

DESIGNING KNOWLEDGE

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LECTOR, LAYOUT, COVER DESIGN

LANDSCHAFTSARCHITEKTUR+VIDEO
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The conference “Designing Knowledge”
was organised by the chair of Prof. Weidinger
assisted by Lars Hopstock.

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Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data are available in the Internet at <http://dnb.dnb.de/>

Universitätsverlag der TU Berlin, 2015

<http://verlag.tu-berlin.de>

Fasanenstraße 88, 10623 Berlin

Tel.: +49 (0)30 314 76131 / Fax: +49 (0) 314 76133

E-Mail: publikationen@ub.tu-berlin.de

This work is protected by copy.

Printing: Druckerei Conrad GmbH, Breitenbachstr. 34–36, 13509 Berlin

Typesetting/Layout: LANDSCHAFTSARCHITEKTUR+VIDEO, Seelingstr. 47, 14059 Berlin

ISBN (print) 978-3-7983-2771-9

ISBN (online) 978-3-7983-2772-6

Simultaneously published online at the Digital Repository
of the Technische Universität Berlin:

URN [urn:nbn:de:kobv:83-opus4-66804](http://nbn-resolving.org/urn:nbn:de:kobv:83-opus4-66804)

<http://nbn-resolving.org/urn:nbn:de:kobv:83-opus4-66804>

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IN SEARCH OF INDEPENDENT LANDSCAPE ARCHITECTURE KNOWLEDGE – BASED ON THE DESIGN OF PLACES

Jürgen Weidinger

The question of the fundamental connection between the work of a designer and scientific work as well as the search for independent knowledge gained through designing itself represents a focal point in our research in the field of landscape architecture at the Technische Universität Berlin.

Against the background of increasingly economised universities the design disciplines are unfairly criticised for making either no or too few scientific contributions. The reaction to this pressure has been that many universities have made various efforts in recent years to encourage and establish research in the design disciplines themselves.

It is apparent that the largest main area in the design disciplines of architecture and landscape architecture, which handles specific solutions for buildings and places, is noticeably underrepresented within the scope of the aforementioned research activities. The “research by design” field is dominated by disciplines that are understood as large-scale planning strategies or even only as the design of planning processes, and therefore do not achieve precise spatial solutions. Our hypothesis is that the above mentioned

large-scale planning strategies mainly deal with quantifiable functional goals, whereas the designing of spatial solutions must address aesthetical qualities. The addressing of quantifiable goals in the planning disciplines in research appears to be easier than examining qualitative phenomena. Our hypothesis continues to assume that a successful and sophisticated design practice represents the necessary basis for the development of new knowledge on landscape architectural quality. Solely on the basis of this mature practice, the designer “knows” which phenomena he has discovered and refined during the design process.

Design processes improve the access to the researched phenomena. Accordingly the access by language is connected with the creative access, i.e. bodily, gestural or playful, etc.¹ As a result test procedures for new discoveries in the field of landscape architectural qualities are substantially improved. After successful experiences in practice, the designer is capable of describing the achieved results, criticising already existing knowledge in this regard and reflecting on it. A publication that places the newly found knowledge at the disposal of the aca-

dem discourse concludes the process of design-based research.

This sets the bar at a high level, and therefore work of this kind is fairly rare. In order to cover for the deficiency in the field of landscape architecture, we held a conference called “Designing Knowledge” in 2012. The conference asked what kind of knowledge was involved when we speak of designing specific places (parks, squares, riverbanks, streets, etc.), how this knowledge is obtained and how the quality assurance can be ensured. Methodological approaches for design-based research were presented and discussed.

The discussion approaches differed greatly. They ranged from attempts to systematise relevant terms in knowledge theories and to specify them for design work in landscape architecture to examples of how knowledge is obtained through the design of specific spatial solutions. It became obvious that some influential designers in the landscape architecture community, who took part in the conference, hardly know the methods of design-based research, although they have already applied methods of design-based research intuitively in their own publications. This collection provides

those individual papers and offers them for discussion.

The conference on “Designing Knowledge” is part of a series of events on design-based research. In 2011 the research cluster “Entwerfen und Konstruieren des Innovationszentrums Gestaltung von Lebensräumen” at the Technische Universität Berlin arranged the conference under the title of “Symposium for Design Science”. The symposium broadly examined the fundamentals of design-based research opportunities for design disciplines such as architecture, engineering and landscape architecture. In 2014 the work presented there was published by my chair in a volume titled “Entwurfsbasiert Forschen” (Design-Based Research). In 2012 and 2013 we held two “joint doctoral seminars” in Berlin and Beijing in cooperation with Tsinghua University of Beijing. The papers at the seminar were published in the journal “Landscape architecture today” for the professional public in China to discuss². During this time we developed the research work on design-based research and tested it in dissertation projects and master’s thesis. Looking back on the past five years, we can summarise, that this collection

of papers represents an intermediate stage and there is still a lot of research on design-based knowledge to undertake. Our aim is to ask more and more specifically how the knowledge within designing of places can be described and systematised. Therefore it is necessary to determine the contributions that experienced designers can make. It is also necessary to find ways how prospective, young designers can be drawn to the field. Younger designers also face the task of expanding independent landscape architectural knowledge on the basis of the results in their own design work or, if not yet present, by cautiously using the work of others.

One of the major open questions is whether the epistemological analyzes of the design process and design-based research work can develop an independent landscape architecture knowledge, which is less dependent on the inventories of knowledge provided by the accompanying disciplines of design, such as historiography, sociology, technology or biology³ and offer new insights into making places.

¹ See Weidinger, Jürgen: Zur Entwurfsforschung. In: TU Berlin Forschungscluster Entwerfen und Konstruieren / Frank, Ute / Schmid, Volker / idem (eds.): *Eklat – Entwerfen und Konstruieren*. Berlin 2011, pp. 22–41.

² See *Chinese Landscape Architecture, Design Research*, Vol. 30, Issue 7, 2014.

³ See Weidinger, Jürgen: Antworten auf die verordnete Verwissenschaftlichung des Entwerfens. In: Idem (ed.): *Entwurfsbasiert Forschen*, Berlin 2013, pp. 13–38.

