



Image

Knowledge

Gestaltung

Newsletter November 2014 #4

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Editorial



Jahrestagung des Interdisziplinären Labors *Bild Wissen Gestaltung*

15. November 2014

Berlin-Brandenburgische Akademie der Wissenschaften

Visualization of a mesh illustrating the invitation cards for the annual conference 2014. (Design: Kerstin Kühl | BWG 2014)

The inaugural annual conference of the *Interdisciplinary Laboratory* will take place on Saturday, 15 November. The conference, which is open to the public, will be held at the Berlin-Brandenburg Academy of Sciences and Humanities, with lectures on the subjects of »Image Knowledge«, »Knowledge Structures« and »Gestaltung as Synthesis«. You are cordially invited to attend!

Our fourth *Newsletter#* is another eye-opening tour of the diverse research undertaken at the *Interdisciplinary Laboratory*. On page 3, our first article explores the interactions of materiality, aesthetics and design in typography through the lens of the duel between the fonts Helvetica and Univers.

What role does observation play in science and research? This question was the subject of a recent *LunchTalk* at the *Interdisciplinary Laboratory*. We cover the discussion in detail in our report on pages 7–11.

The role of the sciences in the evolution of museums and the paucity of research on the transfer of exhibition practices and modes of presentation from museums into the institutions of science are the subject of Anke te Heesen and Margarete Vöhringer's book »Wissen im Museum, Ausstellung im Labor«, which is discussed in a *LunchTalk* report on page 12 of this issue.

In our regular feature »In conversation with ...« we interview several researchers who recently joined us at the Cluster of Excellence. Biologist John Nyakatura took up the Cluster Professorship for »Morphology and History of Form« in September 2014.

In our interview he outlines the research that he will be undertaking at the *Interdisciplinary Laboratory*. It is obvious that Professor Nyakatura is keen to engage with colleagues on the finer details of functional morphology and to identify opportunities for synergies with researchers in the creative disciplines. (Page 26)

Cluster Professor Claudia Blümle is another recent arrival to the *Interdisciplinary Laboratory*. In our interview on page 28 she explains the role that interdisciplinarity has played in her research as an art historian and outlines the issues that she would like to pursue at the Cluster.

What do walks, pasta water, anatomical models, supermarkets and wooden records have in common? They are all the subjects of research by recipients of the Germany Scholarship currently participating in our Themenklasse »Image Knowledge Gestaltung«. The scholarship-holders will be working in the base projects »Analog Storage Media«, »Image Guidance«, »Experiment & Observation« and »Anthropocene Kitschen« over the next year. To find out more about their research, dive into our interviews on pages 19–25.

The next *Newsletter#* will be published in late 2014. We hope you find this newsletter to be informative and entertaining reading.



Claudia Lamas Cornejo
Head of Public Relations & Fundraising

LunchTalk in the Interdisciplinary Laboratory



The *LunchTalk* in the *Interdisciplinary Laboratory* is held weekly from 12.30 to 2 pm on Tuesdays. External persons may attend on request. (Photo: Claudia Lamas Cornejo | BWG 2014)

LunchTalk in the *Interdisciplinary Laboratory* is a constant in the cluster week. On Tuesdays from 12.30 to 2 pm, members of the cluster or invited speakers give a talk on relevant topics. Cluster members then discuss the lecture in order to identify points of reference, interfaces, or differences from their own work in the cluster. The *LunchTalk* provides members with an opportunity for informal exchange of information and discussion of issues arising from their own research in a protected internal area.

Here they can air theses and findings that are not yet 100% ready to go into print for discussion by scientists in different disciplines. That is why the *LunchTalk* is not, in principle, open to external persons. If you are interested you can send an inquiry to bwg.publicrelations@hu-berlin.de. Suggestions for contributions by external speakers can also be sent to this address.



Claudia Lamas Cornejo
Head of Public Relations & Fundraising

LunchTalk Reports



Helvetica vs. Univers. A typographic duel, 15.07.2014

This talk is concerned with the question of the interaction of materiality, aesthetics and design in typography. The investigation however becomes more involved when the duel that was launched between two very similar typefaces released in 1957 is called to mind: Univers, created by the Swiss type designer Adrian Frutiger, could be mistaken for Helvetica at first glance, a typeface that was developed under the original name Neue Haas Grotesk by the typographer Max Miedinger (Fig. 1).

Their release coincided with a major advancement in technology which ultimately led to the digitalization of typography and the virtualization of type. The new medium released the individual character from the metal (lead) moulds which once held type parameters such as minimum line and letter spacing. Phototypesetting explicated typographical knowledge and transformed its parameters into numerical values which removed previous limitations and allowed freedom for creativity. The point of departure for our thesis and this discussion is this divergence of symbolism from realism and how it directly affected the aesthetics of type.

Today Helvetica is one of the most popular and widely used fonts. The typeface is used for street signs as well as for numerous commercial wordmarks in the automotive and aviation industries (BMW, Toyota, American Airlines, and Lufthansa). On the other hand, Univers dominated the typography of the 1970s; Univers communicated the 1972 Munich Olympic Games and in 1974 the Deutsche Bank chose it as their corporate typeface. This reveals one of the key visual qualities of typography, its ability to communicate a meaning without distorting or concealing other layers of meaning.

Both typefaces have their genealogical origin in Akzidenz Grotesk, a sans serif font designed in 1898, which in turn had its roots in the classical antiqua styles (Fig. 2). Accordingly, typeface design allows the non-simultaneous to be creatively redeveloped into the simultaneous again and again. Type is therefore also image to the extent that it continually bespeaks its own history.

Helvetica : Univers

Fig. 1

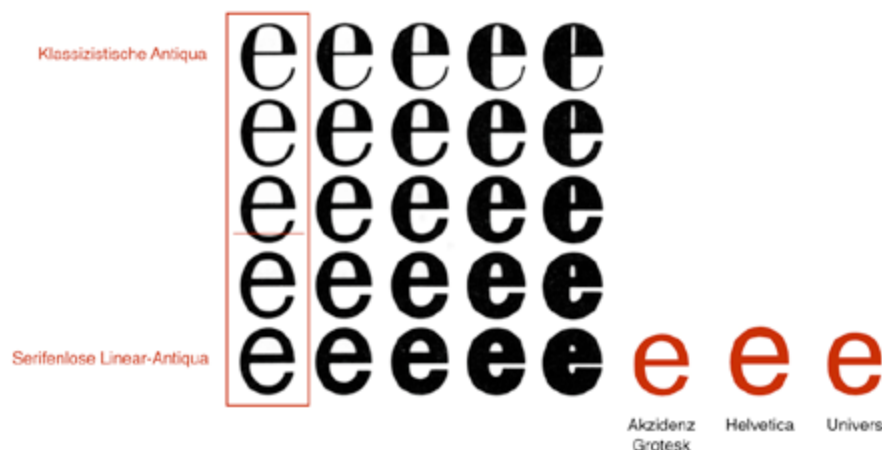


Fig. 2: Illustration (black) from: Gerrit Noordzij. De Streek: Theorie van het schrift. Zalbommel 1985

Both fonts are also very similar in their fundamental aesthetic strategy and creative use of form. Firstly, the strokes make use of the white (or negative) space which is enclosed by the letter and can be extremely complex in its formation (Fig. 3).

Secondly, the letters span very nearly the entire rectangular space they rest heavily in, whereby Helvetica (the »G« by way of example) possesses more supporting elements affecting Univers an overall lighter quality in comparison (Fig. 4).

Thirdly, it is noticeable that horizontally ending outstrokes disrupting the white space (clearly visible in the »e«) lessen the tendency to contain a letter through an »influx« of white. This effect is mitigated through a proportionally larger x-height in relation to the ascender, to enhance legibility (Fig. 5).

In typographic design of the 1950s, white was understood as a connecting medium between individual letters and as an essential element for visually satisfying readability. Printed letters were not viewed as entities, but as specifically formulated black-white relationships. Compared to Helvetica, Univers forces the design of these relationships significantly. It was the first typeface to be strategically designed in twenty-one variations ranging from thin condensed to bold extended (Fig. 6).

The transition to phototypesetting proved particularly advantageous in promoting Univers, a new technology that replaced lead cast letters that were expensive to produce with the far more economical film negatives.



Fig. 3

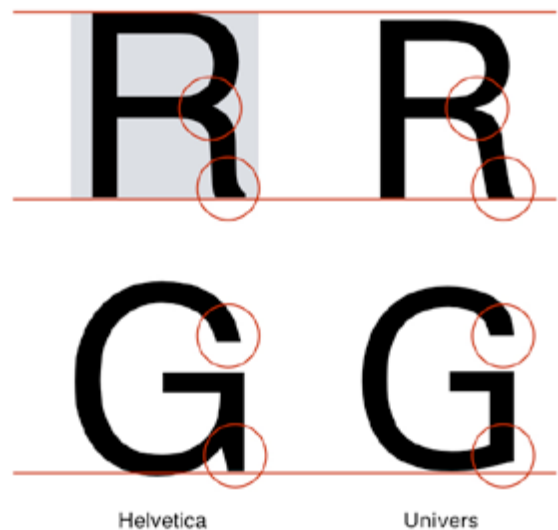


Fig. 4



Fig. 5

Univers expresses in its open, expansive structure the utopia of an endlessly expandable typeface setting new dimensions not only in type, but in legibility as well. Its metaphoric name communicates this assertion: the aesthetic strategy became coupled with an aesthetic medium – Univers as a universal font was to do away with the categorical divide separating the old antika book fonts from the Akzidenz fonts of the newer print media.

The media history of Univers is a programmatic and factual end of the materiality of typographical »Bildlichkeit« (figuration). In essence, it anticipated all technological developments allowing for the calculation of binary code into computer font. Lastly, it should be emphasized that it is clearly evident in typography how strongly figuration (and thus alternating semantics and associations of meaning) is influenced by the materiality and mediality of design practices.



Christian Kassung
Principal Investigator



Katharina Walter
Base project »Pictograms«



Schema: Bruno Pfläfl, 1963

Fig. 6



Observation in science and research, 02.09.2014

Observation is not just an ever-present aspect of our daily lives, it is also an essential component of both science and the creative disciplines or »Gestaltung«. Observation is based in the first instance on subjective impressions gained through sensory perception. At least in science, the aim is also to objectify these impressions and bring them into focus within a discourse context. However, human observation has its limits, even with the most highly trained senses, and technological aids are often required. Even so, observations made solely by a researcher and observations made using technical equipment inevitably require us to grapple with the non-observable and thus bring us to the limits of what can be observed.

Both the insights being sought and the objects under observation differ significantly in various academic fields. In the natural sciences, for example, observation is primarily concerned with natural phenomena, and in the humanities and social sciences, the observations made relate to people and society. Special care is needed whenever people are the objects being observed. People are not simply objects of observation – they are subjects with active reactions and behaviour. The situational context in which the observation takes place is thus always an influence on the person being observed, either to a greater or lesser extent, and this must be considered in the design and analysis of the observation process. The various forms of observation place differing degrees of importance on this fact.

The concept of observation is a key focus of study for Research Area D, with the aim of gaining a better understanding of interdisciplinarity. It does this both with respect to itself and other selected aspects of the cluster. As an »interdisciplinary laboratory«, the cluster has been set up as an experimental space for interdisciplinary collaboration. So there are two aspects here: the research work itself with its inherent objectives, and the reflection on the modes of action and functioning of these.

