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Reflect | React | Redraw

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Abstract: Drawing is a classical art and design practice that has been both methodologically and theoretically redefined in recent years in response to ever-new developments in our digital age—leading to questions such as: What impact does the physical act of drawing have on thought processes? How may the knowledge attained through drawing be reflected upon and lead to epistemic insights? What role do the latest technological developments of drawing tools play and how can they be used in practice-based research to achieve knowledge? I address these questions through a process of specific drawing experiments with analogue, digital and hybrid techniques—and therefore the experimental use of drawing as a reflective tool in thinking and design processes. With the resulting sketches serving as material for reflection on the process of drawing, the aim of this paper is to visualise and reflect on the role of eye, hand and sketch in the act of drawing and to determine how, through a process of methodological, theoretical and practical reflection, such results might be utilised to enhance the knowledge derived from artistic practices.

Key Words: drawing, knowledge, perception, experiments, body, analogue, digital

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Introduction

This investigation into the act of drawing is based on a long practice and involves the question of how knowledge arises through the process of drawing, particularly in this digital age. My long-standing interest in drawing relates to the fact that I consider drawing more as part of my design approach than a demonstration of skill. Hence, in this article, drawing is considered not merely in terms of artistic procedures and design skills, but most of all as a way of thinking that generates knowledge during the very execution of images. Trained as a communication designer, I will refer to processes, examples and techniques in the field of visual arts. Taking into account recent developments of digital and interactive technologies, I examine the importance of tools and their use. The act of drawing and the actions involved are illuminated by means of drawing experiments and theoretical reflection. I do not present final results but open up the ground for drawing research and thinking in action from a design-as-research perspective, which is currently a loosely woven fabric with open ends.

In recent years, a growing interest in the drawing process has been closely related to a change in emphasis across many disciplines from goal-oriented to process-oriented procedures (Brown, 2008, 2009; Cross, 2007). The sketch has been assigned a special role because it has always been used in these operations and still remains an expedient tool for the visualization and communication of ideas. This development implies two basic questions. How is knowledge produced by the act of drawing? How may knowledge be actively transmitted by sketches? Both questions emphasize doing and thinking, and accordingly the relationship between manual activity and thought processes.

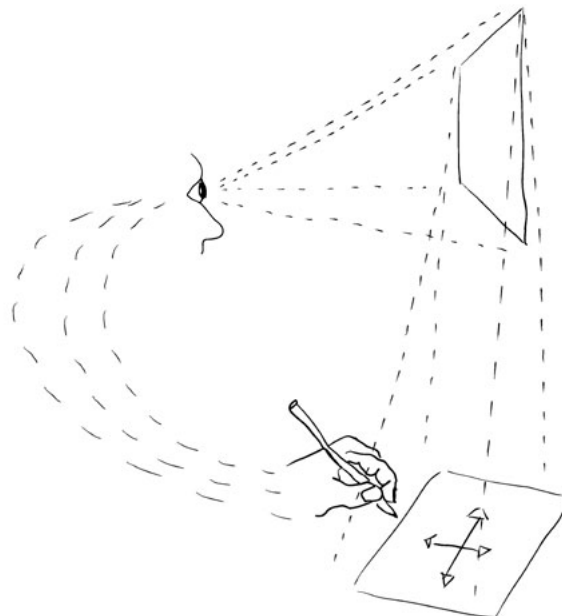


Figure 1: Model of the Drawing Process: Eye, hand and sketch are connected through an acting and reacting network. Sketch by the author, 2012.



In figure 1 the drawing process is shown as a network of different agencies of the body (eye, hand) as well as its materialized result (sketch). This assumption (see for example Krämer, 2003; Rosenberg, 2008) derives from my artistic research procedure based on different theories used, in order to develop drawing experiments, to raise questions, visualize them and sharpen an unclear thought. The concepts I use as raw material to create a network of reflection include the following: First, developments in the field of aesthetics, meaning *aisthesis* or *sensuous knowledge*; second, the idea of *poiesis*, implicit or tacit knowledge; and finally, embodied practices and embodiment theories. All three concepts are concerned with an involvement of the senses, especially visual and haptic perception in the thought process.

In his cave and line parables, Plato described the visualization of body movements and gestural acts as a form of knowledge (Bredekamp, 2010, pp. 40–42). But Plato did not consider this form of knowledge equivalent to that of the intellect. A strict definition of rational knowledge as opposed to sensory impression persisted until the eighteenth century, when Immanuel Kant linked the two opposites with his statement “thoughts without content are void; intuitions without conceptions, blind” (Kant, 1855/1781, p. 46).