ABSTRACT

With and through the designing of landscape architecture projects a specific kind of knowledge can be acquired. Jürgen Weidinger suggests a model, that tries to open up this knowledge for a scholarly discourse. The following paper presents one part of this model – the dialogue between theory and a built project. This part will be presented by applying it to an open space designed by Dieter Kienast. As a conclusion it turns out: (1.) That the model presented by Weidinger involves dangers, but also potentials. (2.) Knowledge, that has been gained through the dialogue between theory and built project cannot be put onto a shelf like an object. Instead, such knowledge manifests itself as a condition, as a specific type of cognition: knowledge as the known.

KNOWLEDGE AS THE KNOWN – ON THE DIALOGUE BETWEEN THEORY AND THE WORK

Sebastian Feldhusen

For the past few years, the creative disciplines have increasingly examined the relationship between “knowing” and “designing”.¹ Jürgen Weidinger, for example, proposes following model for design research in landscape architecture² (see Figure 1).

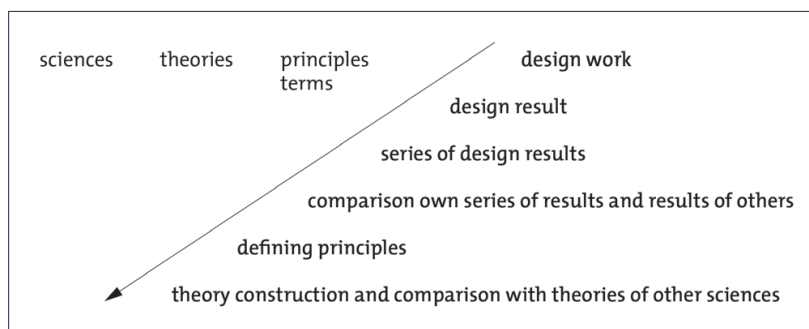


Fig. 1 Modified graphic of the model for design research by Jürgen Weidinger.

Using the model, the aim is to make use of the knowledge which is created through the process of designing and through designing as a contribution to reflections on landscape architecture. In formal terms, this occurs through a mix of different methods, which embrace the design and the design result. The model is divided into six stages: it is proposed that the investigator makes a design (stage 1) and realises it (stage 2). Weidinger further recommends not leaving it at *one* design and result, but instead developing and realising *several* designs (stage 3). Next, the investigator’s own design results are compared with the design results of other designers (“alien design results”) (stage 4). From this comparison, principles should be derived (stage 5), which are in turn brought into a dialogue with theories of other disciplines (stage 6). The six

Fig. 1 The aim of this model is to utilize the knowledge which is created in and through the designing as a contribution to reflections on landscape architecture. Original illustration by Weidinger, Jürgen, presented at the symposium: “Designing Knowledge. Results and methods of research by design in landscape architecture”, 22–06–2012 at Technische Universität Berlin, Institute of Landscape Architecture and Environmental Planning, Chair Landscape Architecture.

1 Below are some examples of various conferences and symposiums that have focused on this topic: “Design. Knowledge. Production.” Annual Conference of Deutsche Gesellschaft für Designtheorie und -forschung (DGTF), 24–25 October 2009, Universität der Künste Berlin; “EKLAT Symposium zur Entwurfswissenschaft”, 06–05–2011, Technische Universität Berlin, Innovationszentrum Gestaltung von Lebensräumen; “wissenschaft entwerfen. Vom forschenden Entwerfen zur Entwurforschung der Architektur”, 03–05 November 2011, Universität Basel; Symposium “Designing Knowledge [...]”; Annual Conference of “Interdisziplinäres Labor Bild Wissen Gestaltung”, 15–11–2014, Humboldt-Universität zu Berlin.

2 Compare Weidinger, Jürgen: Designing Knowledge [...].

3 For a general discussion of these forms of knowledge, compare: Mittelstraß, Jürgen: *Glanz und Elend der Geisteswissenschaften*. In: Kühne-Bertram, Gudrun et al. (eds.): *Kultur verstehen. Zur Geschichte und Theorie der Geisteswissenschaften*. Würzburg 2003, pp. 35–49. For information on these forms of knowledge in relation to “creative” disciplines, also compare: Ammon, Sabine: *Wissen verstehen. Perspektive einer prozessualen Theorie der Erkenntnis*. Weilerswist 2009. For an examination of these forms of knowledge in relation to architecture and landscape architecture, compare: Bruyn, Gerd de / Reuter, Wolf: *Das Wissen der Architektur (= Architektur Denken, Vol. 5)*. Bielefeld 2011; Weidinger, Jürgen: *Zur Entwurforschung*. In: Frank, Ute et al. (eds.): *EKLAT. Entwerfen und Konstruieren in Lehre, Anwendung und Theorie*. Berlin 2011, pp. 22–41, here pp. 30–34.

4 In order to preclude the need for a discussion on the question whether a “scientific” study should be differentiated from an “artistic” one (whatever it may be in each case), this essay generally refers to studies that aim to treat their subject more or less systematically and seriously at the same time.

5 Compare, e.g. Jonas, Wolfgang: *Schwindelgefühle – Design Thinking als General Problem Solver*. In: Weidinger, Jürgen (ed.): *Entwurfsbasiert Forschen*. Berlin 2013, pp. 39–53; Mareis, Claudia: *Design als Wissenskultur. Interferenzen zwischen Design und Wissensdiskursen seit 1960 (= Studien zur visuellen Kultur, Vol. 16)*. Bielefeld 2011, particularly pp. 175–277; Weidinger, Jürgen: *Antworten auf die verordnete Verwissenschaftlichung des Entwerfens*. In: Idem (ed.): *Entwurfsbasiert Forschen [...]*, here pp. 23–28.

stages together form the investigation, which should to a large extent be prepared in written form. Although the model is hierarchical and divided into stages, it is not intended to be understood as a user’s guide. Instead, through the stages, four different objects of investigation – (a) the investigator’s own and (b) other design results, (c) principles and (d) theories – are gathered and brought into a dialogue.

