.e. their relocation to other stabilising identity types and modes.

In comparison to typical project funding, the Clusters of Excellence scheme consists of medium-term funding for a large number of researchers, often involving strategic decisions and commitment by the respective universities. In addition to this, the Cluster studied here was also shaped in such a way as to force researchers to meet (physically) in interactional spaces.

On a *short-term* basis, alternative categories relating to academic status, family background, and self-esteem—intersecting with age and work experience—seem to step in when researchers are unable to rely on their disciplinary background in interactions with others or in self-perception. The interviews show that those members of the Cluster who cannot call upon an extensive academic background (from their family of origin or work life) positioned themselves at the margin of the Cluster. In other interviews or parts of the interviews, the idea was expressed that one's own group (whether this happens to be the humanities, natural sciences, or design) was in the minority in the Cluster. At the same time, by adhering to the distinctions between the narrow inter-disciplinary categories provided by the cluster (humanities, natural and technical sciences, design disciplines) cluster members located and identified themselves in the respective disciplinary areas. In this identity

[8]These efforts have an emotional component. Compare Schönbauer, this volume, for the emotional dimension of identity work.

they acted as an under-represented community on behalf of the respective community. These parts of the interviews differed from the sections in which issues shared by all Cluster members were discussed, such as loyalty toward the Cluster as a project that attempts to go beyond disciplinary knowledge production, and the conflict between the lack of time and the time needed for the development of interdisciplinary skills and collaborations.

New identity constructions emerged in the Cluster after changes in its governance structure had been implemented and members had become versed in interdisciplinary communication. Apparently, the lack of a disciplinary community was subsequently compensated by belonging to the broader interdisciplinary Cluster community.

Within this community a shared self-concept was developed, an identity as a good researcher devoted to knowledge production and assuming a great deal of unrewarded work for the sake of innovative research. An additional temporal dimension and often emotional labour were consistently apparent in the interviews, especially with the postdocs. Time was required to learn an interdisciplinary culture and to grow into a research community. It also became evident that, if interdisciplinarity is not institutionalised and structurally embedded, projects on a temporal basis do not allow researchers to firmly inhabit these new identities.

Analysing these results more closely, we find aspects specific to this Cluster and others related to the funding scheme or to academia in general. Clusters of Excellence provide a time frame (funding for several years) and an infrastructure (funding for buildings, architectonic design, and equipment) that are better suited to meeting interdisciplinary needs and coping with unsettledness than usual small scale projects.

The group minority/majority perception is specific to the Cluster *Image Knowledge Gestaltung,* as the interviewees explicitly referred to the different categories of disciplinary groupings (humanities, natural sciences, and technology and design disciplines) created by the Cluster. The statement that the other group (the out-group) was larger than one's own simultaneously characterises one's own group (the in-group). It clearly signals the minority's perception that there is competition for scarce resources, as the comparison of group sizes only makes sense in this context (Schlueter and Scheepers 2010; Seyranian et al. 2008),[9] and at the same time it indicates a feeling of being at a disadvantage within the Cluster with regard to status and room to manoeuvre.

[9]This is especially true if the existence of an in-group and an out-group has been postulated first—i.e. a clear demarcation is taken for granted by various subjects who share common characteristics, resulting in other subjects who do not belong to the in-group. Therefore, *all* '*others*' belong to *one* out-group *collectively*, which may achieve an impressive size as a consequence. Studies relating to migrant status, including experimental studies undertaken in the 1970s and 1980s and summarised by Messick and Mackie (1989), provide additional insights. Arbitrary allocation to a specific group (for instance, in an experiment in which pupils were randomly split into teams) results in favouritism of the in-group in contrast to the out-group, and this favouritism increases markedly if one of the teams is identified by an identity marker, such as an orange vest.

This phenomenon is not necessarily due to a lack of contact with the other group and resulting unrealistic prejudices. As has been experimentally demonstrated, the mere fact of being categorised in the first place may lead to lower self-esteem within the groups (Lemyre and Smith 1985). According to social identity theory, part of an individual's *self-evaluation* is formed by affiliation to a specific group. As the individual member's identity is based on the group's community identity, as is the case for many members in the cluster, it is important for self-esteem to view one's own group in a positive light (Messick and Mackie 1989).