The general concept of *Aesthetica* is still associated with the connotation of beauty. Its original meaning, however, encompasses a much broader notion of perception—that of impressions and sensations. To the present, within the theory of aesthetics, there exists a distinction between aesthetic (in the sense of beauty) and aisthesis (in the sense of epistemology). This traditional separation of feeling and intellect has led in recent times to a more contemporary synthesis and understanding of rationality— aesthetic rationality or sensuous knowledge.

Since the 1960s there has been significant research on *contemporary poiesis* or reflective practice. Michael Polanyi (Polanyi, 1962, 1964), for instance, demonstrated the significance of implicit and tacit knowledge and stressed that the function of gestures in communication processes was a form of knowledge. In addressing such knowledge, Polanyi referred to the difficulty of reflecting on physical action and verbalising manual tasks. Subsequently, Donald Schön (1983) posed the question of how professionals think in action in his book *The Reflective Practitioner*. He treated knowing-in-action as relevant to all professional activity and introduced the concept of reflection-in-action. More recently, the rehabilitation of knowledge in making and craftsmanship has become a notable concept in, for example, writings by Richard Sennett (2008).

Later, Horst Bredekamp (Bredekamp & Krois, 2011) presented a theory, based on embodiment, which includes the image as a separate agency in the perception process. In his book *Theory of the Image Act*, Bredekamp (Bredekamp, 2010, pp. 49–51) had suggested that the image itself is an independent acting entity. The implication of this theory is that the traditional opposites of creator and beholder, subject and object, receiver and recipient are resolved.

With respect to these various theories, this article is structured in terms of: sensuous perception as aisthesis, tacit knowledge of the body (or poiesis), and the activity of images after their formation (as in Bredekamp’s image act theory). Accordingly, each of the following sections examines body action and thought processes with a focus on reflection (eye), drawing (hand) and acting (sketch)—the sections being based on case studies of the author’s own drawing practice. It is expected that this article will contribute to the field of drawing research by merging practice and theory with the aim of examining drawing as a means of combining thinking and doing.

1. Reflect – The Active Sensation Of The Eye

The function of the eye in perceptual processes, such as the act of drawing, is usually perceived as passive. During the act of drawing a special relationship exists between hand and eye: which are both actively involved in the creation of sketches. The activity of the eye serves as an instrument or tool. It is an active recipient of information that is both intellectually and manually translated.

In this translation process the eye conducts the hand to the act of drawing. For a



comprehensible translation, from seeing to drawing, what is seen is reduced to essentials. Observation while drawing is never a passive, but always an active process. What is observed is taken to be true, even if it is not the objective truth. The active eye while drawing is therefore not only to be recognised as perceptive and productive in the delivery of neural information to the brain, but as a part of the drawer's body that produces and processes sensual information. This is a drawing approach which includes the activity of the eye as a reflective tool. But how independently from the hand can visual perception unfold in a sketch?

Drawing Experiment 1: Shadows/Sundial

Shadows/Sundial is a series of sketches that involves the eye as an active muscle—acting, reacting and reflecting the visual sensation during the drawing process (Fig. 2). In the series of sketches of a silhouette I have experienced the variation of a single form over a day, by time and movement through drawing (Fig. 3). The approach was methodical: an hour a drawing on paper with graphite.

The idea of the shadow experiment is transferable to the design concept of generative design and morphology. In the 1960s the Swiss astronomer Fritz Zwicky invented a creative method for generative design entitled *the morphological box*, which is based on constants and variation (Zwicky, 1968). The box is used to generate new forms and objects from an existing matrix through logarithms and random principles. Designer Karl Gerstner adapted and transformed the method into a programmatic approach of typography by using self-invented rules and following them rigorously (Gerstner, 1963, 2007). In Gerstner's analogue principle the precondition is an experimental system where, through small changes in the process sequence, several variations are generated.



Figure 2: *Shadows/Sundial*, experimental setting: first sketch of experiment with changing position of the sun and the related alterations of the shadow (left); photographic documentation (right).



During the *Shadows/Sundial* experiment, the intensive observation of a shape varied by the sun becomes an elementary training of perception. My action is slowed down while I am absolutely physically and mentally focused. Observation while drawing is perception at a glacial pace. The participant observation of shadows, formally transforming over time, is the slow-motion equivalent of a computer-based morphing process. Objects, that appear immutable (the object here is my own body) change and move during the observation period.