Weidinger’s model cannot be discussed in its entirety here. Instead, the focus is on the dialogue he proposes between an alien design result (stage 4) and theories (stage 6). This dialogue is presented here by means of an example application. This discussion is prefixed by two general points: first, Weidinger’s model is located within the context of the discourse about “knowledge” in the creative disciplines that has been underway for the last few years. Next, three positions on the model are identified, which are required in order to understand the model. Further, some difficulties and areas of potential of the model are summarised. Finally, we will consider to which form of knowledge the investigation conducted here can be assigned.

FORMS OF KNOWLEDGE

In the discourse on “knowledge”, there is a consensus that it is necessary to distinguish between different forms of knowledge³. There is also more or less agreement that knowledge can be gained in any systematic and serious investigation⁴. However, there are various opinions, for example, on the question of which forms of knowledge can be distinguished in “creative” disciplines⁵. At present, the forms of knowledge most often discussed – in relation to landscape architecture – are:

Knowledge through Designing

This refers to knowledge which can be gained in the course of a design for a specific place. This knowledge is to a large extent produced through the design process. Through the modelling of a model, for example, knowledge concerning morphological situations of a place can be acquired⁶. Through the conversations with developers or professional planners that are involved in a design, knowledge

about social relations in a residential area can be gained, or ecological particularities in a disused airport space can be elaborated, for example. This also includes interpreting the possibilities for design and action of a particular place. For some, this knowledge falls into the area of “practical design research”⁷. The object of investigation is the knowledge which is produced *through the designing*.

Knowledge for Designing

This concerns knowledge that is a prerequisite for the designer to be capable of acting. This includes, for example, knowledge about the application of tools such as sketching, drawing, models and computer programs. This knowledge also comprises competencies such as abstract thinking and interpretation, imagination, mediation and communication skills. It is a matter of knowledge which enables us to do things. It is therefore “a positive knowledge about causes, effects and means [...]. It answers questions about what [and how] we can do [something...]”⁸. This also in part includes the designer’s ability to develop a design from different aspects. Weidinger terms this knowledge “synthetic knowledge”⁹. The object of investigation is the knowledge which is necessary *for the designing*.

Knowledge through Designing and for Designing

Some argue that the knowledge that is supposed to be useful for designing, gained through reflection on designing, falls within the area of “applied design research”¹⁰. This concerns not only knowledge gained through designing (see above), but is also formulated as knowledge which can be transferred to other designs. Concretely, a knowledge of this sort is expressed in types, patterns, models, methods or principles¹¹. This means that knowledge gained through designing is formulated in such a way that it can be useful for another design. The object of investigation is the knowledge *through designing and for the designing*.

Knowledge about Designing

This refers to knowledge which is gained through reflection on designing as a way of doing something. The focus is on the process of designing. Thus, for example, its ‘idiosyncrasies’ are elaborated and compared with ‘idiosyncrasies’

6 Foxley, Alice: Distance & Engagement. Walking, Thinking and Making Landscape. Vogt Landscape Architects. Baden 2010, p. 21.

7 Compare Ammon, Sabine / Froschauer, Eva M.: Zur Einleitung. Wissenschaft Entwerfen. Perspektiven einer reflexiven Entwurfsforschung. In: Idem (eds.): Wissenschaft Entwerfen. Vom forschenden Entwerfen zur Entwurfsforschung der Architektur. Munich 2013, pp. 14–44, here p. 16.

8 Mittelstraß, Jürgen: Glanz und Elend der Geisteswissenschaften [...], here p. 41.

9 Compare Weidinger, Jürgen: Antworten auf [...], pp. 13–34, here p. 34. Here, it becomes evident that it is difficult to assign a certain knowledge to only one form. It should always be kept under consideration that the categorisation of knowledge into forms “[takes place] in our mind when we talk about things; as our understanding of things, not as the understanding of the things themselves.” See Mittelstraß, Jürgen: Glanz und Elend [...], pp. 35–49, here p. 42.

10 Compare Ammon, Sabine / Froschauer, Eva M.: Zur Einleitung. Wissenschaft [...], here p. 16.

11 This includes knowledge about modelling and the use of models in landscape architecture; one only needs to envision topic areas such as architectural models, overall concepts, metaphors, guidelines, drawings, etc.

¹² Compare Ammon, Sabine / Froschauer, Eva M.: Zur Einleitung. Wissenschaft Entwerfen[...], here p. 16.

¹³ This includes the extensive historical and current material on the analysis and interpretation of architecture. One more recent publication should be mentioned here as an example: Kemp, Wolfgang: Architektur analysieren. Eine Einführung in acht Kapitel. Munich 2009.

of other processes. This area is also described by Sabine Ammon and Eva Maria Froschauer as “reflexive design research”, as a research of this kind, “[...] is interested [...] less in the later artefacts as products of this procedure than in the analysis and description of the processes, without reaching into the artefacts themselves”¹². The object of investigation here is knowledge *about designing*.

Knowledge through the Design Result

This refers to knowledge which is gained through the design result. This means that here – precisely the opposite of the form of knowledge mentioned immediately above – engagement with the artefact at the end of the design process is central. The decisive point is that the design is realised. The realisation itself must be perceived, it is not a matter of a mere representation of the realisation. In comparison to the forms of knowledge mentioned above, this view of knowledge in the discourse on knowledge and design is discussed comparatively little. This may be due to the fact that it is less the designing than the designed result that is investigated¹³. The object of investigation is the knowledge that is gained *through the design result*.

The model proposed by Weidinger integrates four of the forms of knowledge mentioned. Through the model: (1) knowledge is developed that the designer must possess in order to design, (2) knowledge about a place is gained through designing, (3) knowledge for other designs is gained as designs are reflected upon and (5) knowledge is produced when design results are investigated. Weidinger’s model leaves out ways of “designing”. This is not explicitly discussed, and thus not made an object of investigation. In the following we present the three positions on the model mentioned above, which are prerequisites for understanding the model.

