special issue:

P r a c t i c e - l e d   I c o n i c   R e s e a r c h

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Introduction

The thematic issue of *Visible Language* on hand introduces 'practice-led iconic research' as a methodology developed over the past decade. 'Iconic Research,' an interdisciplinary field of scientific inquiry into all kinds of images, emerged from the description of the 'iconic turn' (Boehm 1994) and the "pictorial turn" (Mitchell 1995) in the mid-1990s within the scope of art history. In reference to the linguistic turn – a term coined in the 1960s in philosophy (Rorty 1967) – the lack of reflection on how images create meaning was pointed out in comparison to the analytical reflection on language starting in antiquity. This lack of a scientific analysis of images is especially significant considering the exponential increase of image production and dissemination caused by digitalization. Based on this argumentation, a number of interdisciplinary research clusters have been established in Europe (cf. page 14 of this issue). Philosophers, art historians, linguists, theoreticians, and historians of science, anthropologists, psychologists, and other disciplines from the humanities and the sciences became involved in the "alphabetization" of images, contributing to the question on how images generate meaning within the context of social exchange. The Swiss National Center of Competence in Iconic Research, *eikones*, was founded with the support of the Swiss National Science Foundation at the University of Basel in 2005. Considering the tradition of Swiss Graphic Design and Visual Communication, as well as the relevance these fields have in shaping the flood of images in daily life, the Visual Communication Institute, The Basel School of Design HGK FHNW was involved in the project ever since the preparatory phase.The large-scale project, involving around 30 PhD candidates and Post Docs, was initiated by Gottfried Boehm, who had coined the term 'Iconic Turn' in 1994.

Through their co-operation, it became gradually clear, that the visual communication designers involved in the project brought other aspects to the discourse about images through their understanding of the very process of image generation. With the ability to generate visual variations and the interpretation of a field of visual alternatives, the informed communication designer can, in this context, develop a unique approach complementing existing scientific methodologies.This finding led to the development of the methodology we call today 'practice-led iconic research' (Renner 2010). In short, this term means the systematic creation of visual variations as a methodology to describe a specific effect images cause in a beholder. The verbal description is based on the comparative analysis of visual alternatives created beforehand.

We can distinguish two major trajectories within the described methodology. The first trajectory is focusing on the understanding of the image generation processes and differentiates the description of how decisions in processes lead to an unpredictable visual result. The second trajectory is focusing on the understanding of a specific image category or a specific situation we encounter images in, e.g. diagrammatic images, documentary images, ornamental images, typography and image, etc.

The articles published in this issue describe and demonstrate what distinguishes the design of images for communication in a design office from the design of images to contribute to a scientific question related to iconic research. The articles present projects which were developed in the context provided through the co-operation of the Visual Communication Institute, The Basel School of Design HGK FHNW with eikones from 2005 till 2013 as well as research projects which were developed independently at the Visual Communication Institute since the turn of the Millennium until today.

The publication is structured into three parts.

Part 1 consists of two texts framing the methodology of practice-led iconic research applied to the concrete projects described in Parts 2 and 3. Michael Renner's article introduces the concept of practice led-iconic research. It provides a brief background on the relation between 'text and image.' The article introduces practice-led iconic research as an approach starting from the making of images and distinguishes the two trajectories described above. Both trajectories of iconic research aim to provide evidence perceived by the visual sense that augments the evidence provided by language. Arno Schubbach's contribution argues that the opposition of theory and practice is outdated and not adequate to conceive practice led-iconic research. That rather, it should be understood as a specific research practice based on the production of images. In order to characterize this kind of practice-led research, Schubbach compares it to a theory-driven approach to images and its use of visual examples as well as to the ways in which the natural sciences and artistic research deal with pictures.

Part 2 presents two inquiries into an image-generation process describing the process of taking a photographic picture and writing the Korean alphabet Hangeul. Jinsu Ahn's contribution investigates the design properties of Hangeul that appear in the process of practical writing. They are in contrast to the first publication of the script in 1446 by King Sejong the Great, which introduced letters based on basic geometric shapes. Basic writing experiments and the analysis of their outcome were performed to find answers to the questions of what formal properties Hangeul strokes have, and what role they play in connecting letters to form a fluid vertical line of text. Helga Aichmaier's article explores, based on her dissertation, how taking pictures within a research context enables the analysis and verbalization of strategies that are employed in photographic design processes. Despite a growing body of knowledge on image creation, little research has been conducted into photographic design processes. Viable contact sheets, sketches, proofs, or notes have not been available yet for proper research. Thus practice-led iconic research is adapted as a method for photography – possibilities of photographic practice and its strategies are explored as an instrument of research.

Part 3 presents four articles addressing the image category of the documentary image, the diagrammatic image, the interaction between two pictures, as well as the representation of objects for accessing those objects in an archive. Susanne Käser approaches the question of how a documentary image sequence has to be designed to convey a temporal development. Using the method of practice-led iconic research, aspects such as the scope of the sequence, temporal distances between the images, gradations between the difference and similarity of the image material, light situation, color palette, and image section are investigated and discussed with the help of practical examples. Paloma López's paper, is based on her PhD thesis, and starts with the observation that the visual process is formed by a broad variety of choices. The knowledge about and the practical experience of these options are at the very core of a particular manner of looking at images. A famous diagram that Charles Darwin drew, is used to show how a different understanding of images can allow us to uncover new insights on the intrinsic meaning of the diagram itself. Claire Reymond's article presents an explorative study using the method of practice-led iconic research to detect the premises that allow connection processes between two images. The analysis documents the relevance of different image features such as, for example, the analogy of the main vectors within the images or the width of the stroke in line drawings. A pilot study using eye-tracking, that was conducted as a subsequent step, strengthens the findings of the practical research. Michael Hübner's contribution presents a practice-led investigation on a diversity of visual strategies to represent objects, and their effects on the perception of the latter. How and what kind of knowledge can be gained from the representation of objects? Series of photographs as well as hand and digital drawings alternate with analytical observations, thus formulating diverse findings and opening up further perspectives not only applicable to the practice of object archives.

We hope that the articles in this issue demonstrate an approach of inquiry and research closely related to the practice of visual communication and representing a relevant contribution to the interdisciplinary field of iconic research. It is our understanding that the basic nature of the research approach presented in this issue is different to applied research, which is oriented towards its direct applicability. Besides, the basic nature of the practice-led methodology presented here is not comparable to a purely theoretical or historical approach. Therefore, we should like to describe the methodology of practice-led iconic research as basic practice-led research in the hope that the outcome of these research activities will help establish a community of communication designers and improve the recognition of design in the research community and in society in the long run.