An important kind of perception while drawing is the ability to observe. The senses are addressed with full attention on the drawing object. The observation implies a pause and asks us to focus on what is going on inside or outside of one's own bodily sensation. All the senses are involved in this concentration: smell, taste, hearing, touch and especially the sense of sight is required. Kimon Nicolaïdes has named it as follows: "Although you use your eyes, you do not close up the other senses—rather the reverse, because all the senses have a part in the sort of observation you are to make" (Nicolaïdes, 2008/1942, p. 5).

For enhanced vision all senses emerge and take on the situation. Then they withdraw in favour of the sense of sight. The senses are providing the base for the observed seeing and help to internalize the image holistically—before the actual formation of the drawing. Already, this process is different from everyday perception. By getting involved with this condition one chooses consciously induced isolation from the environment for focused attention on one thing. During the act of drawing itself, the thoughts are only concerned with the next line and its placement on the surface. The object to be drawn appears as if it is seen for the first time. Through repetition and variations, the shape of the object is practiced, grasped as such and gradually recognized formally.

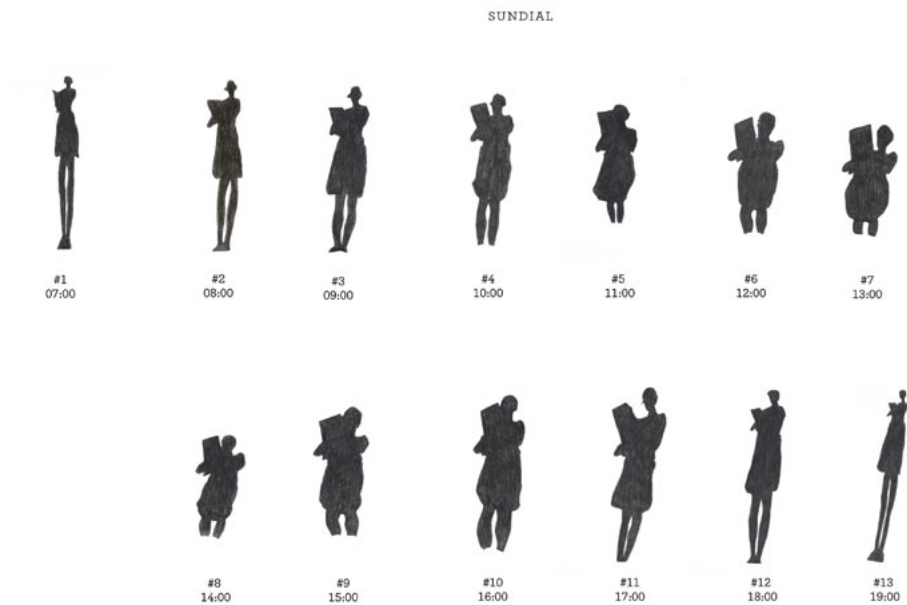


Figure 3: *Shadows/Sundial* consists of thirteen shadow sketches, executed Sunday 22 August, 2011 from 7am to 7pm.

The ancient story of Butades of Sicyon, as retold by Pliny the Elder, has been thought to portray the origin of classical drawing (Rosand, 2002, p. 4). In the story, the daughter of the potter Butades wishes goodbye to her lover, who must go to war. To remember his image,



she draws the outline of his head, cast as a shadow by the sun. According to this outline, her father produces a clay relief with the image of the absent lover.

This act of drawing is meaningful on several levels. The moment of creation testifies to an immediate action and a direct expression. First, it is perception, then the act itself, and finally the implementation of an idea into a visual representation, which is valid for the drawing process and method I am referring to. I will reflect on the legend of Butades by taking the father's place. Instead of making a model of my shadow sketches, I translate the manufacturing process into a contemporary concept of design as research. The concept of originality is about to lose its validity, since the activity of the eye is considered to be serial. Not showing the original image, the shadow sketches are to be read as materialized metaphor for a process of seeing, enabling access to the act of drawing through visual observation. In the act of drawing the eye functions as an instrument and the body is the apparatus of perception. The sketches negotiate the formal differences arising from this process—serving as the materialized model of intangible shadows. They represent reflection on visual perception and their materialization in the act of drawing.

The silhouette of Butades can be converted in a programmatic discussion on Generative Design: The body casts a shadow due to light exposure. This shadow is imaged on a surface as shape. Every movement of the body and subtle change of the light source influences the perception of the shape. In the shadow sketches the body functions as the instrument of the analogue-generative program. Thus, any minimal change in the object and the body is caused by perception and observation. The program is performed by the body and runs constantly in loops and creates variations of the same shape by repetition. The insights of this act of drawing are included in the variations of the sketches. They would have been remained invisible without the constant repetition of the generative drawing program. In the bodily sensation and continuous repetition of this activity lies the epistemology of drawing.