Observation – terminology and definitions

To sharpen the focus this discussion, we suggest that the concept of observation itself be more clearly defined. Terms such as surveillance, spying and observation are often used interchangeably within this field. Individual

disciplines have also developed their own, heterogeneous definitions, which cannot be readily generalized. With the ongoing fallout from the scandal around the NSA, PRISM and intelligence practices, other, highly charged connotations have also been added to this list, making it all the more necessary to differentiate these concepts.

The definitions proposed in the following are based on a collection of specific, well defined methods that can be gathered under the respective hyperonyms (i.e. more generalized terms). These are analysed and grouped by their defined objectives, enabling a function-based definition to be derived. As it seems there has been no linguistic or terminological investigation comparing these concepts, we carried this out ourselves. In terms of method, online terminology databases, taxonomies and glossaries in various general and specialist sources were reviewed for definitions of and relations among the three terms: surveillance, spying and observation.¹ In addition, results from web searches were considered and associated methods were sought. This resulted in a non-exhaustive but highly heterogeneous database.

The definitions and collection of methods derived from this showed the following: methods of *surveillance* include monitoring, access control, medical monitoring, technical system monitoring, traffic monitoring, supervision and monitoring of working time. The objective of surveillance seems therefore to be the detection of deviations from a pre-defined normal state. Methods of *spying* include listening, photographing, copying, hacking, eavesdropping or tapping, with the objective of obtaining protected knowledge from others.

Methods of *observation* include documentation, description, classification, measurement, exploration or experimental observation. The proposed objective here is to obtain findings regarding aspects such as the importance, structure and systematics of an object.

In this context, we see research as mapping to the objectives of observation rather than surveillance or spying. Here, research is understood as the systematic search for knowledge about unknown objects, underlying structures, behavioural mechanisms or functional relationships, through observation and analysis, in an attempt

at objectification based on facts. It is important to note that this distinction focuses on the objectives, not the data or the methods.

There is thus always a danger that research data could be misused for purposes of surveillance or even spying. It is the responsibility of the researcher to prevent misuse and to put in place appropriate protective measures. Privacy is reliant on data protection – ensuring that data is not used for other purposes, and especially not to the detriment of the people involved. Certain pairs of antonyms can help in the recognition of activities that may raise data protection issues, such as concealed vs. transparent, imposed vs. voluntary, comprehensive vs. selective, individual vs. agent, real life vs. laboratory or normative vs. descriptive.

Observation in the humanities and social sciences

As an empirical method in the social sciences and humanities, observation is not an end in itself, but rather serves to gain insight into the conditions and impacts of people's external behaviours and internal experience, by means of description and/or explanation. Predictions can sometimes be formulated and interventions carried out based on these findings.

As well as depending on the research topic and research question, the findings gained will depend on a) the explanatory programme, b) the relationship of theory to empirical research, c) the data collection methods (including observation) and d) the method of data analysis.

The American sociologist Andrew Abbott (2004) refers to explanatory programmes as the basic principles by which researchers in the social sciences and humanities produce explanations. He distinguishes between three programmes:

In semantic explanatory programmes, human behaviour is explained with respect to its cultural and symbolic context

(the semantics of the social situation). In syntactic explanatory programmes, behaviour is explained with respect to the context of the particular action (the syntax of the social situation). In pragmatic explanatory programmes, behaviour is explained with recourse to the relationships between variables (measures of correlation).

The main variations pertaining to the relationship between theory and empirical research are, firstly, the distinction between inductive and deductive works and secondly, the variability of the empirical operationalization of theoretical concepts.

According to two lists of methods in the literature (Abbott 2004 and Bortz/Döring 2006), there are five methods of data collection: ethnography, source studies, surveys, experiments, and access to data that others have obtained by means of one of these four methods. In the strictest sense, as per Bortz and Döring (2006), only methods in which experiences are collected in a non-communicative process can be classified as observational methods. In a broader sense, observation could be defined as an empirical method that has a process as its object.

Methods of data analysis can also be divided into those that are purely qualitative, purely quantitative, and mixed methods that combine both of these variants.

The presentation and categorization of research activities by researchers in the humanities and social sciences in the lecture was not intended to represent the only possible categorization. In this sense, rather than being a guide to what researchers in the humanities and social sciences should/can/may do, the presentation of various methods was a description of what these researchers actually do in practice. The aim was to create an awareness of and transparency around methods and not to limit possible research findings by formulating »dogmas«. An awareness and identification of methods does not mean following institutionalized schemes to (re)produce only that which is already known.

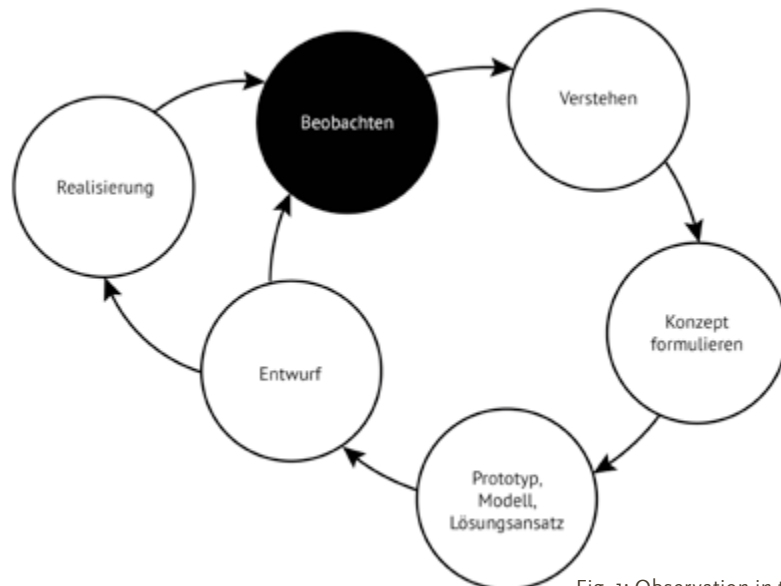


Fig. 1: Observation in the conceptual design process
[Realisation; Observation; Understanding; Formulation of concepts; Prototype, Model, Approach; Concept]

Observation in the creative disciplines

Observation also plays an important role in many creative disciplines such as design, architecture and urban planning. The diagram (Fig. 1) shows a simplified model of the role of observation in the conceptual design process, as we are proposing as designers and architects here. In order to design products or buildings that respond to the needs of their users, the context for their use must first be understood. We have identified two types of observation: *Observation of the current situation* is often carried out in urban development contexts, renovation projects and for products to be improved. An example of this is the

observation that architect Finn Geipel often carries out at the beginning of a project. Figure 2 shows an analysis of the current situation created to identify issues and develop solutions.

In the *observation of models or prototypes*, a 1:1 model or prototype is built and its use in an artificial situation is observed. Although this form of observation is used less frequently in architecture than in design, the following example from the field of architecture was presented during the *LunchTalk*.

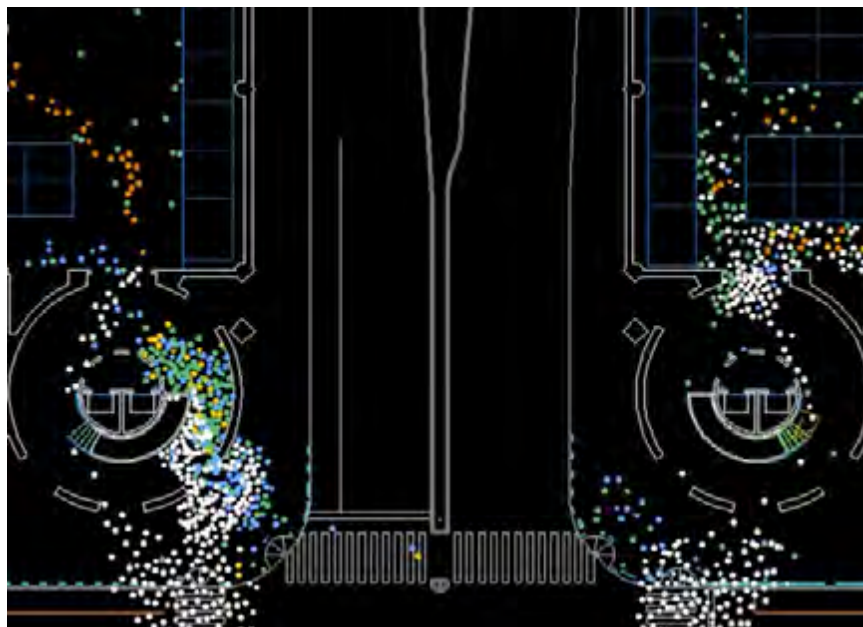


Fig. 2: Eiffel Tower



Fig. 3: L-wall test

In an elementary school in Uto, Japan, Kazuko Akamatsu and Kazuhiro Kojima/CA_t designed and implemented classrooms that are merely indicated by flexible, L-shaped walls, so the interior can be transformed into the exterior at any time. However, until the actual implementation it was uncertain how the L-walls would work in reality.

The most important milestone in this respect was the following artificial observation situation. In the former sports hall in Uto, CA_t used mobile partitions to build a 1:1 mock-up of an L-wall – that is, a classroom – and carried out test lessons there complete with students and teachers. Models were also displayed and future users surveyed (Figure 3). The design of the L-walls was then modified, based on the observational findings (Figure 4).

Observation is also an important component in interaction design, and observation specialists are often consulted. Instead of guessing, designers want to be able to offer products and solutions that will actually be used. To achieve this, they frequently rely on specialist recommendations and analysis. Their data helps to better understand the users and their environment. For projects that do not justify the expense or in which the budget does not cover specialist analysis, the designers themselves will operate as observers. The spectrum of methods ranges from personal observations in the field to informal user surveys or structured interviews.



Fig. 4: After implementation

Discussion

As it was noted in the *LunchTalk* discussion on the distinction between observation, surveillance and spying, objectives in the application of the same methods can also overlap. In medicine, for example, medical monitoring, which would be classified as monitoring under the functional definition proposed above, can also be used for the collection of research data, and vice versa. It was also noted that the term for the process of »observing« must be differentiated from the term representing the result – the »observation«, in order to further clarify the discussion.

In addition, it was recognized that critical analysis of the legitimacy of observation and the problematic overlapping with other objectives had not been addressed. However, as it is difficult to generalize here, this must be carried out in relation to specific activities in line with privacy policies. Research Area D will therefore separately examine its observational methods and will then be able to address critical issues in more detail. It was also noted, quite rightly, that observation is never completely neutral, but is always based on prior assumptions, theories, methods and earlier observations, which influence the observational situation and the interpretation of the observations. Research will never be free of this dilemma, which represents a general problem. However, under certain circumstances, the interdisciplinary situation in the cluster can be used to critically analyse problematic assumptions and limit discipline-specific blind spots. In addition, the approach to and interpretation of these assumptions depends on the research programme pursued in each case, and the object under observation, in particular.

Footnote

¹ Sources: DINterm, MSN Encarta, PhiloLex, Sociolexikon, Socialinfo, Medialexikon Medialine, EUGloss, Wikipedia, Deutsches Rechtswörterbuch, Geoinformatik-Wörterbuch, textlogs (various), Roche Lexikon Medizin, retrobib, Spiegel Wissen, mein Wirtschaftslexikon, Henrici Morys Assoziierte - Usability-Glossar, Lexikon der Hyperkommunikation, OpenThesaurus, Lexexakt, Meyers Lexikon Online, Duden Online.

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Science in the Museum, Exhibition in the Laboratory, 16.09.2014



On 16 September 2014 we were invited to present our book »Wissenschaft im Museum, Ausstellung im Labor« (»Science in the Museum, Exhibition in the Laboratory«) as part of the *LunchTalks* series. This was a special opportunity for us to discuss our work, given that this publication is not the product of a recently initiated project but is the outcome of a longer term collaborative effort which has gained new momentum within the cluster.