SOME PRECONDITIONS OF THE MODEL

Weidinger’s model requires (1) discourse-theoretical, (2) methodical and (3) conceptual positions. The positions are, in order: (1) if something is to be negotiated in a discourse, it must be formulated in language. This does not mean, conversely, that visual or other forms of expression

are suppressed. In many cases they are inalienable components of the explanation. They can never stand alone in a discourse, however. (2.) The investigator should possess experience in designing landscapes (see stage 3 in Figure 1). This experience is based on a design being developed and realised. There is the additional reservation that the experience must be gained through *multiple* designing and realisation¹⁴. It is not sufficient for identical design and realisation processes to be repeated. In fact, this is not even possible, because a design assignment is always unique. One need think only of the topographic situations that vary from case to case, of the differing cultural contexts or different construction developers involved¹⁵. Instead, one must speak of a process of “practising” and “comparing”. “Practising” means developing several drafts and realising these, and thereby achieving design results. Practising always takes place in a tension between the search for routine and the best solution for a specific assignment. Comparing goes beyond this. It certainly does not mean the comparison of identical design results, as such – as mentioned above – are not possible. By comparison is understood instead the attempt to elaborate *differences* and *commonalities* of several design results. The aim is pursued of elaborating a comprehensible “identity” of each individual design result. By “identity” is understood how a design result can appear in summary reflection of diverse kinds¹⁶. If comparison – whatever its form and objectives – is an established methodical component of almost all sciences and arts, then “practice” can be identified as a fundamental working motivation in many disciplines of the arts and sciences¹⁷. (3.) “Theory” means a result, especially of academic research in the humanities (however provisional the result may be). By “dialogue” is meant a *mutual exchange* between theory and design result. It should be noted that both one’s own design results and alien design results should be brought into dialogue with theories (see stage 4 in Figure 1).

At this point it also seems necessary to define the “design result” more precisely. What is meant by this? In a word: the work. Although Weidinger does not use this term, in this discussion it makes sense to use it – however anachronistic it might sound. It is sensible for a simple reason: the

14 Compare Weidinger, Jürgen: Antworten auf [...], here pp. 30–32. It should be mentioned that “experience” is also useful when designing a theory. What implications arise from this with respect to designing a theory cannot be discussed in more depth here.

15 It is well known that there have been extensive studies, such as those by Horst Rittel and more recently by Wolfgang Jonas, on the specific characteristics of, for example, the ‘initial situation’ to which the designer has to react when creating a design. For a discussion on the studies by these authors in the field of landscape architecture, compare, e.g. Prominski, Martin: Landschaft entwerfen. Zur Theorie aktueller Landschaftsarchitektur. Berlin 2004, here pp. 95–110.

16 This would have to be methodically investigated in more depth. This could be done, for example, by using a phenomenological method that explores the different manifestations of an object.

17 Compare Sloterdijk, Peter: Scheintod im Denken. Von Philosophie und Wissenschaft als Übung. Berlin 2010.

18 Compare Heidegger, Martin: *Der Ursprung des Kunstwerks* [1935/36]. In: Heidegger, Martin: *Holzwege*. Gesamtausgabe 1. Abteilung: Veröffentlichte Schriften 1914–1970. Vol. 5. Frankfurt am Main 1977, pp. 1–70, here pp. 44–48.

19 Weilacher, Udo: *Geschäftshaus Ernst Basler + Partner*, Zurich. In: Kienast, Dieter (ed.): *Kienast Vogt Aussenräume / Open Spaces*. Basel et al. 1999, pp. 144 et seq. Also compare Weilacher, Udo: *In Gärten*. Profile aktueller Landschaftsarchitektur. Basel et al. 2005, pp. 123–129.

20 Weilacher, Udo: *Geschäftshaus Ernst Basler [...]*, pp. 144 et seq. Also compare idem: *In Gärten [...]*, pp. 123–129.

21 Ibid.

22 The deciduous tree is *Tilia x europaea* 'Euchlora'; the bulbous plants are *Convallaria majalis* and *Allium ursinum*. There is a well-maintained document on the cultivated area and the tending and care measures by the person responsible for the open space site at *Ernst Basler + Partner*. Compare Ernst Basler + Partner: *Pflanzen beim Geschäftshaus Mühlebachstrasse 9–11*. Stand 2010 (unpublished document). Zurich 2012. For information on the vegetation covering the wall, also compare Hellbach, Martin: *Moose in der Landschaftsarchitektur: Untersuchungen zum Einsatz und zur Verwendung anhand ausgewählter Fallbeispiele*. Dissertation (unpublished document). Berlin 2014.

word “work” expresses the idea that components are not merely brought together, but are rather combined in such a way that more than the sum of the parts results. This is not achieved by components being added together but by something being designed. In his analysis of the work of art, Martin Heidegger plausibly argued that a work is not simply somehow brought together: whereas objects of utility are *produced* (“hergestellt”), works of art are *created* (“geschaffen”)¹⁸. This is not the place to address the question of whether landscape architecture is an object of use, a work of art, both or something else entirely. It suffices to state that there is a distinction between “producing” something and “creating” something. Through this linguistic difference we can express the idea that a park is “produced” by a building company, but “created” by a landscape architect – and not as a work of art, but as a *work of architecture*. This is not to undervalue the work of construction companies, but simply to highlight that planning and building are different activities. Furthermore, the work possesses one or more authors, however strongly this authorship may be conceived. Furthermore, as a rule the work persists, even after the author or the authors have ‘withdrawn’. We therefore use the term “work” here instead of “design result”. Accordingly, the word “work” is a *qualification* of the term “design result”: not every design result is a work; but every work is a design result.

This essay opened with the formal presentation of Weidinger’s model. Thereafter, five forms of knowledge were outlined which appear relevant in the present discourse on knowledge in the creative disciplines. The model presented by Weidinger integrates four of these forms of knowledge. In addition, we identified three positions which are preconditions for understanding the model. In the following, the model is applied partially: a dialogue is opened between an alien work (stage 4) and theories (stage 6).

ONE PART OF THE MODEL APPLIED IN AN EXAMPLE

The alien work is an open space design in Zurich. In the following, this site is brought into dialogue with theories. Is knowledge really gained through this process? And what kind of knowledge is it?