We should like to thank all the authors contributing to this issue, and all the reviewers of the articles, who have contributed with their constructive criticism to the actual form of this issue. In particular however, we should like to thank the editor of *Visible Language*, Mike Zender, for his outstanding efforts as to the realization of this issue.

The team of guest editors,
Michael Renner, Claire Reymond, Arno Schubbach

Boehm G. (1994). Die Wiederkehr der Bilder, in: Boehm, G. (1994) (ed.). Was ist ein Bild?, München: Wilhelm Fink Verlag, pp. 11 – 38.

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Renner, M. (2010). Practice-led Iconic Research, in: diid, disegno industriale industrial design, 41: pp. 76 – 82.

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Practice-led Iconic Research:

Towards a Research Methodology

for Visual Communication

Michael Renner

This article introduces the concept of 'practice led-iconic research.' It provides a brief philosophical background on the relation between 'text and image,' and a theoretical frame to investigate how images generate meaning. The article introduces practice-led iconic research as an approach starting from the making of images, which consists of two trajectories. The first trajectory focuses on the design process, especially on looking at the various conditions that guide decision-making in the becoming of unseen images. The second one examines the characteristics of an image category, i.e. it concentrates on the generation of a specific category of images from a field of variations. Both trajectories of iconic research aim to provide evidence perceived by the visual sense that augments the evidence provided by language.

Introduction:

Investigating Visual Design Processes

The following contribution proposes a research approach in the field of visual communication with the aim of developing design-specific methods from the core competence of design. The claim that a design process can be employed to gain knowledge is contested by many established research communities of the humanities and sciences. Even the review of proceedings of recent design research conferences indicates a preference for adapting methodologies from established scientific disciplines, rather than developing a design-specific research approach. Design processes become the subject of anthropological studies, design solutions are evaluated through standardized interviews, usability is tested with eye-tracking technology, and design movements and their protagonists are described by means of historical inquiries into archives and libraries.

The key issues of the creation of visual messages for the purpose of social interaction are the generation of images and an analysis of their perception by viewers.

One might object to this definition and say that objects of visual communication always consist of a combination of an iconic and a linguistic message – images and words. Or we may embrace the idea that visual communication is a phenomenon that can be read as a language. The definition of visual communication as a practice of image creation is opposed to the classification of visual communication as an exchange of conventional signs in language. In order to understand the field and its potential research contribution, it appears to be necessary to evaluate the relationship between the opposite classifications of visual communication as language or as image and to recapitulate the historical development of the relationship between image and language in general.

The Uneasy Relationship

between Language and Image

The general question of the relationship between language and image – the dichotomy between sensuous experience and conceptual inference – has been a key issue of Western thought and leads us to the philosophical discourse on epistemology. Four phases of Western intellectual history – Plato, Platonism, German Criticism, and German Idealism – were described by Friedrich Nietzsche in a aphoristic summary under the title of "*How the 'True World' Finally Became a Fable: The History of an Error*" (Nietzsche 1888) which was interpreted by Martin Heidegger under the title of "*Nietzsche's overcom-*

ing of Platonism" (Heidegger 1961). Nietzsche analyses the above-mentioned historical phases of philosophy and concludes that all of them continue the hierarchical relationship of the "supersensuous" over the sensuous experience established by Plato. Based on this conclusion Nietzsche bases his philosophical position by initially proclaiming, for phase five of Western thought, the superiority of the sensuous over the conceptual. By positing the sensuous experience over conceptual thought, a hierarchical relationship would be maintained. For the sixth phase of philosophy Nietzsche, therefore, argues for the necessity to continuously re-evaluate between the sensuous and the "supersensuous" and to free the relationship from a hierarchical order.

With the request for a continuous re-evaluation, the relationship between language, as a central component of a logocentric epistemology, and images as objects providing a sensuous experience, has been fundamentally shifted. Language is no longer an exclusively epistemological domain, and the evaluation of the relationship between sensuous perception and thinking in an abstract system of symbols is based on a new foundation.

Following this line of thought, we can describe a large part of the postmodern phase of Western thought as an elaboration of Nietzsche's contribution. Following his claim for a non-hierarchical re-evaluation, Jacques Derrida (1967), for example, describes in great detail in "Of Grammatology" the biased approach of Ferdinand de Saussure, who employs a Platonic hierarchy in his foundation of linguistics (de Saussure 1916). Derrida contests de Saussure's position that the notation, perceived by the visual sense, has a negative effect on the interpretation of language. De Saussure advocated without ambiguity to keep linguistics free from the influence of the visual sense and, therefore, of notation and typographic form in his "Cours de linguistique générale" (de Saussure 1916, p. 53 referred to by Derrida 1967, p. 41).

"But the tyranny of writing goes even further. By imposing itself upon the masses, spelling influences and modifies language. This happens only in highly literary languages where written texts play an important role. Then visual images lead to wrong [vicieuses] pronunciations; such mistakes are really pathological."[1]

Derrida accentuates de Saussure's preconception of the "interiority" of language and his exclusion of its "exteriority" in the form of the visual appearance of language in a notation system and suggests looking at the phenomenon of language in a holistic manner.

1   Derrida, J. (1997 (1967)). Of Grammatology, translated by Chakravorty Spivak, G. (1997). Baltimore: John Hopkins University Press p. 41.

Original quote: "Mais la tyrannie de la lettre va plus loin encore: à force de s'imposer à la masse, elle influe sur la langue et la modifie. Cela n'arrive que dans les idiomes très littéraires, où le document écrit joue un role considérable. Alors l'image visuelle arrive à créer des prononciations vicieuses; c'est là proprement un fait pathologique." de Saussure, F. (1916 (1995)), Paris: Editions Payot & Rivages, p. 53.

"It is this logocentrism which, limiting the internal system of language in general by a bad abstraction, prevents Saussure and the majority of his successors from determining fully and explicitly that which is called 'the integral and concrete object of linguistics'[2]." (Derrida 1967, p. 43 quoting de Saussure 1916, p. 23)

Derrida's elaborations describe the reason why typography has never been considered a discipline of linguistics and was, until recently, understood as a mere craft subject to rules developed over centuries. The understanding of typography as a non-linguistic discipline and the focus on its inherently carried visual message allows us to understand typography as a part of the realm of the image.

The term of "Script-Iconicity" (Schriftbildlichkeit), coined by Sybille Krämer in the context of iconic research, provides a more recent approach of looking at this neglected side of language (Krämer 2003). In the introduction of Schriftbildlichkeit, Sybille Krämer and Reiner Totzke describe four concepts of the term of script-iconicity: (1) **spatiality**, (2) **graphism**, (3) **operativity/explorativity** and (4) **mechanizability** (2012, page 13-35).