In 2010 we held a seminar on the topic at the Ludwig-Uhland-Institut für Empirische Kulturwissenschaft (Department for Historical and Cultural Anthropology, University of Tübingen), in cooperation with the Berlin Center for Literary and Cultural Research. The seminar's initial observation was that while there are several studies on the role of science in the development of museums, hardly any exist on the diffusion of presentation methods and exhibition modes from museums into the realm of science. (This situation has of course changed since

the founding of the Interdisciplinary Laboratory *Image Knowledge Gestaltung*). Beyond the role of research within the museum, we are also interested in the laboratory as exhibition site, examples of which abound. Such was the basis for the establishment of museums in the nineteenth century, which were directly related to specific researchers or their work, for example the Darwin Museum in Moscow or the Pathological Museum in Berlin. Often the scientists themselves took an active role in creating, curating and operating these exhibitions. The researchers would work in these same exhibition spaces, presenting interim results, pinning visualizations on the walls, exhibiting formulas side by side for comparison, and showcasing the most important instruments. The practices of presentation and research were interlaced. One of the book's central themes is namely this relationship, positing that modes of spatial presentation also organize research according to aesthetic and practical factors, and accordingly call for closer examination.

In an effort to make both the subject's complexity and the excitement of our shift in perspective more tangible, we opened the presentation with a description of the »Graefe Museum« of the Berlin ophthalmologist Albrecht von Graefe. The institution is typical for many estate collections in that it is a hybrid of museum, estate, permanent exhibition, collection, cabinet and archive with display elements – and practically defies any attempt at categorization. Moreover, the museum was not established on hallowed ground but rather inside the Heidelberg Eye Clinic, in other words directly within sight of the doctors and patients but invisible to a wider audience. To what extent do the methods applied in museums and exhibition spaces play a role in experimental and work processes?

Our book explores this question through historical examples such as Hamburg's X-ray Clinic or the architectural archive held by the Technical University Munich for teaching and research purposes. We also include contemporary examples to understand more precisely the impact of scientific presentation formats outside of the laboratory and how these are influenced by visualization strategies beyond the confines of research. Particularly instructive here are the wet collections of the Berlin Museum für Naturkunde and the Copenhagen exhibition on the history of biomedicine, »Split+Splice«.

We concluded the presentation with a discussion of the research questions that have emerged from this topic. There is still a dearth of research on the history of exhibition practice, not so much an analysis of the institutions themselves (covered extensively in the field of museum research), but rather an investigation and description of its design elements. What is lacking – despite attempts to rectify this – is a heuristic vocabulary for the analysis of exhibitions and their presentation elements.

To that end, one of our central concerns is to trace the origins of these presentation elements and to map their historical evolution. Additionally we also touched upon the relationship between aesthetics and purpose in scientific research procedures and the role of aestheticization in the laboratory, already an observable phenomenon in the nineteenth century. How does this historical aestheticization relate to the aesthetics of contemporary modes of museal presentation? While this question could not be definitively answered, it did yield a productive suggestion by Wolfgang Schäffner to actively »engage in aestheticization«.

Anke te Heesen, Margarete Vöhringer (Eds.)

Wissenschaft im Museum, Ausstellung im Labor

Kulturverlag Kadmos Berlin 2014

With contributions by Elke Bippus, Susanne Bauer, Martina Dlugaczyk, Martha Fleming, Bruno Latour, Jan Eric Olsén, Thomas Schnalke, Anke te Heesen, John Tresch, Ulrike Vedder, Christian Vogel und Margarete Vöhringer



Anke te Heesen
Associated Investigator



Margarete Vöhringer
Associated Member



Gestaltung-Image-Knowledge, Italian, 07.10.2014

This copperplate image, sent in advance of the lecture as an abstract, stems from the second, 1730 version of Giambattista Vico's *Scienza Nuova*. It was his view that the image would help a reader »understand the idea« (concepire l'idea) before the work was read. The image precedes the language, but it cries out for words to unlock the meaning (spiegare). On the one hand, the intention is to raise the subject of the relationship between image and language that is the focus of the VW Project »Symbolic Articulation«. On the other hand, the image is also intended as a reference to Vico's New Science, which – in a thought-provoking way – provides the philosophical notion behind the basic idea of the Interdisciplinary Laboratory *Image Knowledge Gestaltung*, albeit in a different sequence: Gestaltung – Image – Knowledge.

Scienza Nuova raises the basis question of all theoretical philosophy about the certainty of knowledge (scienza). And it claims to be new (nuova). According to an old artisan's proverb, we can only be totally certain about the things we make ourselves: dunque il criterio di avere scienza di una cosa e di mandarla ad effetto, »the criterion for ensuring you have knowledge of something is, therefore, to make that thing a reality« (i.e. make it yourself), wrote Vico back in 1712. He quite radically put the criterion of making it yourself as the central notion behind the concept of scienza. We can only have certain knowledge of the social world or culture, the mondo civile, because we made it ourselves. We did not create nature ourselves, which means only God can have scienza of nature, since God made it. This change in philosophy towards the man-made or cultural world is the first element of innovation here. Vico developed his philosophy in constructing the origins and history of the man-made mondo civile.

The man-made element is formulated in the figure of the poeta – the second element of innovation in Vico's philosophy – as the maker (poietes). Vico considered his real discovery to be the realization that humans were poets, i.e. »makers«, who »spoke in poetic characters« (parlarono per *caratteri poetici*). Human thought is »corpulent« (corpulento) or, in modern terms, embodied, and made manifest in »poetic characters«.



Poetic characters are figures of the myth whereby – as yet – untamed thought creates specific, universal terms (universali fantastici). Above all, however, poetic characters, as the etymology of the word *charakteres* suggests, are carvings, imprints, markings or likenesses. The makers create images.

These poetic characters appear simultaneously as visual and oral phenomena. Images and language are born as twins (nacquero esse gemelle). This is not only the basic notion behind our project »Symbolic Articulation« but also, as a result of this twin birth, language would appear to form an inherent part of the title of the Interdisciplinary Laboratory *Image Knowledge Gestaltung*.

To sum up: Vico's philosophy focuses on the things humans make, on Gestaltung, because certain knowledge, *scienza*, is only possible if it is based on things we have made ourselves. Humans are the makers, and the making of human thought is actually the making of images or characters. *Image Knowledge Gestaltung* – this trio seems to be encompassed within Vico's philosophy in a way that I would like the Cluster to consider. The Italian sequence, however, would be: Gestaltung (Shaping) – Image – Knowledge, or: poeta – carattere – scienza.

The light of the divine spirit within the heart of the metaphysical world, within human thought, is reflected onto this image of 1730, which achieves *scienza* by casting its light on the man-made world, and in particular on Homer, the maker of poetic images. The image is a poetic character of Vico's philosophy. Sending it out in advance of the lecture is to spell out Vico's thinking in a performative sense.



Jürgen Trabant
Associated Member



Wood!, 21.10.2014

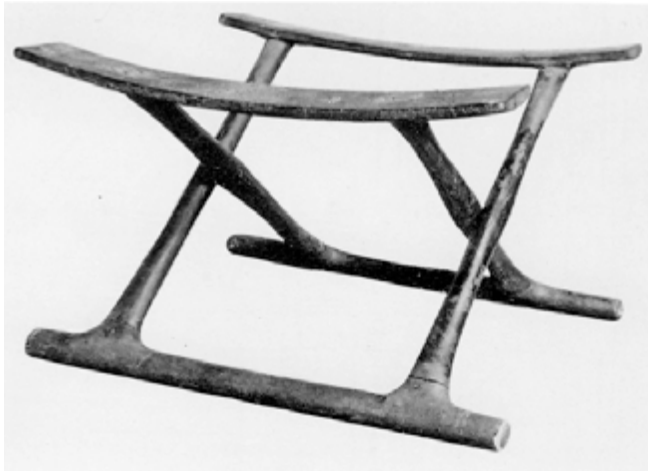


Fig. 1: Egyptian folding stool, fourteenth century BC, Egyptian Museum, Berlin. Inv.No.12551.



Fig. 2: Stool from Guldhoj, Denmark. Danish National Museum, Copenhagen. Nordic Bronze Age, second half of the fourteenth century BC.

Source: F. Windisch-Grätz (1982): *European Furniture*, Fig. 48.

In his *LunchTalk*, Clemens von Schoeler, a furniture restorer and wood expert, presented his ideas on conveying practical knowledge of wood as a building material. His work on the subject of wood ties in very well with the key themes of *Image Knowledge Gestaltung*. In the *Interdisciplinary Laboratory* he questions our image of the material, our knowledge of it and how we use both in creative processes.

The first noteworthy point is the relative absence these days of wood as a building material. Although we consume the resource in large quantities, (as fuel, as a filler for synthetic resin in so-called »wood composites« or MDF, and as a source of cellulose for paper and textile production), we only utilize an ever-diminishing fraction of the special qualities of this, the oldest of all building materials. Just as the material is disappearing, historic knowledge of woodworking processes also seems obsolete these days. How did it come to this?

Eighteenth century manufacturers began to introduce the division of labour to their production methods. Stürmer¹ aptly described this phenomenon as the »autumn of the old handcraft«. The »master«, the person who knew everything and made everything – whose knowledge and skill resided within one person – was replaced by the

entrepreneur, who only knew how to produce things but was not necessarily capable of doing so. Capability and knowledge drifted apart.

The second reason behind this shift in know-how has to do with the changed image of the material itself. When Michael Thonet developed the first bentwood furniture in the second half of the nineteenth century, his aim was to reshape the most striking quality of the material to satisfy his idea of utility. Log stability – one of the key qualities of wood – was secondary to the design effect of subjecting wood to heat and water, in order to produce lightweight, flexible and dynamically shaped parts for of all kinds of furniture. It marked the beginning of the industrial production of furniture in tandem with international marketing, and it was a huge success.

Finally, the twentieth century development of plywood eliminated the few remaining limitations of the material, by producing segments that could be bent into any desired shape and also endlessly wide panels that could be cut like a piece of drawing paper to the designer's specifications. Now we primarily work with wood-based or MDF panels, which are largely effective, despite retaining few of the positive qualities of wood. And this is how we came to know so little about wood today.