Open Space Design at Mühlebachstrasse 11 in Zurich

The example refers to the design of a small front garden plus courtyard. It is the headquarters of the mid-size engineering firm *Ernst Basler + Partner* in the centre of Zurich. The open space site is accessible to the public; the courtyard, however, only to the firm's staff and guests (see Figure 2). The site was designed and realised between 1995 and 1996 by Dieter Kienast (1945–1998) when the building was converted by the Zurich architectural bureau *Romero und Schaeffle*¹⁹. We start by briefly describing the site, in order then to discuss three aspects in the dialogue between theory and work.

Description of the work

The firm's headquarters are located in a residential area which was built in the 1920s as mostly six-storey block buildings. On the rear side of the building were communal or private courtyards, most of which have since been built on. At the front of the building were front gardens, which were generally replaced over the years with car parking spaces (see Figure 3). In the context of the conversion of the building, the decision was made to replace the parking area with a front garden²⁰. Two differently designed open spaces were realised. The front garden consists of a rectangular, roughly knee-high space, which in its alignment is oriented towards the front of the building. The area extends from the house to the pavement; it is divided into four sections: (1.) a strip of light green gravel (from the Swiss municipality of Andeern) along the front of the building²¹; (2.) an area of vegetation for 15 broadleaf trees cut in box-shape and bulbous plants (see Figure 4); (3.) a roughly hand-sized channel filled with pebbles and (4.) a water basin roughly a metre wide (see Figure 5). A further water channel, also roughly a hand span in size, marks the boundary between the front garden and the neighbouring house and extends from the building to the water basin. All areas are enclosed with a charcoal-grey steal wall. The courtyard is accessible via the ground floor of the building, specifically from a meeting room with full-length windows. A tuff-clad supporting wall divides the courtyard from the slightly higher street (*Kreuzbühlstrasse*). The wall is covered with moss, lichens and other, mostly herbaceous, plants²². At the foot of the wall is a water basin

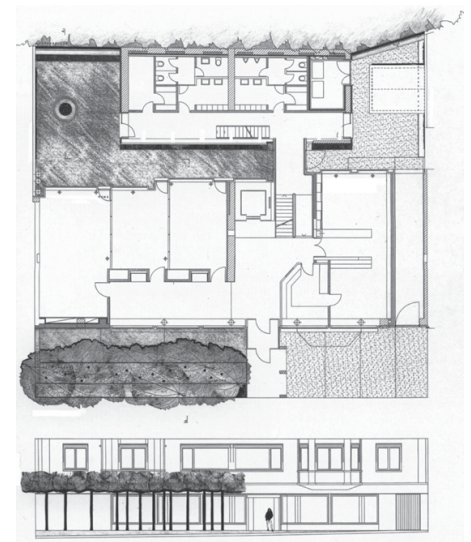


Fig. 2 Plan of the open spacesite by Kienast Vogt Partner Landschaftsarchitekten, 1:50 scale. At the top is a site view showing the front garden and courtyard; at the bottom is a view of the front garden (in the original coloured). © VOGT, modified



Fig. 3 View of the building's entrance area as seen from the building; the entrance area does not feature car parking spaces, but rather a front garden instead. © Christian Vogt



Fig. 4 The front garden is divided into four parallel strips: (1.) gravel area directly adjacent to the building, (2.) area for vegetation with deciduous trees, (3.) a channel filled with pebbles, and (4.) a water basin, which abuts the pavement.
© Christian Vogt

23 Erni, Andreas: Die inszenierte Versickerung. In: Anthos, Zeitschrift für Landschaftsarchitektur. Vol. 37, Issue 3, 1999, pp. 4–7.

almost a metre wide. Between the water basin and the grey gravel area is another metre-wide planted strip. An exposed-concrete trough filled with water stands slightly aside from the geometric centre, in the line of sight of the meeting room (see Figure 6). So much for the description; we have conveyed the sensual phenomena into language. Building on this, in the following, three aspects of the work are brought into dialogue with theories:

The mutual interplay of natural and artificial elements

Especially in urban areas, the question poses itself how to deal with accumulating rainwater. For example, it makes ecological sense not always to divert the water into the drainage system, but rather to have it seep away where it appears. Although the ground contains chalk, which complicates water seepage, through the work around 70% of the accumulated rain water can seep away where it accumulates. One part evaporates in the basins, on the wall or in the trough, or is used by plants²³. Concretely, in the front garden the accumulating water is dealt with in such a way that it first goes via a downpipe into a channel, which then carries it into a water basin. If the basin is filled with water, it runs into the roughly hand-sized channel of pebbles, which filter the water roughly. At the same time, the vegetation growing beside it is also watered. The water is thus not only discharged, but instead is primarily made experienceable by the work: depending on the daily weather situation, the basin is filled to a different extent (which can be observed daily); and depending on the weekly or monthly weather situation, the bulbous plants, for example, will thrive to different extents (which can be observed over a week or over several months).

In the courtyard too, the rain water is not only discharged but instead first collected as an experienceable element in the trough, which is fed underground. Water could be drawn from the trough, for example, in order to water pot plants or room plans. If the trough is filled with water after heavy downpours, it flows over the trough and glides down its external surface until it seeps away in the gravel area. The tuff-clad wall is slightly inclined towards the head of the slope. This enables earth particles, plant seeds

and water to pass into small holes and cracks in the slightly fissured tuff-stone. As a consequence, different views of lichens, moss and herbaceous plants emerge, which change over the course of the year²⁴. Increasingly, water on the roof of the neighbouring building is collected and discharged over the wall. At the foot of the wall, the water is carried into a smooth steel basin. The water running out of this basin reaches a vegetation area which is also planted with bulbous plants²⁵. Overflowing water finally enters the drains, avoiding flooding at all of the water basins.

A satisfactory provisional description would state that the work ‘reconciles’ natural and artificial elements. Today this is, in general terms at least, a given in many creative disciplines. But does ‘reconciliation’ really capture the phenomenon? What can be seen? Natural elements like plants and water and artificial elements like steel or concrete are combined in such a way that a *contrast* is produced. This contrast heightens the respective individual qualities of the elements. It is therefore imprecise to speak of something being reconciled in this case. Quite the opposite. We can speak instead of a ‘dispute’ between natural and artificial elements. This dispute does not occur in any individual place, however, but throughout a work which has been *created* for a place²⁶.