2. Redraw – The Drawing Hand as an Instrument

A sketch can be defined as a gesture of the hand, which manifests itself as a trace on a surface. As a sketch this act becomes directly visible. Derived from scientific studies of anatomy and linguistics, one can say that non-verbal gestures can act as mediators in human communication (Leroi-Gourhan, 1993). This becomes obvious in the gesture of showing, if we point at something or someone with our fingers, hands and arms. These gestures want to touch what can only be seen.

However, in drawing practice the gesture helps to imitate something that is not yet seen clearly. Or it refers to missing skills and supports the visualizing process by searching for a line (Gethmann & Hauser, 2009, p. 343). The gesture serves here as a bodily compensation for the shortcoming of vision and comprehension. There is an implicit connection between vision and gestural action. In order to clarify different views upon gesture and communication I refined a random drawing exercise into an experiment by producing most sketches within a few seconds. I hoped for visualisations of the connection between non-verbal-gesture-as-cognitive-body-activity and the act of drawing.

Drawing Experiment 2: *Figures*

In the experiment *Figures*, the handiness of tools and the issue of training, experience and skills are examined. Particularly in the application of analogue, digital and hybrid media and their smooth transition, the hand literally 'grasps' in the drawing process. This bodily cognition and its adaptability become visible through the shift of drawing tools. I was interested in how the experience and motivation of drawing altered by changing the medium.

The experimental setting consisted of two parts. The first experiment was executed with pen and paper, the most traditional analogue technique. The second experiment contains the same task by using a digital, or more precisely, a hybrid medium. The touchpad seemed to be suitable for this experiment because it can be transformed into a portable sketchbook. The hand is still involved through the touchscreen but there is no materialized mark making.



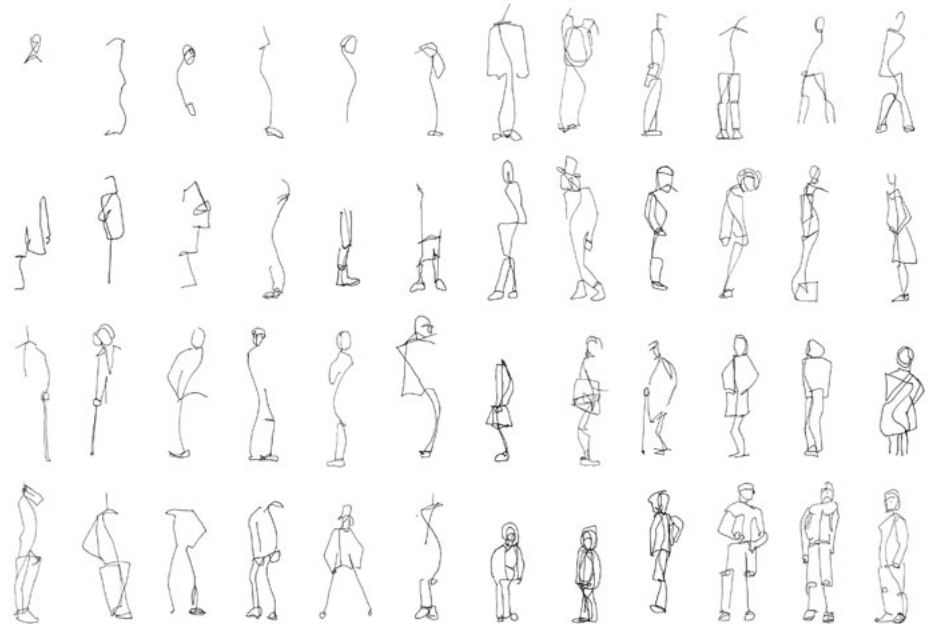


Figure 4: *Figures*, sketches, 2010. Ink on Paper. Size of each figure 10 cm x 3 cm.

Often, when I have been sketching people in attitudes of waiting, I have found myself in the same situation as my objects: waiting, posing, weight shifting from one leg to the other, observing and being observed. While drawing, my body refers to the bodies of the drawn figures—the figures being observed through my body with eye and hand. For these sketches (Fig. 4) I apply the technique of so-called *blind drawing* (Nicolaidēs, 2008, p. 9). In the act of blind drawing, the eye performs no direct control over the hand, nor the line on the paper, but only observes in great detail the drawing object. The hand is guided by touch rather than by sight. The external separation of hand and eye requires a close inner connection through the body apparatus, wherein the hand completely trusts the inherent body signals. The gestures of the hand follow independently the eye movements on the drawing object and the shape of the figure is literally touched on paper.