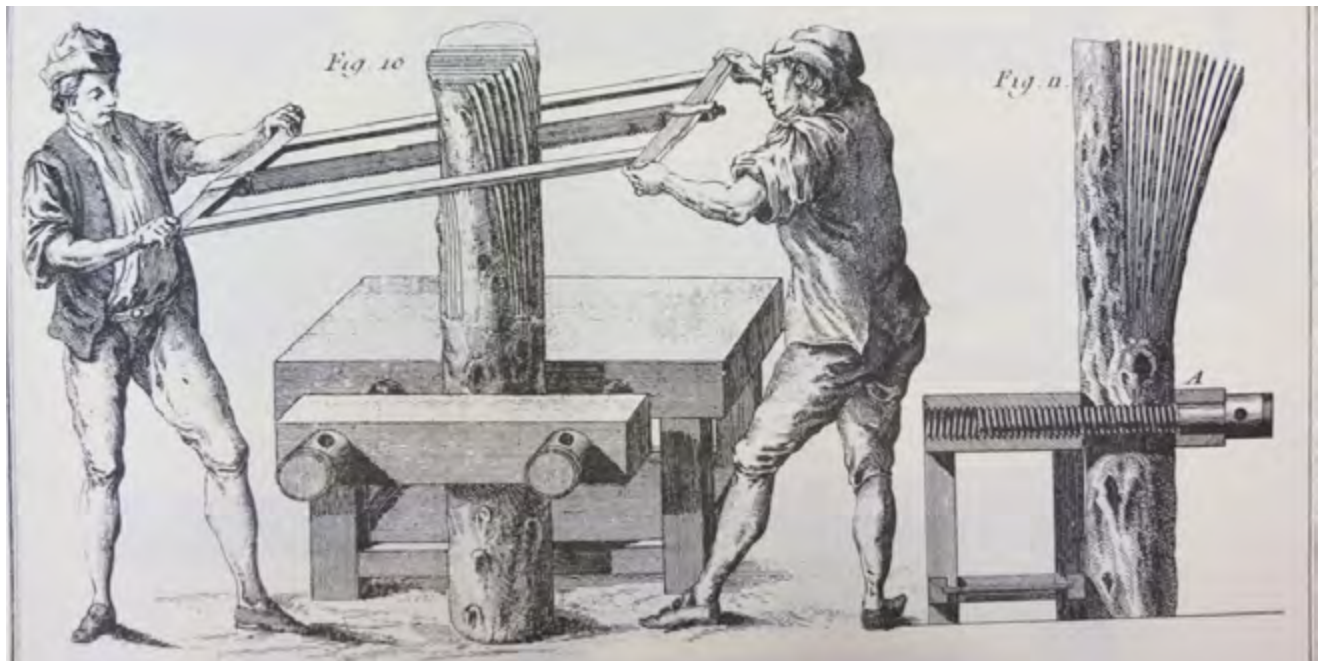


Fig. 3: Two carpenters sawing planks from a log of wood. From Roubo (1769): *L'Art du Menuisier*, Pl. 278, Fig. 10 and 11.

At the same time, a great deal of timber is still being processed today. Many objects of designer furniture are still produced from solid timber but, like the wood panelling industry, without much knowledge of how to treat the material. Wood is also gaining new ground in the house-building market. In 2008, Berlin architects Kladen Klingensbeil erected a seven-storey residential building and in 2012 the 27-metre-high »LifeCycle Tower« designed by architectural firm Hermann Kaufmann in Schwarzach was erected in Dornbirn/Vorarlberg using a prefabricated timber system. Is wood currently in the throes of re-»invention«? If so, it is high time for old wood practitioners to document their techniques. But how can such know-how be conveyed? And what kind of knowledge is it anyway?

Firstly, look at this very old example of knowledge transfer: Fig. 1 shows an Egyptian folding stool and Fig. 2 a piece of furniture made soon after in Denmark. There are many physical barriers between the two locations, but a glance at the technical similarity between the two stools suggests some form of communication must have taken place. Presumably it was non-verbal. But the carpenter/joiner in the Nordic country must have had a comparable set of skills in order to turn the idea of a stool (or *his* interpretation of it) into reality.

Viennese learning psychologist and Polanyi expert Hans Georg Neuweg describes the phenomenon like this: »We

know more than we are capable of expressing, at least in areas where we really know something. This does not mean we cannot name some of the rules on which our knowledge is based. But our ability to *articulate* this, according to Polanyi, remains *defective* or inadequate. And even to the extent that we are capable of portraying explicit knowledge and enabling explicit learning to occur, such knowledge still has to be subjectively filtered and translated by the learner into personal know-how. Polanyi talks in this context of the need for *indwelling*, of the learner having to incorporate this knowledge via a process of experience, practice and training.«²

That explains explicit knowledge, according to certain rules. But real »knowledge« is something else again. Polanyi refers to this as »Können« (ability, know-how). Historic sources serve as documented examples of the explicit knowledge component of certain practices. In 1769, Andre Jacob Roubo³ presented his »L'art du Menuisier« as an early form of documentation of one practitioner. But what does this tell us? Such images, even specific ones, like the drawing of two carpenters (Fig. 3) sawing a log into planks, provide more information about the view of the academic observer of the practitioners than that of the practitioners themselves.

Anyone who has ever attempted to split a log with a gang saw will tell you that the apparently relaxed stance of the two men is unrealistic. In reality it is a much more demanding task!

How, then, can we convey knowledge »vividly« in the Explorer⁴ database? The classic master-apprenticeship system does not seem appropriate, because it is too analogue and too personal. Conveying the information via »video tutorials« might be worth testing. But it is questionable whether they would be able to encompass the scope and kind of knowledge imparted in practical sessions. Practitioners and academics speak very different languages. This raises the question of identifying the best medium for conveying knowledge. A sensible approach would be to gather together all the essential, core knowledge of woodworking practice. The process would involve describing the relevant woodworking skills in both a comprehensive and compelling manner and also listing the applications to which they can be put. This would link artefacts with practices, in the sense of documenting explicit knowledge.

A further crucial step would be to portray and document individual, physical experiences in an operational and systematic context. This would allow us to gain a better insight into »hands-on« woodworking know-how and also make parts of it accessible to us. Since implicit knowledge is defined via non-verbal means (Neuweg), a largely unspoken or descriptive method would seem appropriate. Ultimately, however, such knowledge cannot be conveyed without the involvement of real practitioners. The Explorer database might prove a useful go-between here.

To explore these issues around the best way to convey implicit knowledge, let us imagine an experiment. We could, for example, ask two groups of test subjects from the Cluster to plane the surface of a plank in order to experience the practice of working *with* and having a feeling *for* wood as a material. Both groups would receive different instructions on how to do so. One group would be instructed by the conventional method of demonstration and imitation based on the master-apprentice principle. The second group would receive instructions in the form of explicit information conveyed via various digital media. Evaluation of the experiment would then be objectively conducted by experts and subjectively through interviews with the test subjects, whose physical perception, state of mind and personal experience would thus be recorded. The aim would be to come up with a comprehensive description of the practical skill to be learnt, including explicit insights into some of the experience gained from the exercise. The information gathered in this way would be of broad benefit to academics and practitioners. A low-threshold description would deliver a theory of practice that has so far only existed in theoretical form.

As a result, the learning process would become generally simpler, more efficient and »more practical«. Implicit knowledge as »intelligence in action« may also serve a commercial purpose.⁵

In this way, old practices could also harbour forgotten solutions to current problems. A systematic approach would open new possibilities for practical application or commercial profitability and thus re-integrate part of our historic heritage. We make the assumption here that practice and product are essentially one and the same thing. This has repercussions for the way art and cultural assets are received. A hand-crafted object can only be fully »appreciated« and understood with some knowledge of the way it was made. This leads us, finally, to an expansion in the work of the *Interdisciplinary Laboratory*. Only by putting questions about theory and practice to one another can the diverse themes have a stimulating, inspiring impact. Isolated, specialized topics occupy individual spaces and fill them with their expertise. In the (initially) apparently empty space between these individual areas of expertise, there will be space for a new dimension of our own ideas to emerge. This blank canvas will be filled with a way of thinking that operates at the periphery of our own knowledge and responds to the appeal of related realms of thought. The in-between spaces represent our free potential. Perhaps even for the practice of working with wood!

Footnotes:

- 1 Michael Stürmer: *Herbst des Alten Handwerks. Quellen zur Sozialgeschichte des 18. Jahrhunderts.* Munich 1979.
- 2 Georg Hans Neuweg: *Könnerschaft und implizites Wissen. Zur lehr- lerntheoretischen Bedeutung der Erkenntnis- und Wissenstheorie Michael Polanyis.* 1999.
- 3 Roubo, Andre Jacob. *L'art du Menuisier.* Paris 1769.
<http://roubo.free.fr>
- 4 The Explorer is being developed as part of the base project »Historic Structures«. It is a dynamic database where structures and artefacts are documented from Challenger Manuals and the Handbook of Zoology, to facilitate new connections and new insights.
- 5 Nonaka, I./Takeuchi, H.: *Die Organisation des Wissens.* Campus Verlag, Frankfurt 1997. The two authors mapped the implicit institutional knowledge and experience held within industrial companies and used it for commercial purposes to optimize production processes.



Clemens von Schoeler
Associated Member

In conversation with ...

The interview series »In conversation with ...« presents members of the *Interdisciplinary Laboratory* and their present and future projects, research work or events. The format aims to convey issues strikingly and in brief and to link content with the people involved. »In conversation with ...« provides an overview of disciplinary, methodical and content diversity in the Cluster and sees itself as a starting point for in-depth discussion and further exchanges between members of the Cluster and external players.



Claudia Lamas Cornejo
Head of Public Relations & Fundraising

... the Germany Scholarship holders of the Themenklasse »Image Knowledge Gestaltung«

Earlier this year, twelve recipients of the prestigious *Germany Scholarship* joined the *Interdisciplinary Laboratory* in various base projects to develop their own research projects and explore the interdisciplinary approach adopted at the cluster. CZ# spoke with some of the scholarship holders about their experiences at the cluster and the research they plan to undertake.

In conversation with ... Sebastian Köthe: From screen-writing to the »Anthropocene Kitchen«

CZ#: How was your introduction to the base project »Anthropocene Kitchen«, which you joined as a recipient in the *Germany Scholarship* programme?

Sebastian Köthe: It was great. We started with an introduction to the term »Anthropocene«, which we have taken on as scholarship students and can work with well. During the *LunchTalk* on »Eating Insects«, I really got to know the other students involved in my base project. We have now started to work on our respective sub-projects within the base project.



Sebastian Köthe is exploring the design and spatial systems applied in supermarkets. (Photo: Sophia Gräfe | BWG 2014)

CZ#: You come from a background in film, TV and theatre, and before studying at Humboldt-Universität, you studied screenwriting at the German Film and Television Academy Berlin (dffb). What brought you to the »Anthropocene Kitchen«?

Sebastian Köthe: I noticed in the call for applications to the Germany Scholarship that the »Anthropocene Kitchen« produces an Anthropocene Comic and that they were looking for creative approaches to communicating content. The idea appealed and immediately sparked my interest. At first glance, screenwriting and the »Anthropocene Kitchen« might seem worlds apart, but during my screenwriting studies I felt I was missing cultural and philosophical input, so I started a bachelor's degree on those subjects at the Humboldt-Universität in Berlin. It was important for me to learn how to reflect on basic principles. In film, at some point all the basic principles have been established and you just have to »do something« rather than constantly asking questions. Philosophy is completely different: the principles of philosophy are precisely what allow us to constantly ask questions. I find it exciting that the »Anthropocene Kitchen« makes some very strong propositions and sends a clear statement that we are living in the Anthropocene Age. This is a big decision that leads to questions about how we should deal with the consequences and ethical implications of this development. From an artistic perspective, I see knowledge production as being inextricably connected with an ethical and political standard, and that's what I find exciting about the base project »Anthropocene Kitchen«.

CZ#: What were your first steps in the base project?

Sebastian Köthe: We developed an exposé which explained our work and examined the options for restructuring supermarkets. First I dealt with the psychology of consumption, such as the tricks and architectural methods used in supermarkets to influence purchasing decisions. The idea is that the environment itself influences the decision rather than brand names and advertising. If this is really true, then organic and environmentally-friendly initiatives would need to be present directly in the supermarket, not just with a seal but also within the supermarket's architectural environment. Just the way goods are organized could be used to present clear information. For example, goods produced locally could be placed in the first aisle, while you should have to walk a long, long way to get to the steak from Argentina because it's located right at the back. This could serve as a physical

reflection of the consequences of the long-distance delivery for the environment.

CZ#: Have you already been to stores and done field research?