Jürgen Mittelstrass locates this kind of formation of artefacts in a world which he – admittedly rather difficultly – identifies as a “Leonardo World”. This term expresses the idea that the person inevitably and always finds herself in a world which she influences at the same time. In the artefacts of this world, “the natural and constructive features in the medium of the work are combined in a new essence of nature and in a new essence of construction and architecture. In a Leonardo World, the two are complementary modes of expression. Therefore, construction which considers this complementarity will be the authentic architecture of human beings, an expression in a work of the human condition in academic-technical cultures, and also a Leonardo World”²⁷. In this quotation one might recognise an ennobling of the ideal image of the Renaissance man, or a glorification of an anyway rather unclear definition of the authentic²⁸. It could certainly also be conceived of

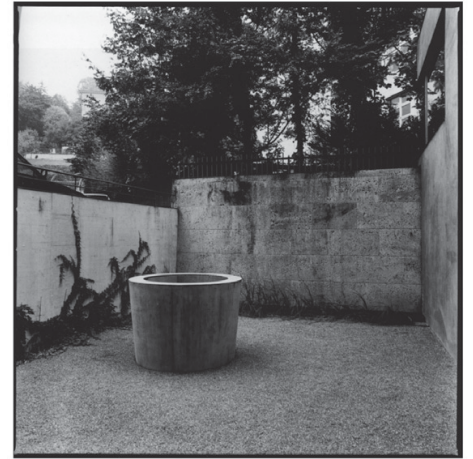


Fig. 5 A meeting room in the building looks out directly onto the covered wall in the back courtyard. The trough in the foreground collects water and holds it until it spills over the edge and finally seeps into the ground. © Christian Vogt

24 This indeed actually works. The seedlings of woody plants do sprout as well, but the shoots are removed once they reach a certain size. Compare Ernst Basler + Partner: Pflanzen beim Geschäftshaus Mühlebachstrasse [...].

25 See reference 21.

26 Here, the term dispute *does not* refer to the “Streit” that Heidegger discusses in *Der Ursprung des Kunstwerkes*. Compare Heidegger, Martin: *Der Ursprung des Kunstwerks* [...], pp. 1–70, here p. 35.

27 Mittelstraß, Jürgen: Bauen als Kulturleistung. In: Stiftung Bauwesen (ed.): *Der Bauingenieur und seine kulturelle Verantwortung*. Schriftenreihe der Stiftung Bauwesen zu “Der Bauingenieur und die Gesellschaft”, Vol. 6. Stuttgart 2000, pp. 11–25, here p. 23.

28 Compare Reichardt, Sven: *Authentizität und Gemeinschaft. Linksalternatives Leben in den siebziger und frühen achtziger Jahren*. Berlin 2014, particularly pp. 60–75.

29 See, e.g. Günther Fischer's analysis on the "ideological function" of construction as a cultural achievement as depicted by Vitruvius. See Fischer, Günther: *Vitruv NEU oder Was ist Architektur?* Basel et al. 2009, here pp. 189 et seq.

30 Poerschke, Ute / Führ, Eduard: Funktion, Zweck, Gebrauch in Architektur und Städtebau. Editorial. In: *Wolkenkuckucksheim | Cloud-Cuckoo-Land | Воздушный замок*, International Journal of Architectural Theory. Vol. 18, Issue 30, 2012, pp. 5–8, here p. 5. URL: www.cloud-cuckoo.net/journal19962013/inhalt/de/heft/ausgaben/112/1.4%20%20%20Editorial.pdf (accessed on 02–11–2014).

31 Ibid p. 7 et seq. URL: www.cloud-cuckoo.net/journal19962013/inhalt/de/heft/ausgaben/112/1.4%20%20%20Editorial.pdf (accessed on 02–11–2014).

as an extemporaneous, transcendental statement on the meaning of construction for the general cultural development of humanity²⁹. At least slightly different semantic levels could be produced in this conception: the trough is conceived as a well with all of its mythological and metaphorical dimensions, which additionally relates it to the tradition of fountains in courtyards. The work could also simply be interpreted as a representation of a company which works on water-related issues. These and other interpretations are possible. They should not distract us from the fact, however, that the presented work is also something designed on the basis of meaningful ecological considerations, which is at once experienceable and an aspect that often goes unperceived.

Subject, function, purpose

So that the seepage of the water can take place and at the same time be experienceable, a *certain* design is required. This is not expressed in a *specification* about how something is to be designed, but rather in a *principle of the design*. In the fifth stage of his model, Weidinger speaks of principles (see Figure 1). A relevant principle in this work can be described linguistically as a 'force field' between subject, function and purpose³⁰: a purpose (among other purposes) of the work consists, for example in the fact that the water can seep away and that this can at the same time be experienced. The purpose was established through the interaction between the developer and the landscape architect. In order for the purpose to be fulfilled, the design requires a function, which serves the purpose. The term "function" therefore is not subordinated to a solution such as "form follows function", which is anyway often misinterpreted³¹. "Function" gains its relevance through the insight that the form and the function follow the purpose and that the purpose is negotiated and finally established by one or several subjects. Whether the purpose is achieved depends on whether a successful utilitarian interaction with the work occurs. In the present case this refers to whether the water in fact seeps away and is thereby meaningful in ecological terms, and whether one, in part at least, experiences this process. Meanwhile, subject, function and purpose cannot be subordinated to any causality, but perhaps can be described as an interde-

pendency. This also makes it clear that it is meaningless to describe the result of a design – the work – as “true” or “untrue” in a natural scientific sense. The decisive factor is whether the work demonstrates its value through use³².