We can conclude that, as a result of the intrinsically necessary grouping of Cluster members according to their disciplines, the Cluster inadvertently coproduced minority and majority perceptions. Continually marking Cluster members as belonging to a particular group in order to achieve and maintain a good mix of disciplines, which was an essential characteristic of the Cluster and one supported and desired by its members, further contributed to this effect. At the same time, these group perceptions allowed the members to resettle in narrower interdisciplinary communities.

There were other aspects shared with other institutions in academia in general which shaped the ability of the clusters member to develop more or less successful interdisciplinary collaborative identities: at first glance, the interview results described in Sects. 13.4.2 and 13.4.4 (unsettledness arising from interdisciplinarity as such) may suggest that, in contrast to early-stage researchers, who feel the interdisciplinary challenge more intensely, it is only increasing age and work experience that help more advanced researchers to feel more at ease when they are freed from their disciplinary framework and thus of all trained notions, habits, and ways of thinking, as described independently by Ludwik Fleck and Pierre Bourdieu (Fleck 1983; Bourdieu 1977). However, the results described in Sect. 13.4.4 revolve around the question of origin: 'Do I have the right background to fit into academia and to pass as an academic?' This question of academic pedigree, which is related to (non-)shared origins, is one that the Cluster has in common with other academic institutions. It relates to what is currently the subject of increasing discussion as the impostor phenomenon (Clance and Imes 1978): the impression of not belonging to, or not fitting well into, the academic (Cluster) community and the impression that one has become a member by accident and not by virtue of one's own achievements.

Literature in social anthropology, education research, and science studies (Bourdieu 2011; Kerr and Lorenz-Meyer 2009; Alheit 2009; Bourdieu and Wacquant 1992) shows that such uncertainty factors—being removed from the framework that one has only just learned to grow into—usually favour those who already belong to the majority group. In interdisciplinary settings, withdrawing the disciplinary framework as joint point of reference, seems to favour those who already feature a stable academic identity—irrespective of its disciplinary direction, be it by pedigree or long-standing experience. What is then shared with all the others is the general academic (and possibly middle-class) value system. To prove that academic disciplines are not in the least solid demystifies the academic community. This can also counteract the disruptive effects of interdisciplinary work.

The results show that the development of interactional expertise in big interdisciplinarity takes several years. This is true even when this is the explicit aim of the

research context and corresponding infrastructure, for instance where a physical collaborative space and incentives for self-reflection and evaluation are provided, as in the case of this cluster. The notion of the 'deep sharing' (Collins and Evans 2010, p. 53) necessary for the development of interactional expertise explains the additional amount of time required.

In the case of *Image Knowledge Gestaltung*, the first skill in interactional expertise developed is a willingness to accept disciplinary differences and to learn from the other discipline's culture(s). The new research communities then gather around the interdisciplinary research objects of their interest instead of their disciplinary identities. It appears that the effort required to leave behind disciplinary security is then compensated by the new interdisciplinary 'identity-based collective' (Gläser 2015) that shares values about how to be a good researcher.

As was to be expected, we find links between the structural conditions of the Cluster described in Sect. 13.3 and the interview results: as the interviewees remarked, essential structural conditions that were beyond the control of the board of directors and the steering committee were strong factors in shaping day-to-day work life (compare Knorr-Cetina 1981, 1982, 2003). As indicated by earlier studies (Hallonsten and Silander 2012), this interferes with the need for PhD candidates to continue to think within the terms of their respective discipline so as not to lose sight of their next career steps, as well as with temporalities such as the limited-term contracts of those not in permanent professorial positions. Conversely, looking at higher status groups, the limited proportion of time available for research is a challenge for those steering the Cluster. As these results show, the time required to develop and work with interactional expertise is a crucial factor still underestimated in funding structures.

A major conclusion of the study is that even when researchers cannot apply disciplinary frameworks, a joint community and collaborative identity can still emerge. Researchers stabilise their academic self-concepts either by reverting to their already engrained general academic identity or by biographic aspects that are not part of their institutional academic experience. The study shows that collaborative identities between the sciences and humanities can indeed be formed—with much extra effort and when a time span of several years of collaboration is allowed, which enables the development of interactional expertise.

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