"**Spatiality**" is the two-dimensional character of script and its need for a fixed order and orientation under the title of "spatiality". The importance of the blank space ("Zwischenräumlichkeit") between the signs is emphasized in reference to Nelson Goodman's description of language as a disjunct system versus the image as a dense sequence of visual entities. The need to introduce the term of "Zwischenräumlichkeit" and to ignore the typographer's term of "white space," might be interpreted as another consequence of the historical gap between the "sensuous" and the "supersensuous."

The dependence of script on a tool and a surface of inscription is described by Krämer and Totzke as "**graphism**". They see this quality of script as a result of the uniquely human ability to coordinate between hand, eye, and brain. Drawing shares the same foundation, and in this respect, a direct connection can be established between written words and images. In addition, the authors point out that the line as a trace of a gesture carries two aspects, which become central to their concept of "Script-Iconicity". On the one hand, the line is an unintentional expression as an index of an individual gesture, and on the other hand, the line can be an arbitrary sign standing for something. This double function of the line makes it possible that script, typefaces, notation systems, and typography can become, in the words of Sybille Krämer, "the shifting point between the sensuous and the sense" (Krämer et al. 2012, p. 24), or in Nietzsche's words, the sensuous and the supersensuous – what we see in a form and what we read in a text.

With "**operativity/explorativity**" Krämer and Totzke emphasize that the idea of extending the field of language beyond a mere concept of a notation system means to include the creative, explorative and cognitive role of scripture: "We understand therefore: writing, overwriting, altering and erasing of written signs, the formation and transformation of schemata, can become an epistemic workshop, a design studio (Entwurfsbüro), and become an artistic laboratory: workshops and tools out of paper come into being. In short: scripture is not only a space for the representation of scientific and artistic ideas and objects, but also a location of their genuine discovery, invention and exploration." (Krämer and Totzke. 2012, pp. 20/21)[3]

The term of "**mechanizability**" addresses the fourth concept of "Script-Iconicity". The binary code, understood as a form of text, caters for an additional involvement of time in the script, which can be used for text that is automatically generated or text as a simulation resulting from the interpretation of data.

In "Script-Iconicity," the diverse contributions focus on different writing and notation systems as well as on diagrammatic images. But the publication does not discuss many examples where the transition between the readable and the seeable, the sensuous and sense, is a result of formal exploration in a design context. The contributions address existing notation systems in language, dance, or music and focus on diagrammatic images. We may critically ask inhowfar the exteriority of script is of interest in the systemic conditions of established academic research disciplines.

Following Krämer's description of the two levels of meaning of a line as (1) the result of an interior gestural utterance and (2) as the carrier of a conventional but arbitrary sign, we can suggest the following proposition for visual communication and its research activities in general: employing the arbitrary sign in visual communication can be attributed to the field of language and semiotics and can, therefore, be analyzed with the theoretical tools provided by these disciplines. We can, for example, talk about the catchline in an advertisement using rhetorical Figures or critically look at the grammatical construction of a sentence. But we cannot use the same theories to explain the meaning which is expressed by the letterform and typographic composition, not to mention any other level of meaning expressed by additional iconic elements. We can describe the meaning of the arbitrary conventional signs fairly well, but we cannot analyse the impact of the gestural utterance for the above-stated historical reasons. Since visual communication, as its name implies, is primarily concerned with visual and not with linguistic aspects, we can safely focus on images and look at recent research developments in this field to further develop the practice

2 Original quote: Quel est l'objet à la fois intégral et concret de la linguistique? de Saussure, F. (1916 (1995), Paris: Editions Payot & Rivages, p. 23.

3 Original quote:"Wir sehen also: Das Schreiben, Überschreiben, Umschreiben und Löschen schriftlicher Zeichen, die Formation und Transformation von Schemata kann zur Erkenntniswerkstatt, zur Gedankenschmiede, zum Entwurfsbüro und zum Kunstlabor werden: Werkstätten und Werkzeuge aus Papier entstehen. Kurzum: Schrift ist nicht nur ein Darstellungsraum wissenschaftlicher und künstlerischer Gedanken und Objekte, sondern auch eine Städte ihrer genuinen Entdeckung, Erfindung und Exploration." Krämer and Totzke, 2012, pp. 20/21, English translation by the author.

of visual communication. We can now focus our quest for a unique research contribution to visual communication on the field of iconic research and ask 'how can the practical knowledge of visual communication contribute to the understanding of how images generate meaning.'

An Increasing Focus on the Image: a Theoretical Basis

With the discourse on "Script-Iconicity," we have already entered into a wide research field that emerged in the 1990s under the term of "iconic research". Following the observation that digital tools and media channels significantly increase the generation and dissemination of images, the terms of "iconic turn" (Boehm 1994, p. 17) and "pictorial turn" (Mitchell 1995, pp. 11 – 34) were coined within the scope of the history of art to describe the shift from written communication to communication with images (Boehm & Mitchell, 2009). Along with the iconic turn the lack of scientific research about images and, therefore, also a lack of fundamental understanding of how images generate meaning was observed. This becomes especially evident if we consider the long history of scientific reflection about language (Mitchell 1986; Boehm 2007, pp. 28 – 43). Thus, the lack of awareness of how images affect a beholder and the increase in communication through images based on digital technology might need to be considered as a potential threat to any democratic process.

Since the emergence of the iconic turn, a series of interdisciplinary research clusters have been initiated in Europe and in the United States with the aim of developing knowledge on how images generate meaning[4]. The rejection of the semiotic theory as a means of understanding images has been one of the starting points of image research[5] (Mitchell 1986, Elkins 1995, Boehm 1994). Mitchell (1986) refers to a series of authors describing the problem of applying the semiotic theory inferred from language to explain the effect of images. He summarizes this approach with the term

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4   Since the 1990s: research work was done at the University of Chicago by W. J. Thomas Mitchell et al. Since 1996: International Research-Center Cultural Sciences (IFK) in Vienna directed today by Thomas Macho affiliated with the University of Art and Design Linz. 2000 – 2009: Graduate College Image – Body – Medium. An Anthropological Perspective, founded by Hans Belting at the HfG Karlsruhe. 2001 – 2007: Schrift Bild Zahl, founded by Horst Bredekamp at the Humboldt University Berlin. 2005 – 2017: eikones, Swiss National Center of Competence in Iconic Research, founded by Gottfried Boehm at the University of Basel. Since 2012: Image Knowledge Design, founded by Horst Bredekamp and Wolfgang Schäffner at the Humboldt-University Berlin.