The familiar is shown anew

Moss, lichens, ferns and other herbaceous plants, which prefer low-substrata and a shady location, are not uncommon – not in Switzerland as a whole and not in Zurich. There they are often to be found on rustic natural stone walls. The wall in the courtyard, by contrast, consists of rectangular blocks, which are divided from one another by precisely determined gaps. The wall is also bordered with sharp-edges on all sides. If one looks from the window opposite one will have a constantly changing view depending on the season and individual living conditions of the plants. Meanwhile, the trough also stands within the field of vision; it rises from the wall, as a figure rises from the ground. The *Gestalttheoretiker* in the 20th Century in particular have pointed out the significance of the difference between the figure (“Figur”) and the ground (“Grund”) in our perception in general. One could also speak of a situation in which something emerges from a “field”³³. The wall is however, particularly because of its vegetation, not a fixed surface. Through the investigation of this work, the term can be defined more precisely: on particular days it is the case that – paradoxically – the surface (wall) steps in front of the figure (trough). In order to solve this paradox, one must state, reasonably, that the figure and the surface do not adhere to each other as entities in the objects, but instead that something always appears to one in a particular way – in this case: that something is always set off by something else. This means that the wall is sometimes noticeable, but sometimes it is not. However, the wall is not noticeable because something unusual is revealed. Rather, one becomes aware that the *familiar* (lichens, moss, ferns and other herbaceous plants) are shown in such a way that they *appear anew* and – through changes in the vegetation – *appear anew again and again*.

This makes it clear that a work of landscape architecture can show something. In a similar sense, for some time scholars have engaged intensively with the topic of the

32 Waldenfels, Bernhard: Wider eine reine Erkenntnis- und Wissenschaftstheorie. In: Idem / Broekman, Jan M. et al. (eds.): Phänomenologie und Marxismus 4. Erkenntnis- und Wissenschaftstheorie. Frankfurt am Main 1979, pp. 9–45, here p. 11.

33 Waldenfels, Bernhard: Das leibliche Selbst. Vorlesungen zur Phänomenologie des Leibes. In: Giuliani, Regula / Idem (eds.): Das leibliche Selbst. Vorlesungen zur Phänomenologie des Leibes. Frankfurt am Main 2000, p. 68.

34 Numerous studies from various disciplines on the “showing of images” have been published in recent years. To refer to one source here, see the well-known anthology by Gottfried Boehm: Boehm, Gottfried et al. (eds.): *Zeigen. Die Rhetorik des Sichtbaren*. Munich 2010.

35 Lambert Wiesing in particular discusses this in a recent work. Compare Wiesing, Lambert: *Sehen lassen. Die Praxis des Zeigens*. Frankfurt am Main 2013, particularly p. 92; for more on this topic, also see reference 34.

36 Examining the element of water for the experience, including the light reflections on the surface of the water, would be useful, particularly in the context of the “presenting” of the work. This issue cannot be discussed in this contribution.

“showing of images”³⁴. This should not be understood in its final linguistic sense to mean that a work can show something as a person does. Showing by a person is not the same as showing by a work. It cannot be a matter of humanising the work³⁵. It must be conceived more precisely that something in the work can be perceived by the person which without the work might not have been perceivable. And understood in this sense, the work can indeed show something – in the present case: something familiar again and again appears anew³⁶.

SUMMARY OF THE MODEL

Weidinger proposes a model which by means of a combination of methods contributes to the inclusion of the knowledge gained through the designing in a discourse about landscape architecture. In order to achieve this goal, he develops different stages of reflection. Two stages (4, 6) describe the dialogue between theories and an alien work. Both of these stages were presented here by being applied. Two questions now arise: does the example deliver an explanation of whether a form of knowledge emerges in the dialogue between theory and an alien work which can be placed in a discourse about landscape architecture? And, can this knowledge be assigned to one of the five forms of knowledge outlined at the start of this essay?

Even if within the scope of this essay only one example could be discussed in its application, there are – we can assert cautiously – some indications that make it appear fundamentally possible that in the dialogue between theory and an alien work knowledge emerges which can be transferred into a discourse about landscape architecture. On the one hand, it is at least partly clear that theories have not merely been conformed to the work, but rather that through the investigation of the work some theories have been explained or even made more precise. On closer investigation, it is even conceivable that the work could refute particular theories. On the other hand, some theories have shed light on phenomena which were discovered through these theories in the work. These indications suggest that it is legitimate to speak of a dialogue between theory and work in which knowledge can be gained. Since

this dialogue occurs in linguistic form, it can be transferred to a discourse about landscape architecture.

Before we now answer the second question, concerning what kind of knowledge this is, we must point out some complications and areas of potential of the model as a whole: (a) one complication lies in the fact that the model is conceived normatively. This means that the model is no longer a proposal for a mutual exchange between the theory and the work, but a prescription. (b) It is intensified through a graphic depiction. This could be problematic, however, not only for those who interpret the graphic depiction, but also for those who make it. For the content might be conformed to the model of the graphic mode of representation – meaning that the mode of depiction misrepresents the content. (c) There is also a danger that people strive not for a dialogue between theory and work, but instead simply *apply* a theory to the work. This could create the impression that the work is being not only over-valued but even legitimised. This risk exists for any discourse, however, even if no work is brought under investigation. In order to get around this problem at least in terms of the application, we should attempt to describe the work, so that this material composed in language can then enter a dialogue with other theories. This way, rash misappropriations of the work by theories can be reduced. (d) It is inevitably the case that certain theories are selected for the dialogue and indeed that these – as already stated above – are considered applicable to the dialogue. There is, however, no great difference in this case compared with any other investigation. Each investigation is dependent not only on the theoretical approach of the investigator, but also on the latter's whole corporeality³⁷. (e) The accusation could be made that the investigation involves an interpretation of the work. This is not the case, however, since it is not a matter of interpreting something in order to communicate the work. Through the mutual exchange between theory and the work, something should instead be discovered which – much more modestly – aims to make a contribution to reflection upon the discipline of landscape architecture. (f) The question is whether “design research” (or whatever it may be called) is needed for such an engagement. For there are finally numerous linkages

37 Compare Seiffert, Helmut: Einführung in die Wissenschaftstheorie. Second Volume. Phänomenologie – Hermeneutik und Historische Methode – Dialektik. Munich 2006, pp. 27–31.