Experiencing the physical body as an executive apparatus, or instrument, allows the drawer to enter into a different level of consciousness. The whole body is both relaxed and tensed, focused on a goal, fully absorbed and concentrated on the manual activity. The body directs the moving hand, but without being conscious of it. Polanyi describes in his book *The Tacit Dimension* (Polanyi, 1964) the suspension of language that characterises this experience. He calls this non-verbal knowledge *tacit knowing*, an implicit knowledge that is generated by experience, action, and practice.

Tacit knowing is seen to operate here on an internal action that we are quite incapable of controlling or even feeling in itself. ... When we make a thing function as the proximal term of tacit knowing, we incorporate it in our body—or extend our body to include it—so that we can dwell in it. ... Our body is the ultimate instrument of all our external knowledge, whether intellectual or practical. (Polanyi, 1964, pp. 14–15)

The resulting analogue material of *Figures* prompted me to think about craftsmanship, the use of tools and serial work. It became very relevant to my approach to have enough



sketches to realise similarities and differences in the drawing process. The issue of working in series with quantitative output is both an issue in production and the period of time involved in that production phase. For a trained eye and hand it is indispensable to draw a lot. But also in order to look at, to really see and to understand, one needs practice.

After being familiar enough with paper and pen, I decided to stay with the concept—blind sketches of waiting figures—but to change from the known tool, i.e. pen and paper, to an unknown tool, i.e. digital tablet with stylus (Fig. 5).



Figure 5: *Figures*, digital sketches, 2011. Stylus on iPad. Application: Brushes.

Particularly in the application of analogue, digital and hybrid media and their smooth transition, the hand literally grasps in the drawing process. In my experience digital drawing has advantages and disadvantages. The advantages lie in the many possibilities of digital processing. But the many possibilities are not necessarily beneficial, because they can lead to sloppy execution. With the option of backtracking and undoing previous actions, concentration weakens accordingly. I also see disadvantages in the insufficient bite of the electronic tool on the drawing interface, which makes it almost impossible to draw hard edges and sharp corners. Nevertheless, the transfer of personal expression and style from an analogue to a digital medium is possible without loss of quality. Thus, the main components in the act of drawing remain: manual dexterity and a trained hand. Tool and surface are simply a matter of habit and handling.

According to Polanyi (1964), processes and procedures rooted in bodily activity are difficult to put into words and thus escape conscious reflection. The attempt to analyse manual activity may lead to an impairment of ability, a loss of intuition and unconscious play. By overcoming this initial loss, and to make the necessary effort of re-learning, deeper levels of knowing will be acquired. Polanyi concluded, however, that the details of these processes ultimately remain inaccessible to scientific analysis (Polanyi, 1964, p. 61).

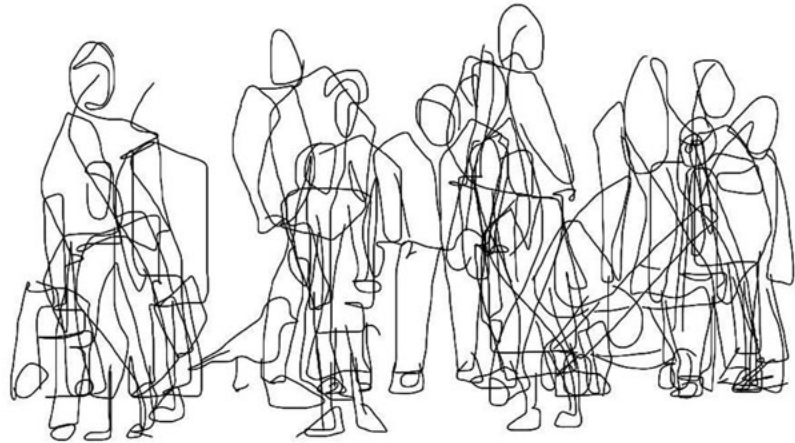


Figure 6: *Figures*, digital layers of drawing actions, 2011. Stylus on iPad. Application: Brushes.

Nevertheless, something has changed in my act of drawing through the use of digital tools or, more precisely, by the application with which I draw on the iPad. The knowledge of a time-based act of drawing has extended the sketches and resulted in the development of a narrative structure. The waiting situations became situations in which I was waiting to observe the next figure of the animated sketch. The sketches of the digital figures do not purely represent the traces of my drawing process, but rather tell the story of my observations (Fig. 6).