5   If we take Roland Barthes early elaboration on the Panzani pasta advertisement stated in "Rhetoric of the Image" (Barthes 1964), the blind spot described above in the context of language/typography becomes evident in the missing differentiation of the qualities of the image. Barthes describes forms of the linguistic message and the symbolic message, but the literal message which we could call the iconic message is simply explained by the mimetic effect that the photograph of a tomato is representing a tomato. There is no attempt to differentiate the iconic message through the consideration of visual contingencies.

"linguistic imperialism" (Mitchell 1986, p. 56) and quotes Umberto Eco in support of his argument for the necessity of strengthening iconic research:

"Iconic signs are partially ruled by convention but are at the same time motivated; some of them refer to an established stylistic rule, while others appear to propose a new rule. … In other cases the constitution of similitude, although ruled by operational conventions, seems to be more firmly linked to the basic mechanisms of perception than to explicit cultural habits. … One and only one conclusion seems possible at this point: *iconicism is not a single phenomenon*, nor indeed a uniquely semiotic one. It is a collection of phenomena bundled together under an all-purpose label (just as in the Dark Ages the word "plague" probably covered a lot of different diseases). … *It is the very notion of sign which is untenable* and makes the derived notion of 'iconic sign' so puzzling." (Eco 1976, p. 216 quoted from Mitchell 1986, p. 57, emphasis by Eco)

Noam Chomsky's view on the relationship between language and image opens up an alternative point of view based on cognitive linguistics. He describes linguistics as a study of a specific cognitive subsystem of the human mind concerned with language that is different to other subsystems such as movement or vision.

"What is currently understood even in a limited way seems to me to indicate that the mind is a highly differentiated structure, with quite distinct subsystems. If so, an understanding of the properties of one of these systems should not be expected to provide the principles by which others are organized and function. Even an account of knowledge of language that is overflowing with insight is unlikely to directly contribute to the study of factors that enter into our understanding of the nature of the visual world, or vice versa. This is not do deny, of course, that these systems interact, and may share some general properties. But we should remain open to the possibility – even the strong likelihood – that they are organized in quite different ways." (Chomsky 1980, p. 27)

With these statements, the discovery of the terra incognita can begin, and the research into the phenomena of images has developed since Eco's and Chomsky's remarks from diverse disciplinary backgrounds. We could follow the ideas of the embodiment and work out the connection between the iconic and the physical constellation of the human body and its ability to move in space (Lakoff/Johnson 1999). This would allow us to substantiate the argument that images generate meaning more closely related to the individual physical experience than language but, then again, not entirely detached from social exchange (Johnson 2007, Renner 2011). In contrast, language relies more on social interaction but it, too, can be traced back to the human body (Lakoff/Johnson 2003).

From the point of view of art history, Gottfried Boehm has described the "intrinsic logic of images" as a unique quality of images to generate meaning through their deictic ability to show. He explains the generation of meaning as follows:

> "Matter becomes meaning, since the visual values react on each other in the act of viewing"[6]
>
> (Boehm, G. 2006 (2007), p. 52.)

An Alternative Method: Starting from the Sensuous Experience

Taking Boehm's "intrinsic logic of images" and Chomsky's description of the existence of a visual cognitive system as a starting point, we can critically ask how it is possible to understand the effect of images through relying exclusively on the verbal analysis of existing visual instances created for a specific purpose in the context of art, communication, science, or entertainment. Does this approach not run the risk of continuing the placement of the sensuous experience below conceptual thought? The answer to this question depends on the role sensuous experience and materiality play in a specific, analytical approach. We can refer to the experience of viewing an image with language, but we cannot substitute verbal description for the visual experience. We can imagine variations on an existing image, but it is hard to consider them without the materialized objects in view. In reference to the above-quoted statement in the context of "Script-Iconicity," we can recall Krämer and Trotzke's claim that "[…] the formation and transformation of schemata, can become an epistemic workshop, […]" (Krämer et al. 2012, pp. 20-21).

If we extend this statement to the practical generation of images in general, we can argue that the practical processes of creating and transforming images to understand their meaning leads to a more balanced relationship between sensuous decisions and their circumscription in language. In contrast to the primarily language-based approach of the humanities, the practical field of visual communication can make a research contribution using the singularity of images as a foundation for its quest to differentiate how images generate meaning.

6   Aus Materie wird Sinn, weil die visuellen Wertigkeiten im Akt der Betrachtung aufeinander reagieren. Boehm, G. (2006 (2007)), p. 52.

A Scientific Image Generation Process: Practice-led Iconic Research

After anchoring the proposed approach in the discourse of the humanities, we can now turn to the phenomena on which the practice of image generation is based. We can look at the processes of drawing, composing, taking photographic pictures or at processes of generative design and describe them all as distinct methods to generate image variations. Through the generation of variations, it becomes possible to gain an overview of a field of options enabling a designer to evaluate the effect of the single visual composition in comparison to the other variations. This is the basis of any practical design process and enables the designer to develop a solution for a given communication problem in a realm of expression which lies beyond the exchange of conventional signs.

What we call "practice-led iconic research" can be described as a method to create image series in order to elicit their meaning through images as opposed to language (Renner 2010). By leaving the field of analyzing existing images, practice-led iconic research either focuses on the processes of image creation and examines the conditions under which an unexpected shift can happen (Derrida 1993, Lyotard 1997, Renner 2011/2013), or it uses the creation of images as a method to inquire into a specific category of images such as documentary images, ornamental images (Renner 2014), diagrammatic images, or portraits (Renner 2015).

Two Trajectories

In order to distinguish the practical process of creating images for visual communication from the practical process of creating images for the purpose of iconic research, we need to separate two trajectories of practice-led iconic research:

(1) research into the design process, and

(2) research into the characteristics of an image category.

Trajectory 1: Research into Design Processes

Research into design processes means looking at the various conditions that guide the decision-making in the becoming of unseen images. In contrast to the Design Methods Movement of the 1960s, the suggested research into the design process does not aim at a schematic "flowchart-like" description of processes to improve the search for solutions to 'wicked problems' (Cross 2006). The intuitive search for the unknown visual solution becomes the

focus of attention in the suggested inquiry into the design process. This can only be done if you are aware that the core of the invention of the new eludes itself. And even though research into the design processes is significant for the awareness of conditions allowing the unpredictable to happen in practice, in education and in research on visual communication. The following statement of 1971 by Christopher Alexander, one of the founders of the Design Methods Movement, can be used in support of the practice-led approach but also to critically assess the proposed research direction:

"Since the book was published [in 1964], a whole academic field has grown up around the idea of the leading exponents of these so-called design methods. I am very sorry this has happened and want to state publically that I reject the whole idea of design methods as a subject of study, since I think it is absurd to separate the study of designing from the practice of design." (Alexander 1964 (1972), quoted from Langrish 2016)

We may ague that the proposed field of inquiry into the design processes in the context of practice-led iconic research is an attempt to involve the existing competence of the practice in order to avoid a discourse detached from the practice of visual communication. On the other hand, we may also interpret Alexander's statement as a statement against any kind of scientific reflection on design processes and on design in general. John Christopher Jones, another Design Method Movement protagonist and author of the publication *Design Methods: seeds of human futures* (1970) stated in 2001:

"I'd like to correct a misconception: when in the 1970s I criticized and appeared to leave design research it was not because design methods had become rigid tools that inhibited the imaginative skills of individual designers – it was because I was angry, and still am, at the 'inhumanity' of abstract design language and theories that are not alive to all of us as people, or to actual experience – and which threaten to reduce the reality of life to something less than human."