Sebastian Köthe: At the moment we're looking at the concept applied at »Original und Unverpackt«, the first packaging-free supermarket in Berlin-Kreuzberg, which has attracted a high level of interest. Apart from that, of course, we are influenced by our own experiences: like when you notice which goods are positioned at eye-level for children so that they start to complain. Or when the milk is always at the back of the supermarket so that you have to go through the whole shop to get to it.

CZ#: As far as it's possible to judge already - what will you take away from your work in the base project »Anthropocene Kitchen«?

Sebastian Köthe: What I will definitely take from it is the experience of interdisciplinary cooperation, which you don't get from everyday student life. Even though cultural studies are very diverse, we all have the same background, we've all read Foucault and use the same language. When I talk to a geologist in the »Anthropocene Kitchen«, he/she starts with a completely different world perspective. All of the participants have to understand that everybody else has very different initial assumptions and yet they may still reach similar conclusions or none at all. This is something that can be learned through empathy, because you have to work hard at thinking your way into your counterpart's thinking and their assumptions. You also learn to formulate your thoughts very clearly. I have to know how to express myself in a brief and succinct manner so that my counterpart understands my ideas just as intended. This is the kind of methodological knowledge that you learn. I also learned that the future and all questions involving forecasting play a big role. What actions are we forcing upon subsequent generations? These are the critical and immediate issues posed by the Anthropocene which will continue to challenge me during my work on the base project ... not just in my nightmares!

CZ#: Thank you for the interview!

In conversation with ... Janine Marscher: *Learning on the move!*

CZ#: How was your introduction to the base project »Experiment & Observation«?

Janine Marscher: It was a challenging to begin with as I was surprised at how many people, sub-projects and institutions are involved and how much had already taken place since November 2012. My advisers Peter Koval and Tom Lilge provide helpful feedback, but understandably they're also very busy and I have to make sure that I can keep up.

CZ#: You're working on your own independent project within »Experiment & Observation«.

Janine Marscher: I study adult education and got talking about it with Peter Koval. This led directly to my initial field of inquiry: seminar rooms at university, which I see as the first step in further education after school education. I've looked at the rooms in my own seminars and noticed that there's always a rigidly-defined perspective. Talks and presentations are always held from the front. Each of the four walls has a defined use: One wall has the doors, another has the windows, one wall – usually at the back – is unused, and rows of chairs face the front wall where the presentations are given.

This bothered me a great deal and I tried to hold a presentation that would bring more movement into the room, as I'm very interested in combining learning and movement. But it wasn't at all easy because the rooms are often unsuited to a more flexible approach: the furniture is heavy, very static and not really designed for change.

In a discussion with Anouk Hoffmeister, we realized that artists and creative people study and work completely differently. The rooms at Berlin University of the Arts or the Kunsthochschule Weissensee, for example, have a much freer design, allowing plenty of movement. I think it's unfair that these options are withheld from other subjects, and that students of the humanities are squeezed into static rooms. That has led me to think about formats that enable greater flexibility and movement. One idea is to use walks as a format for adult education. This shouldn't be too complicated, as I'm not trying to design new equipment, just alternative formats.



Janine Marscher is investigating alternative formats for adult education. (Photo: Sophia Gräfe | BWG 2014)

CZ#: In arts and cultural education, art walks and history tours are now well-established formats in urban environments. Does the environment play a role in the format that you are considering?

Janine Marscher: This could be an option for including things we encounter during the walk into the learning experience, but my main goal is to find formats that allow movement independently of the specific location and space. Atmosphere is another point that I want to explore, because I have noticed that using music during breaks makes it easier for people to engage in conversation rather than when a room is completely silent. So you could use the half hour between the seminars to enable further communication

CZ#: At our last retreat, we used a format called »Walk & Talk« in our breaks. This was a walk that led through the woods around the conference building. During the walk, participants could fall back or speed up to speak with different people. There were no rules for the format other than the route itself. How would you structure and organize a walking format, given that you want to communicate specific information?

Janine Marscher: My concept is similar, but there would have to be a few more rules, of course. I also want to consider incorporating obstacles, possibly even deliberately adding them to the route. I'm still at the initial stages when considering whether to include mandatory content or breaks along the route.

CZ#: *What ideas do you want to pursue for your scientific research and work after this year at the cluster?*

Janine Marscher: I think there are clear opportunities for recognizing and trialling alternative formats. I have already organized a lot of seminars on a voluntary basis and I would, of course, like to be able to make them as open and mobile as possible. I just can't imagine sitting down for my entire working life and teaching exclusively in a teacher-centred lecture format. There is a lot of scope for designing seminars at universities, we just need to research and work on the alternatives. I would like to break up the rigid formats, even if this is often criticized as an »unscientific« approach. But does science always need to be dry and sterile? I think there are alternatives.

CZ#: *... such as the interdisciplinary laboratory, for example, where I'm sure you'll find many willing test subjects for your walk format! We wish you all the best with your project. Thanks for speaking with us!*

In conversation with ... Philipp Schneider: *In search of anatomical models*

CZ#: Philipp, you are a recipient in the Germany Scholarship programme in the base project »Image Guidance«. What will you be researching with us?

Philipp Schneider: I have always been interested in the history of anatomical models. This led me to apply for a placement within the base project »Image Guidance«, which deals with visualization practices in medicine. My interest is in learning about how information is organized in this area and what the models actually demonstrate. My idea is to write an essay on the history of these practices in order to use past practices to work on approaches to modern representations in medicine. This connection with the present is very important to me.

CZ#: Which periods do you want to research?

Philipp Schneider: I'm currently in Paris looking for the best place to start and also for models that are still well preserved. The Musée d'Histoire de la Médecine, an institution of the Université Paris Descartes, has an enormous collection of medical instruments, specimens and models from the seventeenth, eighteenth and nineteenth centuries. One thing that I have noticed here is the striking change in the materials that are used to create anatomical models. I also visited the Musée des Moulages at the Hôpital Saint-Louis de Paris: a museum that deals exclusively with dermatological objects. This is the most important museum of its kind in the world, with over 4,000 casts of skin diseases. The collection has never been published in a catalogue.

CZ#: Why does Paris in particular have this collection? Are collections of this kind found elsewhere in Europe?

Philipp Schneider: The Enlightenment movement of the eighteenth century, along with various publications produced here – Diderot and d'Alembert's Encyclopédie, for instance – form the background and basis for these and similar collections here in Paris. They stimulated interest in the human body and triggered a wave of drawings, engravings, specimens and models that are currently in collections all over Europe.



Gautier-Dagoty, Jacques-Fabien: »The Flayed Angel / Anatomy of a Woman's Spine.«

Source: Anatomie de la couleur. L'invention de l'estampe en couleur, Paris/Lausanne: Bibliothèque nationale de France/Musée Olympique, 1996, Nr. 99.

CZ#: Last year, you were a scholarship student in the Themenklasse »Aging and Age«. Is your current work a continuation of that or something completely new?

Philipp Schneider: It's definitely something new, as I was more involved with the organization at »Aging and Age«. What interested me was the representation of age in art. At present my focus lies on medical representations.

CZ#: And what are your plans for the future following the Themenklasse »Image Knowledge Gestaltung«?

Philipp Schneider: The subject matter addressed in my work within the »Image Guidance« project is not the main focus of my studies in image and art history, where I work extensively on architecture, interior design and the tradition and iconography of certain types of buildings and rooms.

Ultimately, searching for the origin of motives and forms is what interests me about anatomical models. Accordingly, it's very important for me to finish my research in this area at »Image Guidance« over the coming year. Then I can move on!

CZ#: And we wish you all the best with your work!



The print file displayed on this screen is a cutting pattern. These lines are cut out with a laser cutter (outer form and centre hole) before the audio content is cut to the disc with a laser. (Photo: Daniel Paschen | BWG 2014)

CZ#: How was your introduction to the base project »Analog Storage Media«?

Daniel Paschen: We enjoyed a nice reception, including an extensive introduction to the base project, its background, objectives and participants. Working with Tom Altenburg, another scholarship recipient in the »Analog Storage Media« project, we developed our concept and are now ready to start work.

CZ#: What will you be doing?

Daniel Paschen: We will produce our own record using the laser cutter in the cluster's model workshop. We originally planned to use a 3D printer, but we soon realized that this approach would be more difficult to accomplish within the Interdisciplinary Laboratory. As the in-house 3D-printer cannot produce the detail that we need, we would have had to outsource the manufacturing process. In light of this, we decided to use the laser cutter.

CZ#: What will we hear on the audio record?

Daniel Paschen: The record will contain a sound recording, a short piece of music that has been edited to make it suitable for this medium. A programmed code converts the audio file into a vector graphic, which is then sent to the laser cutter. The laser cutter cuts the information – we first used an acrylic glass plate – into the material. The audio track can then be played back on a conventional turntable.

CZ#: Are you looking to produce specific sounds or is the production process your primary interest?

Daniel Paschen: In our trials, we used a five-second instrumental piece to test a range of settings on the laser cutter. We are now planning to make a sound collage using recordings of background sounds from the Interdisciplinary Laboratory. Of course we also want to experiment with different materials, such as wood and cardboard.

CZ#: How did you get the idea to make a phonographic record?

Daniel Paschen: I have always really loved records, be it as collectibles or as tools for DJs.

CZ#: What have you learned from the Interdisciplinary Laboratory?

Daniel Paschen: At first I was sceptical whether an interdisciplinary approach could work. My project partner Tom Altenburg is a biophysicist. His methods and perspective on our task are completely different to my own. But we complement each other very well and that makes the work exciting. We have also gotten great support from Jonas Palzer, the student assistant in the video lab who is handling the audio editing.

CZ#: We can't wait to find out how many different materials can be used to produce records and to hear your finished product. Thank you for speaking with us!

In conversation with ... Luca Kunz: *Harnessing the energy of pasta water!*

CZ#: As a recipient of a Germany Scholarship, you are conducting an individual project as part of the base project »Anthropocene Kitchen«. How did you experience your introduction?

Luca Kunz: The introduction was great. We had several excellent Themenklasse meetings and presentations, in the course of which we introduced ourselves and gained a broad overview of the research carried out at the *Interdisciplinary Laboratory*.

CZ#: You joined the »Anthropocene Kitchen« as a physicist. What does your work specifically involve in this base project?

Luca Kunz: As there are four scholarship recipients in the »Anthropocene Kitchen«, we began by identifying any overlapping interests and considering how we could position and organize ourselves within the base project. In my project I am examining energy consumption in the kitchen. During the first project phase, I'll be systematically measuring and analyzing energy consumption for one week in the household of my six-member family in Germany's Palatinate region. Initially this will largely involve measuring electricity, which might be difficult for things like the stove, a high-voltage appliance that you cannot just tinker with unless you are an electrician. In the next step I will be seeking to identify opportunities for saving energy in the kitchen. People are largely unaware that a lot of energy is wasted after cooking. In the second phase, I would like to develop a product that recycles the energy consumed in the kitchen.

CZ#: Can you give me an example?

Luca Kunz: Take the stove, for example, which is still hot after cooking. A lot of heat energy is lost from the stove heating elements or from hot pots, energy which could be harnessed and reused. Another example is cooking water, such as pasta water, which is usually discarded. I have been playing with the numbers and calculated how much energy we waste with cooking by-products, such as cooking water. Cooking three pots of pasta produces enough heat energy to wash five kilogrammes of laundry at 60° C in a washing machine. If you think about how often students cook pasta during the semester and that currently 33,000 students are enrolled at the Humboldt-Universität, that adds up to quite a bit of heat energy.