The observation changed during the drawing process as I acquired skills to master the new digital tool. I knew now that my drawing actions were recorded and therefore I tried to observe in order to draw scenes that would be interesting to watch as an animation. It was still observational drawing of figures. Nothing has changed in that relation. But I made decisions about my drawing action involving position, movement and composition of a storyboard. Storytelling is different from observational drawing and it happened that I learned to combine both through drawing practice with a new (digital) tool. This procedure demonstrates my engagement with self-learning through adapting and experimenting and how it changed my drawing process. My knowing-in-action followed the Schönian (1983) concept of reflection-in-action and ended with new drawing insights: "When someone reflects-in-action, he becomes a researcher in the practice context. ... He does not separate thinking from doing, ratiocinating his way to a decision, which he must later convert to action." (Schön, 1983, p. 69). In a revolving system of doing, thinking, and experimenting the practitioner gains a renewed understanding of his or her own practice.

3. React – The Acting Sketch in the Epistemic Process

The third part examines the function of the sketch during and after its creation. In the drawing process the sketch plays its own active role. Materialised on a surface, it becomes an independent agency and an important part of the process.

Pictures, as human-created artefacts, do not possess a life of their own, yet they recurrently develop a presence that lends them the ability to be more than lifeless matter. The power of images to move us to action lies in this duality of lifeless rigidity and vivacity. The image act theory is a means to pursue the phenomenon of the vital impact of images as artificial life, the exchange of image and body, and the autonomous activity of form (Bredenkamp, 2010, pp. 49–51). I have attempted to transfer the image act theory into the practice of drawing. This implies that the processes of thinking and reflecting during the act of drawing



alter upon completion of a sketch. They differ significantly from the reflective and cognitive processes while drawing.

Drawing Experiment 3:
Jacket

In a further drawing experiment I observed the variation over time of a jacket hanging randomly on a chair (Fig. 7). I sketched its contours on a daily basis over the course of a month. Already while drawing I noticed that the jacket hung differently on the chair every day. Yet, it was the same jacket that did not change its 'pose'. But I didn't compare the daily sketches with each other and just put them aside on top of each other. After finalizing the series of sketches I arranged them next to each other on the wall unconsciously looking at them for weeks.



Figure 7: *Jacket*, sketch, graphite on paper, 2010.

The drawing process is therefore divided into two parts: the actual act of drawing and the reflecting on the drawing action afterwards. By observing the series of sketches I realized that the jacket in the picture space was moving and posing (Fig. 8). This observation differed from the one I had made during the drawing process. Back then I noticed a difference in form and appearance. Now with a distance I sensed a constant movement that did not stop when I was not looking. The object incorporated a physical presence despite the absence of my physical drawing presence. The drawn object (jacket) visualizes the invisible object (chair) through its continually transforming shape. Observing the jacket made the object become alive. But this observation was confirmed only after changing the way I looked at the sketches. In a next step I tried to visualize how I had perceived the phenomenon of a moving object during the drawing sessions. Instead of hanging the sketches next to each other on the wall I arranged them in chronological order. I then digitalized them—each frame consisting of a sketch, arranged in the same chronological order. The transfer into a time-based medium enhanced the visualisation of my thoughts.





Figure 8: *Jacket*, sketches of a jacket hanging randomly on a chair, 24 days from 11 November – 24 December, 2010.

The movement of the jacket in the chronological animation can be interpreted as dance. But more than that a new agency appeared in the sequence. It seems as though the jacket and its constantly morphing shape visualises the unmapped chair. While drawing the jacket, the chair was not intentionally visualised. Yet, its presence appears in each sketch and does not vanish in further media containing these sketches. Here it becomes clear that the sketch does not only function as the materialised documentation of the act of drawing. It remains intrinsically active, regardless of the detachment from eye and hand. The sketch thus acts back actively to the beholding eye.

All this for a thorough training in drawing, that is, in the graphic craft of delineation. Through learning, first, a clear linear visualisation, and second, a precise articulation, we try to develop observing eyes, understanding minds, and controlled hands, and only indirectly, art. (Albers, 1969, p. 25)

In discovering Albers' thoughts on drawing I realised the Schönian knowledge in action and reflection on action within myself. I have gained new insight and knowledge through and for my drawing practice. The artistic portions of the research began to communicate to me as a researcher and they opened up the network of reflection that I already mentioned in the beginning.

4. Space for Reflection, Redrawing and Reacting

In addition to continuous drawing research and experimentation, I spent hours working at the computer writing, designing and doing research. During one of these phases I asked myself what my hands were doing meanwhile (despite them being very active—clicking, typing, moving—I tend to neglect them). The question then became: What are my hands doing when they leave no traces, when I am working on the computer? Does a process of drawing exist that does not materialise itself, is neither observed by the eye, nor consciously controlled by the hand? If there is a movement by the hand and an activity performed by the eye there must be digital data that shows these activities.