The inquiry into design processes by the Design Methods Movement of 1962 has been characterized by three layers which, according to John Langrish (2016), have all failed:

"1. A general all-purpose optimistic zeitgeist that saw the world as getting better than it had been.
2. A belief that the process of designing had an important part to play in this 'getting better.'
3. A belief that the design process could itself be made better through becoming more scientific."

Practice-led iconic research responds to these three issues in the following ways:

1. Only in one respect does the inquiry into the design process after the iconic turn attempt to "change the world" by implying that the understanding of images is a crucial part of information dissemination in a society that is based on democratic principles.

2. The importance of design in improving the world is shared until this day, but, following the iconic turn, the inquiry into the design process aims, more than anything else, at providing evidence that the practice of design actually does have an impact on society.

3. At the core, the practical design processes will not be improved by the means of scientific inquiry. But research will provide the means to conceptually frame the processes in new ways and help to further develop the design practice, the educational design principles, and the knowledge about images.

In due consideration of the declared differences from the Design Methods Movement, the inquiry into the design process suggested by practice-led iconic research places the practical procedures of image generation at the center of its attention. The processes are executed and recorded for the purpose of later comparative analysis.

....

Example 1:

Helga Aichmaier

Helga Aichmaier's dissertation project, for example, has shown how the careful documentation of her own photographic process and the organization of images in tableaus for the purpose of comparative analysis has allowed her to analyze and critically extend the existing theoretical positions of the description of documentary photography in a plausible manner (Aichmaier 2016). She was able to show that the photographic process was for a long time mainly attributed to technical conditions, and she was able to infer from her own processes that taking a photograph is as much a process of elusive design decisions as is, for example, the process of drawing, even though we attribute authenticity to the photographic image.

In the context of the daily practice of visual communication, design processes can only rarely be reconstructed since the careful documentation of decision making is often neglected. The goal of the practical projects is to come up with a surprising, intriguing and convincing solution. How the goal is achieved is rarely reflected, it simply does not interest the client. On the other hand, all the experiences made in the design process are crucial for the ongoing development of the designer's archive of ideas and his or her potential to continue the search for unexpected solutions.

Through the execution of realistic and fictional design processes including a specific goal of inquiry, an appropriate documentation method and a comparative analysis following the completion of the process, we can develop a growing archive and reflect on its content. The definition of a specific research goal, the documentation of the process, the reflection on the documentation and the informed analysis of the existing descriptions

of design processes, distinguishes the design processes for design process research purposes from the design processes for practical purposes. The outcomes of this branch of iconic research inquiring into design processes allow us to elicit the traits and conditions that produce more or less successful results. This is contributing to the awareness of the design practice, design education and allows us to claim the design processes, even though they are essentially guided by decisions taken below the threshold of consciousness, as a research method, or a specific experimental system[7] guided by social, cultural, individual, physical, material, economical, and political conditions.

Trajectory 2:

Research into the Characteristics

of an Image Category

The second trajectory of practice-led iconic research focuses on the generation of categories of images. This assumes that there is a difference between the generation of images and the design processes of the daily practice of visual communication. It also assumes that it differs from an analysis conducted with existing images through language.

Here, too, a prerequisite of conducting a research-oriented design process is the ability to formulate an informed research question. If I want to add by means of an experimental approach to the knowledge of, for example, the diagrammatic image, I need to be aware of the historical and current state of the discourse on diagrammatic images. Only on this basis is it possible to seriously contribute to the discourse by means of a practice-led approach. Understanding the state of the art is the condition which allows us to "throw" the ball in the "right" direction, as the German term "Entwurf" standing for the design process suggests[8]. But it would be wrong to believe, that throwing the ball in the right direction automatically means hitting the target, to remain in the ball-throwing figure of speech. As soon as we let go of the ball, it is out of our control. We can try to throw the ball as carefully and precisely as possible, but that does not mean that we are going to hit the target. On the contrary, we might stand a better chance of hitting the target if we approach the task with less ambition, intention, and expectation. In terms of the design process, the above-described awareness of the state of the art and the research question(s) inferred therefrom do not guarantee a successful process of visual experimentation if the ambi-

7   Hans-Jörg Rheinberger defines an experimental system as follows:

"A basic unit of experimental activity combining local, technical, instrumental, institutional, social, and epistemic aspects." Rheinberger 1997, p. 238

8   See also Figal 2006, §11 Darstellendes Erkennen, pp. 91 – 104.

tion, intention, and expectation are not given up for productive phases of intuitive exploration. In short: a field of visual contingencies is never a result of extrapolation from a described research aim. Only through the phases of experimentation, when the designer is involved in the process of decision-making below the threshold of consciousness, an interesting overview of visual stimuli, beyond the expected and obvious, can be achieved. The results of these experimentations are analysed in the process every once in a while by stepping back from the activities of experimentation and redirecting the next phase of intuitive search. The moment of stepping back is the time in which the defined framework set up by the research question takes effect, and the designer but also other visually trained beholders can judge whether the images resulting from the experimentation are providing evidence in the search for an answer. Usually, the iterative process of experimentation and analysis develops slowly, and does not directly provide answers to the questions raised. Instead, series of images provide evidence of unexpected aspects of the image category in focus. Ideally, the practical phases of experimentation and the analytical phases of conscious evaluation lead to an overall view of a field of visual contingencies that allow the description of the effect of one visual variation in comparison to other instances in the field. To recapitulate, it is not the primary aim of the experimentation to create images of artistic value, nor is changing the world through design and making it to a better place the objective. The idea of this method is to contribute to the understanding of how images generate meaning in a specific cultural context.