CZ#: Would the product be a component that could be integrated into different types of stoves or are you thinking more of an external device?

Luca Kunz: At the moment I am thinking of an external device that can be attached to different kitchen elements.
CZ#: What is the next step after the »Image Knowledge Gestaltung« Themenklasse? What path will you pursue?

Luca Kunz: My career interests clearly lie in energy production and energy conservation, which I think is also why I chose to study physics. I would like to work in the field of renewable energies and thermodynamics. To that end, spending a year at the *Interdisciplinary Laboratory* on a scholarship is ideal.

CZ#: Then I wish you all the best and thank you for speaking with us!

The interviews were conducted by:



Claudia Lamas Cornejo
Head of Public Relations & Fundraising

In Conversation with ... John Nyakatura *Morphology and the History of Form*

CZ#: Mr Nyakatura, how are you finding being part of the Cluster?

John A. Nyakatura: Joining the cluster has been quite an adventure for me. The first time I listened to one of the *LunchTalks* I was struck by the interdisciplinary approach taken here at the cluster. In the discussion following the presentation there were comments from all different angles, offering thoughts and feedback from a wide range of perspectives. I was impressed by the open atmosphere in which the discussion took place. I am keen to discuss my own work with researchers from different disciplines, too. I also had the good fortune to be able to join Horst Bredekamp at *Learning with...* in my first week and to gain some insight into the working methods of an art historian. I also got to know a few of the members of the cluster along the way. So I had a great start, and now I have to attend to a lot of organizational matters. I am still sitting here in these empty rooms and am just about to start hiring staff. Fortunately, there are some very helpful people in the cluster who are happy to advise and assist me with this.

CZ#: In what areas will you contribute and carry out your research?

John A. Nyakatura: I am a biologist, in fact an evolutionary biologist and zoologist to be more specific, and to date my work has focussed on the functional morphology of the musculoskeletal system of vertebrates. Actually, my research was already interdisciplinary – I have worked with palaeontologists, illustrators and even mechanical engineers. I think it will be great to be able to discuss my approach to functional morphology with scientists at the cluster, too. I am convinced that there are a lot of natural associations, particularly with creative disciplines like architecture. However, many of the base projects are already in progress.

We will see where my staff and I can make a contribution. I have set up lots of meetings for the coming weeks to learn about the specific objectives of some of the base projects and get to know the people involved. It is a very exciting time.



John Nyakatura, Junior Professor of Morphology (Zoology) and History of Form, talks about his research projects at the *Interdisciplinary Laboratory*. (Photo: Jutta Putschner | BWG 2014).

CZ#: You are based in the beautiful building for zoology/biology on the North Campus. Will you mainly be working with Gerhard Scholtz?

John A. Nyakatura: Having my future working group in the same building as that led by Gerhard Scholtz will bring a variety of benefits and synergies. Close contact with the biologists will be very important for my staff and me. We will be able to make use of the infrastructure in zoology/biology, and will also have our own small laboratory.

I contribute to the undergraduate teaching programme in zoology as well, which takes place in the laboratories and lecture theatres there.

Because my junior professorship is a bridge professorship between art history and zoology/biology, I will also be looking at where I can contribute to the cluster beyond the field of biology. I would like to offer lectures that would be of interest not just to natural scientists, but also to those in the humanities and creative disciplines. There is a lot to learn here for me, too.

CZ#: Will you integrate your previous research into the cluster and its research topics, or embark on research in a related but completely new field?

John A. Nyakatura: Both. I definitely want to make use of the great opportunities available here to continue my work in functional morphology. In my small working group, we will combine both collections-based and experimental approaches. It is fantastic to be able to use the massive collection held by the Museum für Naturkunde here in Berlin for my work. That is why I was very pleased to meet Johannes Vogel, director of the museum, and to have been given assurance of his full cooperation. Other academics in the cluster, such as Professor Fratzl's working group on biomaterials, are also working on some very interesting questions that could complement my research topics well, so I am keen to find out more about them.

My working group's laboratory will also be able to carry out motion analysis with live animals. I am particularly looking forward to this aspect of my work and hope that the integrative approach taken by my working group will also arouse the interest of many students.

Another topic that I plan to tackle is the examination of diagrams in my field from the perspective of image studies. I want to look at how diagrams have been and are used in morphology to generate and disseminate knowledge. Firstly, this interests me in terms of the history of science. I hope to be able to identify key conceptual shifts in morphological research in the production and use of morphological diagrams. For example, I am thinking of events like the publication of the theory of evolution, the introduction of phylogenetic systematics or the critique of adaptationism of the late 1970s.

Secondly, I am also interested in how modern imaging techniques change the methodologies and processes used in morphological research. Today, a diagram is no longer the end of a complex research process, and instead is often the starting point for in-depth analysis, even in undergraduate theses, for example, so this development is something that should be critically examined. I think there will be excellent opportunities in the cluster to address issues like these together.

Finally, I am also working with illustrators from Hamburg University of Applied Sciences to examine the use of an interactive diagram (in the broadest sense), which we will use as a virtual experimental platform to work through an issue in functional morphology.

CZ#: What is your aim in the cluster and what is your hope for your own research?

John A. Nyakatura: My objective is to build a productive working group. The results of the group's research will in the view of many morphologists then undoubtedly increase the importance of studies in functional morphology for the understanding of evolution, as well as contributing to morphologists using diagrams in a more conscious way. If this also means that more biology students are interested in image studies, and students of the humanities are interested in topics in biology, that would also make me very happy. The PAN working group at the Museum für Naturkunde, which looks at perspectives on nature, has shown that there is significant potential in this approach.

The interview was conducted by:



Claudia Lamas Cornejo
Head of Public Relations and Fundraising

Claudia Blümle: *History & Theory of Form*



Claudia Blümle talks with CZ# about her research at the *Interdisciplinary Laboratory*. (Foto: Kathrin Bauer | BWG 2014)

On 1 September 2014, Claudia Blümle took up the position of Cluster Professor for the »History of Theory & Form«. She spoke to CZ# about the interdisciplinary approach and her projects within the Cluster of Excellence and the Department of Art and Visual History at Humboldt-Universität.

CZ#: What is your first impression of the *Interdisciplinary Laboratory* and how are you settling in so far?

Claudia Blümle: I am very happy that I have been given time to first familiarize myself with the content and structures of the Cluster of Excellence. I was also pleasantly surprised to see how many colleagues welcomed me with open arms and offered me their help from the very start. The administrative office of the *Interdisciplinary Laboratory* and the faculty have also been extremely supportive in terms of the technical facilities and space made available to me and the attitude of the staff. Some things work very efficiently and professionally, while in other areas the mills unfortunately grind rather slowly.

CZ#: What role does the interdisciplinary approach play in your research?

Claudia Blümle: As a doctoral student at the Bauhaus Universität in Weimar I experienced how beneficial conversations can be between researchers of German Literature, Scientific History and Media Studies. Interdisciplinary conversations in Weimar were all part of a productive atmosphere, which I would describe in retrospect as »wild thinking«. At that time I was exploring connections between psychiatry, physiology and painting. It also sparked my interest in researching questions of abstraction in art and the life sciences. For a long time now, art historians have applied a biological vocabulary to describe abstract images, by using adjectives like organic and inorganic. The other side of the coin is that science historians speak of descriptive methods and models that no longer mimetically map and instead highlight abstract structures. Interestingly enough, the very first examples of abstract images coincided with the emergence of the life sciences around 1800.

After my time in Weimar, I conducted research at the Basel Art History Department into the link between image and law in the Early Modern Age and presented the results for discussion at the SNF Research Cluster *eikones/Bildkritik*. In Module 1 (The Power of Imagery. Image Politics) and in the weekly colloquiums, I was able to engage in conversations with researchers in other disciplines, which were and still are extremely valuable to my research. Finally, at the Academy of Art in Münster, a lively exchange of ideas with visual artists ensued. As part of that, the Colloquium »Art and Science in Conversation« was founded, where artistic works of masters' students and scientific projects of doctoral students were presented on an alternating basis.

CZ#: What does interdisciplinary research and work mean to you? Do you have a definition for it?

Claudia Blümle: During my work in Weimar, Basel and Münster it became increasingly clear that it is essential for me to have a thorough grounding in my own subject area, in order to be able to build bridges to other disciplines. Strong differentiation between subject areas is an historic fact and a necessary basis for us all to work from. But an interdisciplinary approach allows us to gain critical

distance to our own work. The challenge lies in being able to understand each other at the level of language, sensory perception and intellectual thought, for misunderstandings and prejudices are still as prevalent as ever at all three levels.

Art history as an interdisciplinary visual science – the way I experienced it in Basel – provided strong impetus for holistic openness and highlighted the productivity of interdisciplinary work. In my case, the holistic approach always had an historic focus. After the first lectures in the LunchTalks series, I gained the distinct impression that the interdisciplinary approach was being researched and discussed within the Cluster with a strong focus on the present. The repercussions of an interdisciplinary approach in the current situation, and the extent to which the relationship between cultural and natural sciences can be considered in the information age, are questions that I find very compelling. In that sense, I am also very keen to see how critically and affirmatively the various projects within the Cluster address this issue.

CZ#: What will be your key focus at Humboldt-Universität?

Claudia Blümle: A central research project will focus on Form and Milieu, as the starting point for developing an interdisciplinary theory of form. The term milieu, or environment, differs from the common understanding of physical surroundings, as Jakob von Uexküll showed at the start of the twentieth century. While physical surroundings accept living things as objects, the environment is something that is actually shaped by them. Form is thus the place of encounter for both organism and environment. Camouflage in the animal world, for instance, as it is explored in mimicry theory, is based on the relationship between form and environment. That relationship in turn has developed, from a phenomenological, psychoanalytical and cultural science perspective, via the relationship between eye and gaze. After all, the various forms of biological, psychological and social milieu along with philosophical milieu theories are all part of the context of information theory.

In that sense I am very curious to see what biology, zoology and ecology think about the relationship between form and milieu today. I hope that in the context of the Cluster I will be able to network with natural science researchers who are in the process of investigating the link between organism and environment. I would like another key focus of my teaching and research to be on

art and image theory in France. I plan to continue my editorship of the journal »Regards Croisés«, (a German-French review journal of art history and aesthetics), and France will again be the central theme of the next few issues, in terms of both art history and theory.

CZ#: What kind of seminars, workshops and events are you planning for the Interdisciplinary Laboratory?

Claudia Blümle: I can well imagine organizing a seminar or lecture series within the Cluster on the subject of Form and Milieu. In addition, I plan to address some local themes at the beginning. At the moment I am interested in post-war art within the public domain in Berlin and to what extent sculptural works and installations from 1945 to the present day have contributed to the establishment of a public and political sphere. Together with Kaspar König, I will be visiting these places as part of a seminar and workshop on the subject and discussing the artworks in relation to these public spaces. More specifically, I can also imagine working in that context with students to design and develop some guided tours of public spaces in Berlin and perhaps publish a city art map and guidebook.

In the coming semester, I also want to facilitate knowledge transfer between the research work of the Cluster and the Institut für Kunst- und Bildgeschichte. With that in mind, I plan to set up a new teaching format in my capacity as Professor of the History and Theory of Form. This will take the form of preparatory seminars in the lead-up to a conference, where the basic content will be discussed in advance of the event and the conference will also be attended as part of the seminar. This teaching format enables students to become more involved in conference discussions and also provides them with a window into the relevant research activities. At the same time, as both organizer and lecturer, I will be able to engage in some fascinating conversations about the content of the conference and the questions it raises.