Drawing research conducted with eye tracking systems has become a popular research method in artistic practices (Baker, 2010). But there is hardly any visual material on hand



tracking. It may seem quite obvious what the hand is performing, but with digital tools this is often not the case.

Perhaps the problems encountered with digital data lie in the fact that the reasons for the drawing's idiosyncrasies are not immediately perceivable, as they reside in the invisible code. Whereas, if one chose to draw with poor physical materials the reason for the poorness would be transmitted immediately through experiencing the material, e. g. attempting to draw on a piece of glass with a rock. In this final experiment I have experienced that both can be coped with.

**Drawing Experiment 4:
Tracking**

I tried to visualize the hand movements or, better, to find visualizations of those movements. Therefore, I started recording computer activities with a monitor tracking software. The software visualizes movements of the cursor on the computer monitor. It is therefore frequently applied by programmers and designers to test software usability and developments. During my activity on the computer the cursor's movements are tracked and recorded in the background (Fig. 9). The program runs independently of various input devices, such as mouse or tablets. The choice or preference of device has no impact on monitor tracking and the recorded data. Since the screen is separated from devices, the manual movement is translated into a motion on the screen without including the activities and inputs from the keyboard.

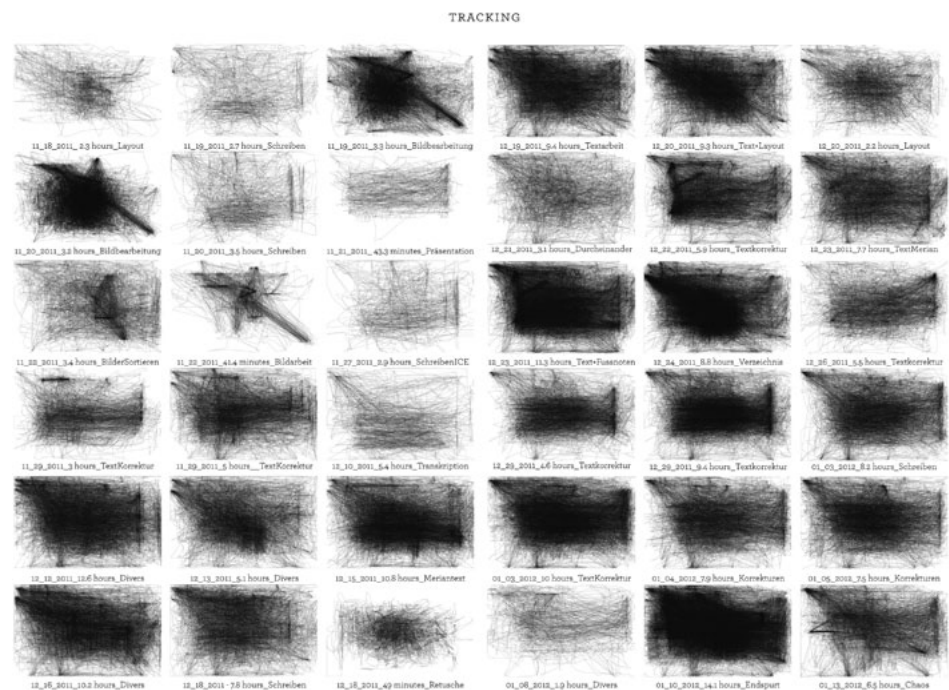


Figure 9: Tracking, 36 days, 2012. Application: IOGraph.





Figure 10: *Tracking*, image of repetitive activity. Image edited with Photoshop.