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Two examples:

Paloma López Grüninger and Marie-Louise Greb

This approach has been used by the dissertation project of Paloma López Grüninger. The title of her project was *"Design and Evaluation of Qualitative Diagrams, and their Application in the Analysis of Visualzations of Biological Classifications".* Based on her own experimental design process to visualize scientific biological developments and the study of historical diagrams, López Grüninger was able to show the implicit and unintended meaning inherent in many tree-diagrams. Due to the limitation of the two-dimensional surface, proximities and distances are suggested between entities that do not represent their actual relationship but are never questioned by the biologist or the scientific illustrator (Lòpez Grüninger 2015, pp. 52 – 73).

The second example describes a Master Thesis Project conducted in 2013 by Marie-Louise Greb at the Visual Communication/The Basel School of Design HGK FHNW on the relationship of words and images in diagrammatic images. This project demonstrates how the process of generating variations can be used to develop visual evidence for a comparative analysis.

Diagrammatic images rely on a combination of words and images to provide instant comprehension of complex data by the beholder. This experiment uses as basic data the marks [Figure 1] and the video recordings of a felt pen moving in the wind to explore the description of the process by means of language [Figure 2], with references to coordinates [Figure 3, Figure 4] in the form of a table [Figure 5] and through different variations of diagrammatic interpretations. The variations allow the demonstration of an ideal combination [Figure 6] of the two entities to provide an insight at a glance to a beholder. As soon as the plane and lines are used to show similarity between the original marks and the diagrammatic image, the numbers of the two entities', figuring as specific signs of mathematical language, and the plane represented by the lines complement each other in a meaningful way. The last example of the series also demonstrates how the graded system of language is not transferrable to the ungraded system of images [Figure 7]. The dissection of the original traces and arrangement by directional orientation do not allow us to grasp the information in one go, as was the case in the previous variation [Figure 6].

Concluding:
On Relating Visual Communication and
Scientific Inquiries

After this brief demonstration of an experimental approach to image creation in the context of practice-led iconic research, we can assess the role of the visual and the role of language in the scientific inquiry into images in order to add to the conditions which allow us to differentiate a scientific design process. In comparison to an approach based on the analysis of existing images, practice-led iconic research applies a strategic creation of images as a basis for their differentiation. The materiality is altered to achieve a variety of visual results and to test the effect on the beholder. Testing can be conducted as an open survey comprising at least one person, the designer, who communicates his or her interpretation and publishes it in a research paper, giving the scientific community a chance to examine the findings and, as the case may be, falsify or verify the proposed evidence. Or the testing can be done using the methods common to psychology and the social sciences with the aid of standardized interview techniques or other methods. Either way, the unique contribution of design and the practice of visual communication is the ability to generate the material and visual objects which provide sensuous evidence as a basis for a verbal circumscription.

As Arno Schubbach described with regard to the use of scientific images, there are two phases of employing images in an emerging field of science:

(1) The phase, in which the method of visualization is discussed and

(2) The phase, in which the methods of visualization are completely standardized and the image is an acclaimed method providing evidence (Schubbach 2017).

In light of this observation, we may ask whether the proposed method of practice-led iconic research is based on a consensus that already exists in the design/visual communication community as to how images are generated. We could argue, that aesthetic and procedural methods that are loosely outlined by the term "basic design" provide a starting point for an elaboration on this issue.

Moreover, in contrast to the catchy umbrella term of "critical making" which was recently established in the context of the digital humanities and compares aspects of critical approaches in design practice to the collaboration of designers with various disciplines of the humanities, the proposed method does not claim to make a contribution to any research field of the humanities, but specifically to iconic research (Barness/Papaelias 2015). In contrast to what is termed artistic research, where an object of art exhibited in a gallery space is considered the result, the proposed approach relying on the experimental creation of images is bound to a hermeneutic interpretation in language. The role of the images is to provide evidence perceived by the visual sense. We can say that a method of practice-led iconic research goes beyond language-based hermeneutics and provides an approach, in which the relationship of the sensuous and the conceptual – the 'supersensuous' – is in balance.

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A u t h o r

Through research and reflection, Michael Renner's practical and theoretical design activities explore the meaning of images in the context of digital tools. This "practice-led" approach to design research seeks to further de-velop existing image creation competencies. By gaining knowledge through the creation of images, he positions the design process itself as both central research theme and methodology.

Michael experienced the digital revolution firsthand, when he joined Apple Computer Inc. and The Understanding Business in California in 1986 as a newly-graduated graphic designer from the Basel School of Design. In 1990, he founded his own design studio in Basel, working with corporate and cultural clients. That same year, he began teaching informa-tion design, design research, and the design process in the Visual Communi-cation Institute at the Basel School of Design (HGK FHNW). In 1999, Michael was named Chairman of the institute. Michael has lectured and taught workshops in Europe and abroad. He was a member of "eikones," the Swiss National Center of Competence in Iconic Research, from 2005 until 2013 and co-leader of the research cluster „Image and Design Process"; he has been a member of the European research network "What Images Do" since 2012.

Michael is responsible for a number of design research projects supported by the Swiss National Science Foundation and a member of the Alliance Graphique Internationale (AGI).

F i g u r e   1

Diagrammatic images, traces on a piece of paper of a felt pen blowing in the wind, Marie-Louise Greb, MA Thesis, 2013.

Es weht ein leichter Wind. Ein Stift hängt an einem Faden über einem Blatt Papier und ist dem Wind ausgesetzt. Nach kurzem Verweilen in der zentralen Lage schwingt der Stift in einem aufwärts-gerichteten Bogen nach rechts und verweilt dort, wobei seine Position 2-3mal geringfügig verändert wird. Dann schwingt der Stift zurück, verharrt ober-halb des Zentrums, baumelt leicht nach oben und nach unten, jeweils unterbrochen von kurzen Phasen des Stillstands.

Der Stift wird nun an einen weit oberhalb des Zentrums gelegenen Punkt getragen, wird dort von einem Windstoß erfasst, verliert den Kontakt zum Papier, wird weit nach rechts hinaus getrieben und in einem kreisförmigen Bogen nach oben geweht. Dort verharrt er kurz, fällt zurück und kommt in einer Position zur Ruhe, die weit oberhalb und rechts vom Zentrum gelegen ist. Hier baumelt der Stift in kleinen Bögen und Kurven hin und her, jeweils unterbrochen von Ruhepausen.

Nach einem kleinen Schlenker nach links bleibt der Stift zunächst unbewegt, bevor ihn ein Windstoß in einem weiten Halbkreis abwärts über die linke Seite in die untere Hälfte des Papiers weht. Nach kurzem Rückschwung wird der Stift erneut weiter nach rechts hinausgetrieben und in einem weiten Bogen zurückgeführt. In kleinen Wendungen und Zickzackbe-wegungen gelangt der Stift in eine Position links oberhalb des Zentrums. Nach einem weiteren Schwung nach links verweilt der Stift für einige Zeit links außen in der unteren Hälfte des Blattes.