The interview was conducted by:



Claudia Lamas Cornejo
Head of Public Relations & Fundraising

Review of Events

Learning with... Horst Bredekamp: Image Description

Learning with... is an internal workshop series that was introduced at the inception of the cluster to enable participants to learn from one another.

Scholars and scientists from different disciplines and status groups present ideas and skills that are of interest to members of the *Interdisciplinary Laboratory* in a format that enables researchers to sharpen their awareness of methods and applications used in other disciplines. Topics covered in the series range from image processing, IT and software to the operation of workshop equipment and theoretical knowledge.

Below, impressions from »*Learning with... Horst Bredekamp*« on the subject of image description.



The zombie cabinet, as Horst Bredekamp calls it, presents in disturbingly vivid shapes and forms the skeletons of a variety of bird species. (Photo: Thorsten Beck | BWG 2014)



Drawing of a Brazilian »*Rhea americana americana*« by Sandra Schramke, 1801-1803. Present location: Museum für Naturkunde Berlin.



Drawing of a preserved specimen of a macaroni penguin by Günther Jirikowski. The specimen is also on display in the ornithological collection of the Museum für Naturkunde Berlin.



Drawing of a great grey owl »Strix nebulosa lapponica« by Fabian Scholz. Location: Museum für Naturkunde Berlin.



» (...) A black line emerges laterally to the right and left of the beak. In the frontal view, both lines fall off just before the lateral surfaces of the head. They meet again in an arc in the centre of the chest, thus resulting in a circular line. (...)«

Drawing of a preserved »Glareolidae« (pratincole) and an excerpt of its description by Sophia Gräfe.



Detail of an unlabelled drawing of a parrot-like skeleton by Frauke Stuhl.



Photographs and drawing of a young »Struthio camelus« (common ostrich) by Henrike Rabe. Location: Museum für Naturkunde Berlin. (Photos: Henrike Rabe | BWG 2014)



Participants observe and describe the wooden sculpture of St. Crispinian at the Bode Museum. (Photo: Thorsten Beck | BWG 2014)



Günther Jirikowski's drawing of the wooden sculpture of St. Crispinian, who is depicted as a shoemaker at work. Damage to the sculpture is readily apparent.



Tom Lilge's drawing of the Madonna from the workshop of Nino Pisano, 1345/47. Sculpture collection, Room 108 of the Bode Museum.



Horst Bredekamp explains the significance of incident light for the perception of sculptures and reliefs, which is especially favoured by the architecture of the Bode Museum. (Photo: Peter Koval | BWG 2014)



In form and content, the portrayal of St. Agnes combines eroticization with the abstraction of the supernatural.
(Photo: Peter Koval | BWG 2014)



On the trail of St. Agnes' glamorous gaze: for many actresses, a model that is difficult to imitate.
(Photo: Peter Koval | BWG 2014)



Drawing of the Dangolesheim Madonna (1460/65) by Anja Seliger.



Visual analysis of the Dangolesheim Madonna at the Bode Museum.
(Photo: Thorsten Beck | BWG 2014)



Upon closer examination, the Dangolesheim Madonna reveals a box-shaped incision in her hair, which conceals a place for storing a relic.
(Photo: Christian Stein | BWG 2014)



The last day of »Learning with... Horst Bredekamp: Image Description« was held in the painting gallery of the Kulturforum.

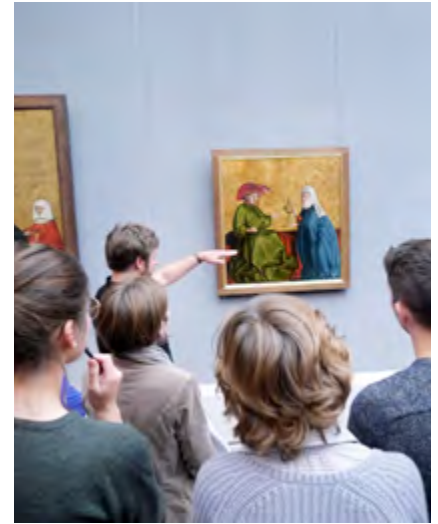
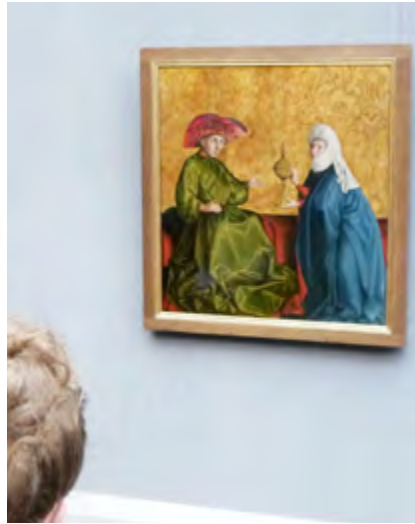


Katharina Walter describes the work »The Holy Trinity« from the Gerion altar. This Franco-Flemish altarpiece from St. Mary's Church in Gdansk dates from about 1420.



Sabine Hansmann describes the painting »Venus and Cupid« by Georg Pencz (circa 1528), which depicts the goddess and her son in a familiar pose before the backdrop of a rural landscape.

(Photos: Claudia Lamas Cornejo | BWG 2014)



In his image description, Thorsten Beck elucidated »The Queen of Sheba before Solomon« by Konrad Witz (1435/37). The magnificent painting is backed with gold leaf and depicts the meeting between the Israelite King Solomon and the Queen of Sheba. With this work, Konrad Witz, a painter between late Gothic and early Renaissance, presented an accomplished study in the rules of perspective and composition, which he had presumably acquired during his journeys to Italy.



The group examined the depth and perspectival composition of Sandro Botticelli's Bardi altarpiece »The Virgin and Child Enthroned between St. John the Baptist and St. John the Evangelist«, from the years 1424-1485.



When the painting is rendered as a floor plan, it becomes evident that it is arranged with more depth than is noticeable at first glance.

(Photos: Claudia Lamas Cornejo | BWG 2014)

Workshop »Well-formed information«

Visual depictions are a tremendously important — but often neglected — tool in scientific practice and communication. In a two-day workshop, Moritz Stefaner, a leading expert in the field of data visualization, provided practical tips and guidance in how to use data visualization effectively in scientific practice. Attendees learned about the pros and cons of different diagram types, the best use of visual variables, tips for working with colours, icons, and typography, layout tricks and the role of narrative techniques. The practical focus of the workshop lay on the production of print graphics for publications and posters, but participants also discussed the production of interactive/web-based visuals.

Moritz Stefaner works as a »truth and beauty operator« on the crossroads of data visualization, information aesthetics and user interface design. With a background in Cognitive Science (B.Sc. with distinction, University of Osnabrueck) and Interface Design (M.A., University of Applied Sciences Potsdam), his work beautifully balances analytical and aesthetic aspects in mapping abstract and complex phenomena. He is especially interested in the visualization of large-scale human activity.

The software »Tableau« was used to develop visual representations of surveys of the work habits of cluster members based on a small test data set. The surveys were carried out as part of the research for the base project »Architectures of knowledge«.

The categories used in one of the surveys – »hermit«, »reader«, »world«, »wagon« and »wheel« – describe gradations between different needs, such as silence and noise, seclusion and communication, identity and anonymity, or routine and variety. Because only a small fraction of the data was used for testing purposes, the graphic is not representative.

Key

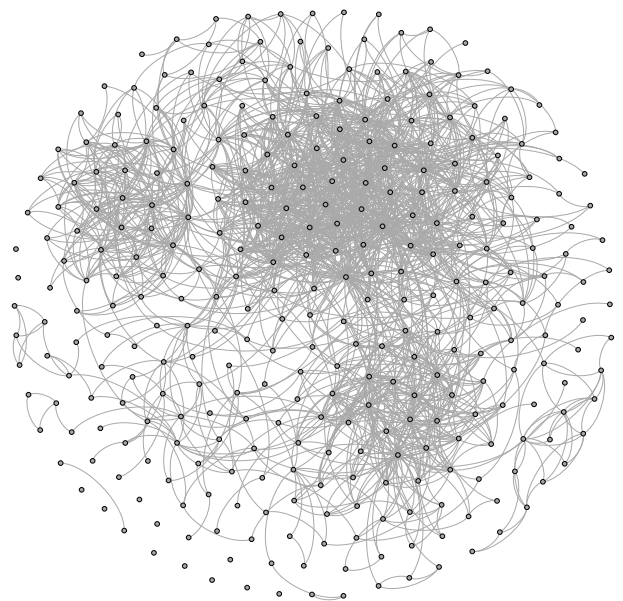
Hermit: individual work in seclusion and silence

Reader: individual work in sociable silence

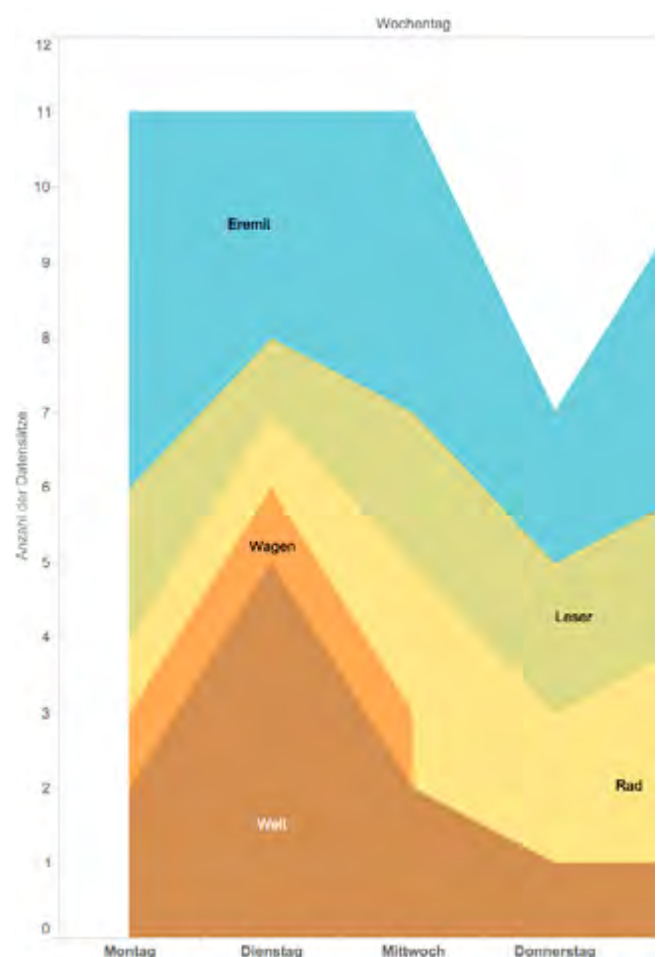
World: individual work, group work, informal communication in a café atmosphere