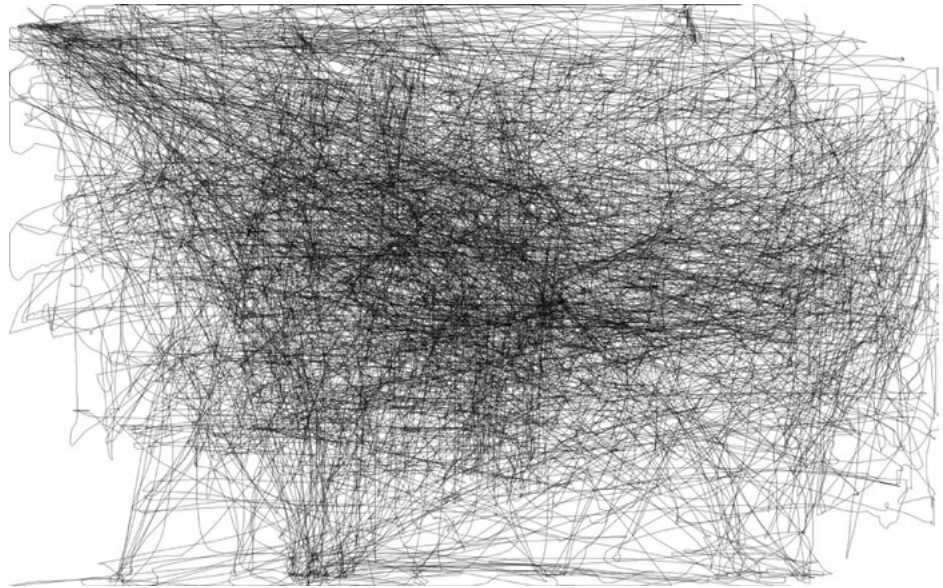


Figure 11: *Tracking*, image of less structured activities, such as surfing on the internet.

The images picture the difference of physical action and their visualisation (Fig. 10 and 11). *Trackings* are not created through the steering of the eye, but the coordination of the eye and the hand. In contrast to eye tracking they do not represent precise eye movements. *Trackings* rather visualize eye activity executed by the hand and—surprisingly enough—the space this activity was executed within. The results represent the connection of time and hand motion and their indirect relation to the active role of the eye.

The time issue is essentially linked to the dimensional appearance of the recordings. The recordings thus visualize the space of both physical activity and time. The images should



therefore be looked at as graphic translations of visual and manual activity, which illustrate the difference between physical action and its visualization. Hence, they are not representative for the process as such, as it is not the task of the product to represent the process. Both the drawing process and resulting sketch are linked but still operate independently. *Trackings* function, like automatic drawings, as a metaphor for unconscious movements of the body. Therefore, my interpretation of *Trackings* goes beyond the looking of the eye and the drawing of the hand. The series visualizes time and space occupied by the body activity as a whole. At first glance *Trackings* do not seem to fit into my definition of a sketch as marks made by the hand in the narrow sense. But they show how the network of agents eye, hand, and sketch are closely linked to each other and even create a lasting experience of space and time.

Communication by means of, and about, sketches takes place in physical spaces. The implicit embodied knowledge that appears in such spaces is complementary to objective and rational knowledge. Reflection demonstrates the relevance and rightness of other forms of knowledge that result from the experience and act of drawing. This embodied knowledge, however, requires a special formal treatment, for each form of knowledge longs for a specific form of mediation. This is what I acknowledge as the great task of artistic research on drawing and graphic visualization.

Conclusion

This project has aimed to demonstrate that a variety of drawing exercises might be used to examine and bring into light different aspects of drawing, producing surprise moments for reflection and supplying the researcher with new phenomena to interpret. My approach has been based on a 'network of reflection'. That is, both reading and making have supported the creation of the above research outcomes and the findings of the processes described in the paper can be extracted and summarized in a concise manner. It is hoped that this line of inquiry will be of interest, not only for the practically-minded designer and artist, but also for other researchers intent on using drawing as a component of the research process.

Observation while drawing is never a passive, but always an active process. The direct line of sight produces the designs of our world, reflecting the not-yet-existing. By recording this not-yet-existing, the drawer's perception is adjusted and the observational ability sharpened. Through this drawing approach the eye functions as a reflective tool.

In the act of drawing the body is the apparatus of perception. It is an active recipient of information, which is visually, manually, and intellectually translated. In this translation process the eye conducts the hand to the act of drawing. One could say that the seen can be amplified or emphasized in different ways by considering what to draw. The repetitive processes instead highlight aspects that might not have emerged in a single image.

During the physical act of drawing, the hand, eye, and sketch are closely linked. The tactile and sensory skills of the body, the hand in particular, are required. The manual and visual skills for drawing can be developed through practice and repetition in order to achieve a higher level of understanding of, and reflection on, drawing practice. The importance of manual skills will persist in the digital era, and might even increase—thanks to hybrid technologies.

After the act of drawing, the relationship between the body in the act of drawing and the sketch is dissolved, and the view widens to include the overall process of production. Realizing the results of the act of drawing makes for the great potential of the sketch. The sketch represents as image a space for acting and reflecting in the interval between knowing and not knowing.

In conclusion, the goal of basic design [drawing] is to develop a visual idiom. It is a means of cultivating the "thinking in situations" which is imagination. (Albers, 1969, p. 35)

The act of drawing as reflective process continues.



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