Danach wird er über die Mitte in unmittelbare Nähe des Zentrums geweht, wird erneut vom Wind erfasst und weit nach links fast an den Rand des Papiers getrieben. Er fällt zurück und kommt in einer relativ zentralen Position schließlich zur Ruhe.
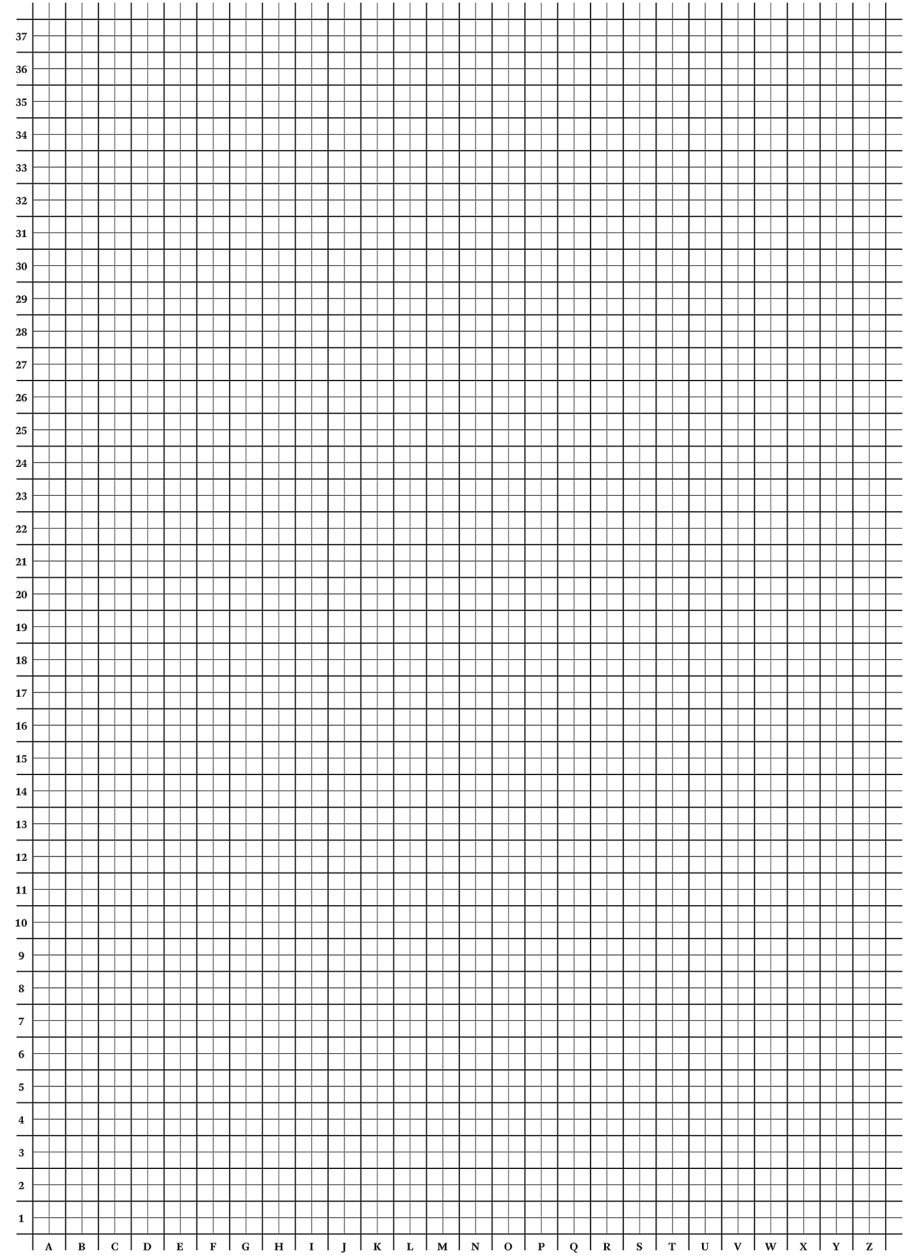
Figure 2

Description of the process with language, Marie-Louise Greb, MA Thesis, 2013.

Figure 3

Description of the recorded process with a coordinate system, Marie-Louise Greb, MA Thesis, 2013.