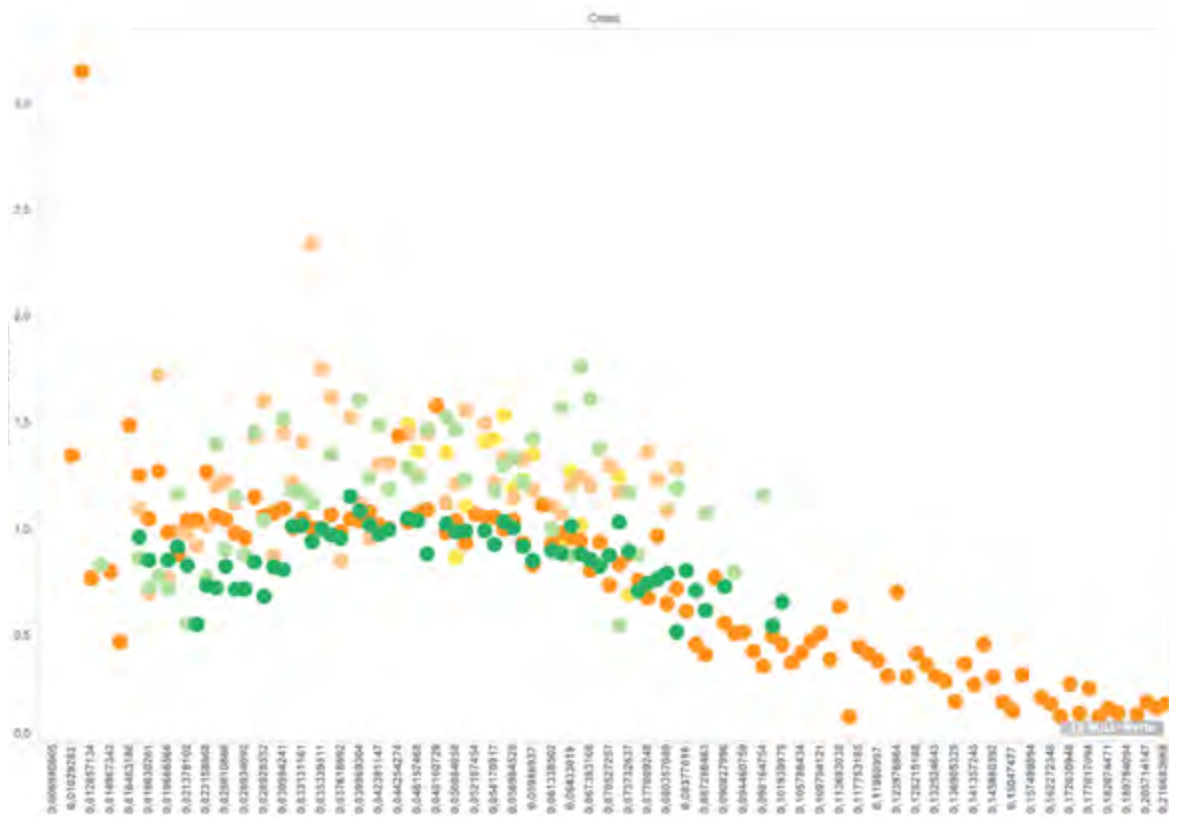
Wagon: work in close proximity with colleagues from their own base project

Wheel: work in close proximity with particular staff
(Graphics & text: Henrike Rabe | BWG 2014).



The software »Gephi« can be used to visualize a person's social network, for example. (Graphics: Henrike Rabe | BWG 2014).

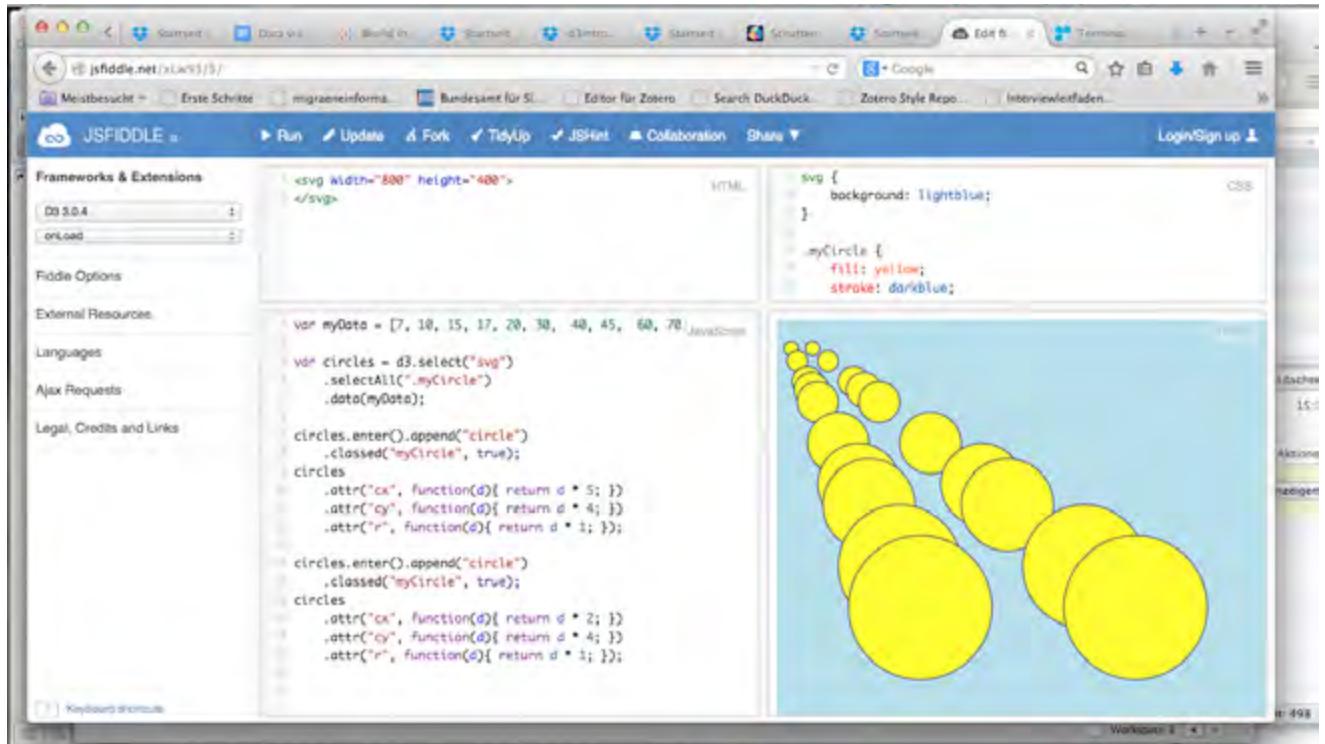




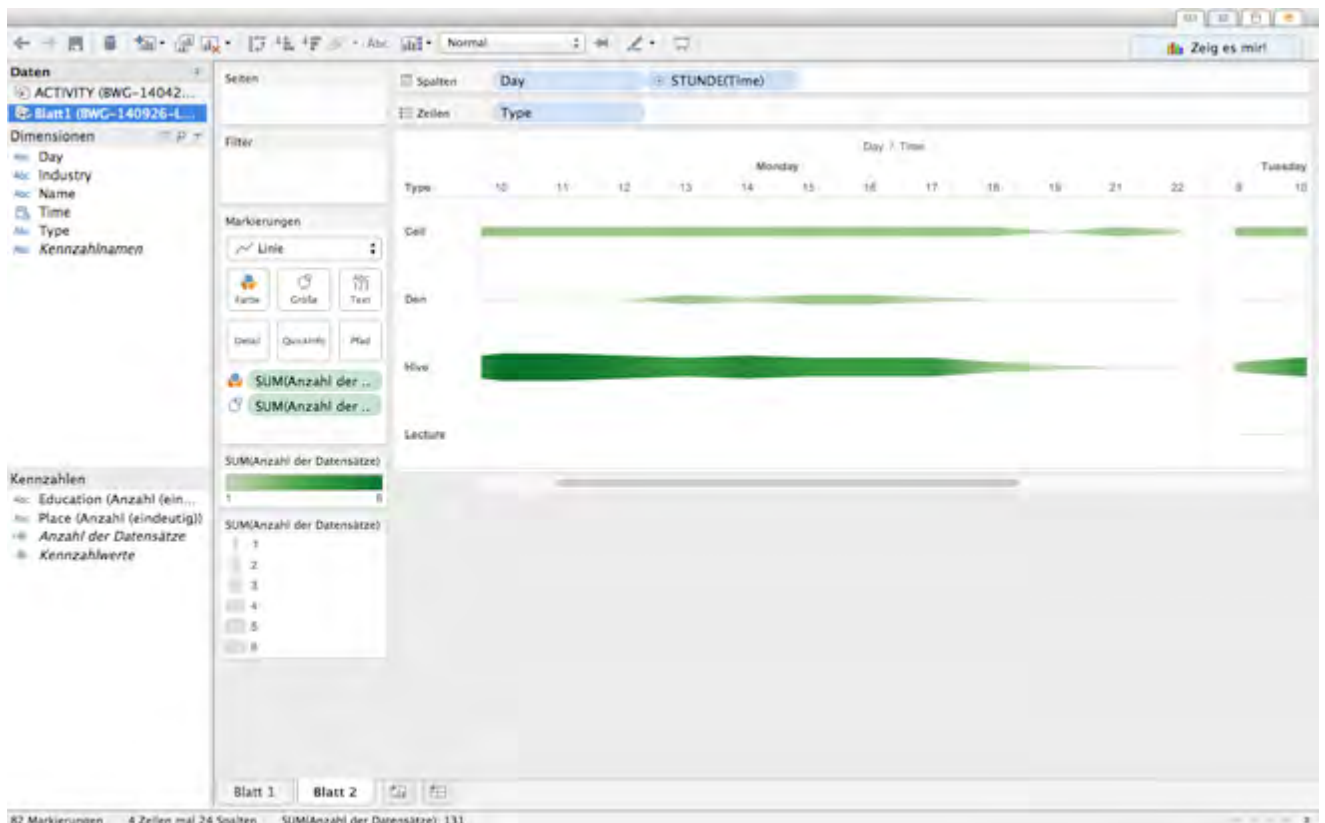
Work in progress: »Tableau« is not only useful for visualizing data for publication – it is also a helpful tool for evaluating and assessing multi-dimensional data sets. Here, the relationship is shown between a mechanical parameter and the cross section of the stem of four- to eight-day-old *Arabidopsis thaliana* seedlings. (Graphics und text: Friederike Saxe | BWG 2014).



Julia Blumenthal chose a freely available Excel data set from the OECD to test data visualization with the software »Tableau Public«. The data set was »7.10. Differences in feeling of safety walking alone at night«, which includes values from 44 countries around the world. We can see from the key and the different colours on the map that the »most unsafe« values were recorded in the countries shown in red, and respondents felt safer in the countries shown in green. (Graphics: Julia Blumenthal | BWG 2014).



Using the software »Data-Driven Documents« (D3), workshop participants tested to what extent design factors such as diameter, regularity of the distances between circles, degree of enlargement of the circles, gradient of successive circles and their colours affect the perception of data and relationships. (Graphics: Bettina Bock von Wülfingen | BWG 2014).



On the second day of the workshop, Catherine Slusher processed the data output of a questionnaire that had been distributed among cluster members in spring. The graphics show the relationship of the various research directions in the *Interdisciplinary Laboratory* and the times of day at which work is being carried out, on average. (Graphics: Catherine Slusher | BWG 2014).

Terminvorschau November 2014 – Dezember 2014

15 November 2014 | 9 am – 7 pm | Annual Conference of the Cluster of Excellence *Image Knowledge Gestaltung* | Berlin-Brandenburg Academy of Sciences and Humanities

The inaugural annual conference of the Cluster of Excellence *Image Knowledge Gestaltung* will transcend the boundaries between the Cluster's base projects, research areas and thematic fields to bring into focus the three central issues explored at the *Interdisciplinary Laboratory*. Lectures will be presented in panels spanning the fields of »Image Knowledge«, »Knowledge Structures« and »Gestaltung as Synthesis«. This full-day event will be held on Saturday, 15 November 2014 at the Berlin-Brandenburg Academy of Sciences and Humanities.

Registration is required: bildwissengestaltung@hu-berlin.de.

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