Ein schwarzer Stift hängt an einem Faden. Mit der Spitze berührt er das Papier. Es weht ein leichter Wind.
In Minute 00:00 pendelt der Stift über dem Feld **20M**. 54 Sekunden lang saugt sich Tinte ins Papier. In Minute 00:54 pendelt der Stift über dem Feld **20M**. 28 Sekunden lang saugt sich Tinte ins Papier. In Minute 01:22 bewegt sich der Stift ins Feld **21O**. 47 Sekunden lang saugt sich Tinte ins Papier. In Minute 02:09 bewegt sich der Stift ins Feld **22O**. 16 Sekunden lang saugt sich Tinte ins Papier. In Minute 02:25 bewegt sich der Stift ins Feld **21L**. 75 Sekunden lang saugt sich Tinte ins Papier. In Minute 03:40 bewegt sich der Stift ins Feld **20L**. 7 Sekunden lang saugt sich Tinte ins Papier. In Minute 03:47 bewegt sich der Stift ins Feld **20M**. 11 Sekunden lang saugt sich Tinte ins Papier. In Minute 03:58 bewegt sich der Stift an die Grenze der Felder **20M** und **21M**. 31 Sekunden lang saugt sich Tinte ins Papier. In Minute 04:29 bewegt sich der Stift ins Feld **22N**. 4 Sekunden lang saugt sich Tinte ins Papier. In Minute 04:33 bewegt sich der Stift innerhalb des Feldes **22N**. 5 Sekunden lang saugt sich Tinte ins Papier. In Minute 04:38 bewegt sich der Stift innerhalb des Feldes **22N**. 9 Sekunden lang saugt sich Tinte ins Papier. In Minute 04:47 bewegt sich der Stift innerhalb des Feldes **22S**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 04:48 bewegt sich der Stift ins Feld **21R**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 04:50 bewegt sich der Stift ins Feld **23Q**. 4 Sekunden lang saugt sich Tinte ins Papier. In Minute 04: bewegt sich der Stift ins Feld **23P**. 5 Sekunden lang saugt sich Tinte ins Papier In Minute 04:59 bewegt sich der Stift ins Feld **22Q**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 05:00 bewegt sich der Stift ins Feld **22P**. 20 Sekunden lang saugt sich Tinte ins Papier. In Minute 05:20 bewegt sich der Stift innerhalb des Feldes **22P**. 5 Sekunden lang saugt sich Tinte ins Papier. In Minute 06:25 bewegt sich der Stift innerhalb des Feldes **22P**. 22 Sekunden lang saugt sich Tinte ins Papier. In Minute 06:47 bewegt sich der Stift ins Feld **22O**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 06:49 bewegt sich der Stift ins Feld **22N**. 4 Sekunden lang saugt sich Tinte ins Papier. In Minute 06:53 bewegt sich der Stift innerhalb des Feldes **22N**. 78 Sekunden lang saugt sich Tinte ins Papier. In Minute 08:09 bewegt sich der Stift innerhalb des Feldes **22N**. 35 Sekunden langt sich Tinte ins Papier. In Minute 08:44 bewegt sich der Stift innerhalb des Feldes **22N**. 36 Sekunden lang saugt sich Tinte ins Papier. In Minute 09:20 bewegt sich der Stift ins Feld **21N**. 139 Sekunden lang saugt sich Tinte ins Papier. In Minute 11:39 bewegt sich der Stift an die Grenze der Felder **20O** und **21O**. 26 Sekunden lang saugt sich Tinte ins Papier. In Minute 12:05 bewegt sich der Stift ins Feld **20N**. 42 Sekunden lang saugt sich Tinte ins Papier. In Minute 12:47 bewegt sich der Stift ins Feld **18K**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 12:49 bewegt sich der Stift ins Feld **15P**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 12:50 bewegt sich der Stift an die Grenze der Felder **16O** und **16P**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 12:51 bewegt sich der Stift ins Feld **17N**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 12:52 bewegt sich der Stift ins Feld **18R**. 4 Sekunden lang saugt sich Tinte ins Papier. In Minute 12:56 bewegt sich der Stift ins Feld **18N**. 1 Sekunde lang saugt sich Tinte ins Papier. In Minute 12:57 bewegt sich der Stift ins Feld **18O**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 12:59 bewegt sich der Stift ins Feld **19N**. 3 Sekunden lang saugt sich Tinte ins Papier. In Minute 13:02 bewegt sich der Stift ins Feld **19M**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 13:04 bewegt sich der Stift ins Feld **20M**. 38 Sekunden lang saugt sich Tinte ins Papier. In Minute 13:42 bewegt sich der Stift ins Feld **19L**. 3 Sekunden lang saugt sich Tinte ins Papier. In Minute 13:45 bewegt sich der Stift ins Feld **20L**. 29 Sekunden lang saugt sich Tinte ins Papier. In Minute 14:14 bewegt sich der Stift innerhalb des Feldes **20L**. 11 Sekunden lang saugt sich Tinte ins Papier. In Minute 14:25 bewegt sich der Stift ins Feld **18J**. 24 Sekunden lang saugt sich Tinte ins Papier. In Minute 14:49 bewegt sich der Stift an die Grenze der Felder **18J** und **19J**. 31 Sekunden lang saugt sich Tinte ins Papier. In Minute 15:20 bewegt sich der Stift ins Feld **19L**. 12 Sekunden lang saugt sich Tinte ins Papier. In Minute 15:32 bewegt sich der Stift ins Feld **20M** und **20N**. 41 Sekunden lang saugt sich Tinte ins Papier. In Minute 16:13 bewegt sich der Stift ins Feld **19N**. 121 Sekunden lang saugt sich Tinte ins Papier. In Minute 18:34 bewegt sich der Stift an die Grenze der Felder **20G** und **21G**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 18:38 bewegt sich der Stift ins Feld **19L**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 18:40 bewegt sich der Stift ins Feld **19M**. 2 Sekunden lang saugt sich Tinte ins Papier. In Minute 18:42 bewegt sich der Stift innerhalb des Feldes **19M**. 25 Sekunden lang saugt sich Tinte ins Papier. In Minute 19:07 bewegt sich der Stift ins Feld **20M**. 53 Sekunden lang saugt sich Tinte ins Papier.

Figure 4

Description of the recorded process with text and coordinates, Marie-Louise Greb, MA Thesis, 2013.

30

	Zeit	Feld
0	00:00	20M (54 Sek.)
	00:54	20M (28 Sek.)
1	01:22	21O (47 Sek.)
2	02:09	22O (16 Sek.)
	02:25	21L (75 Sek.)
3	03:40	20L (7 Sek.)
	03:47	20M (11 Sek.)
	03:58	20M, 21M (31 Sek.)
4	04:29	22N (4 Sek.)
	04:33	22N (5 Sek.)
	04:38	22N (9 Sek.)
	04:47	22S (1 Sek.)
	04:48	21R (2 Sek.)
	04:50	23Q (4 Sek.)
	04:54	23P (5 Sek.)
	04:59	22Q (1 Sek.)
5	05:00	22P (20 Sek.)
	05:20	22P (5 Sek.)
6	06:25	22P (22 Sek.)
	06:47	22O (2 Sek.)
	06:49	22N (4 Sek.)
	06:53	22N (78 Sek.)
7		
8	08:09	22N (35 Sek.)
	08:44	22N (36 Sek.)
9	09:20	21N (139 Sek.)
10		
11	11:39	20O, 21O (26 Sek.)
12	12:05	20N (42 Sek.)
	12:47	18K (2 Sek.)
	12:49	15P (1 Sek.)
	12:50	16O, 16P (1 Sek.)
	12:51	17N (1 Sek.)
	12:52	18R (4 Sek.)
	12:56	18N (1 Sek.)
	12:57	18O (2 Sek.)
	12:59	19N (3 Sek.)
13	13:02	19M (2 Sek.)
	13:04	20M (38 Sek.)
	13:42	19L (3 Sek.)
	13:45	20L (29 Sek.)
14	14:14	20L (11 Sek.)
	14:25	18J (24 Sek.)
	14:49	18J, 19J (31 Sek.)
15	15:20	19L (12 Sek.)
	15:32	20M, 20N (41 Sek.)
16	16:13	19N (121 Sek.)
17		
18	18:34	20G, 21G (2 Sek.)
	18:38	19L (2 Sek.)
	18:40	19M (2 Sek.)
	18:42	19M (25 Sek.)
19	19:07	20M (53 Sek.)
20		

Figure 5

Description of the process with a table with coordinates and time, Marie-Louise Greb, MA Thesis, 2013.

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Figure 6

Ideal combination of word, and image, the process can be reconstructed at a glance, numbers indicate length of position at indicated point, the starting point is 54. Marie-Louise Greb, MA Thesis, 2013.

Stillstandspunkte	Bewegungsrichtung Diagonal 1	Bewegungsrichtung Horizontal	Bewegungsrichtung Diagonal 2	Bewegungsrichtung Vertikal

Figure 7

Transforming the continuous system into a disjunct system creates a result without meaning, Marie-Louise Greb, MA Thesis, 2013.