38 For example, compare the more phenomenologically-oriented studies by Eduard Führr.

Führr, Eduard: Der arme, reiche Mann. Architekturwerk und Architekturgebrauch. In: Helmhold, Heidi / Threuter, Christina (eds.): Abreißen oder gebrauchen? Nutzerperspektiven einer 50er-Jahre-Architektur. Berlin 2012, pp. 144–160.

Or the studies by Jörg H. Gleiter, which take a more semiotic approach. Compare, e.g. Gleiter, Jörg H.: Präsenz der Zeichen. Vorüberlegungen zu einer phänomenologischen Semiotik der Architektur. In: Idem (ed.): Symptom Design. Vom Zeigen und Sich-Zeigen der Dinge. Architektur Denken, Vol. 7. Bielefeld 2014, pp. 148–180.

39 Adorno, Theodor W.: Funktionalismus heute. In: Idem: Kulturkritik und Gesellschaft I. Prismen. Ohne Leitbild. Vol. 10.1. Frankfurt am Main 2003, pp. 375–395, here p. 375.

40 Führr, Eduard: Die Kunst des Konjunktivs. Plädoyer für eine selbstbewusste Theorie der Architektur. In: Wolkenkuckucksheim | Cloud-Cuckoo-Land | Воздушный замок, International Journal of Architectural Theory. Vol. 13, Issue 25, 2009. URL: www.cloud-cuckoo.net/journal1996-2013/inhalt/de/heft/ausgaben/208/Fuehr/fuehr.php (accessed on 02-11-2014).

with a general consideration of landscape architecture, construction architecture, interior design, urban development etc. within a theory of architecture which decidedly integrates the result of the design – the work – into the investigation³⁸.

Aside from these difficulties, the model has a series of areas of potential: (a) the juxtaposition of theory and work is plausible because it overcomes the idea that thinking falls only within the area of theory and that action falls within the area of practice. The construction of a theory is – even outside of phenomenological discussions – not free of perception, just as practice is not free of thought. One can even understand a design as theory and a theory as design. (b) The dialogue between theory and work is interdisciplinary, meaning that very different academic approaches can be integrated as long as they contribute something to the dialogue. The considerable pool of social scientific open space planning research in the 20th Century could also make contributions here. (c) The greatest area of potential lies in the special approach of the investigation itself: its integration of the work. This is based on the conviction that the *designed* work contributes to structuring the *life world* (“Lebenswelt”). And it therefore seems sensible that the work be considered relevant in reflections upon landscape architecture. Finally, architecture in general is especially characterised by its relationship to materiality – to the idea of “material accountability, in contrast to the more casual, immaterial aesthetics”³⁹.

KNOWLEDGE AS THE KNOWN

Now to come to the second question posed by this essay: what can – in this example – be described as “knowledge”? What ‘form’ of knowledge is this? In order to answer this question, we need to differentiate knowledge from “theory” and “science”: theory is a result of scientific activity. Theory meanwhile is always hypothetical, since it can always be refined or replaced by other theory. Theory exists only as a proposition⁴⁰. Being a hypothesis, however, theory cannot necessarily be generalised, although theory can tentatively be placed in a more general context. Science, by contrast could be conceived of as a – some-

times more and sometimes less – systematically and seriously conducted activity of theory design and at the same time of theory communication. In this sense, science could be understood rather as an active undertaking, which aims to open a conversation (the theory) which aims to understand something but at the same time knows that the process of understanding never ends.

Knowledge however is not a theory, and therefore necessarily not a science either. Knowledge, theory and science are united by the fact that they are all not only characteristics of mental activity but also objects. The investigation conducted as an example here should clarify that knowledge is not without basis. Knowledge is gained through active interaction with the world – however inactive this may appear at first glance in certain cases⁴¹. What does this tell us about knowledge which is sought between theory and the work? This knowledge can, on the one hand, formally be assigned to the fifth form of knowledge outlined at the start, “knowledge through design results”. On the other hand, we must specify that this knowledge exists only as a form of thinking, which is directed by an *individual* person at *specific* phenomena between theory and work at a certain point in time. Accordingly, this knowledge should be understood less as a form than as a condition; *knowledge as the known*.

⁴¹ There are a number of studies on this, of course, particularly from the field of epistemology or – more generally – from the field of philosophy of science. Since Edmund Husserl’s work, if not before, knowledge and cognition, when considered from the phenomenological perspective (which may seem somewhat out of place in the current debate on cognition and knowledge in the “creative” disciplines), put a special emphasis on the interaction between human and environment with regard to the perception, cognition, acting and understanding, etc. of something. For more on this, compare secondary literature sources such as:
Espinete, David: Ansätze der neueren Epistemologie im Spiegel von Hermeneutik und Phänomenologie. In: Idem et al. (eds.): *Gegenständlichkeit und Objektivität*. Tübingen 2011, pp. 249–271.
Waldenfels, Bernhard: *Wider eine reine Erkenntnis- und Wissenschaftstheorie [...]*, pp. 9–45.
Zahavi, Dan: *Husserl’s Phänomenologie* [2003]. Tübingen 2009, here pp. 6–40.

NOTE

It might, for readers or listeners, be important to know that there is in Finland existing a new kind of university, namely the art university. The Theatre Academy, The Sibelius Academy and The Finnish Academy of Fine Arts belong to this category – they each are small autonomous universities with the right of examining students on pre- and postgraduate (including doctoral) level according to artistic standards. In 2013, these three universities merge into Art University Helsinki, still a small institution compared to so called normal universities. Because of being autonomous institutions with the task of educating artists, the Finnish art universities are able – without the big problems inherent with traditional sciences or universities – to develop a new paradigm within academic research – namely artistic research. This process is however not a simple one and I will in my following text try to describe essential features of (doctoral) training within fields of artistic research.

ARTISTIC RESEARCH FORMALIZED INTO DOCTORAL PROGRAMS

Jan Kaila

INTRODUCTION

The following text is based on my own experiences as a student (from 1997 to 2002), and as a professor of artistic research (from 2004 to the present) within the doctoral program at the Finnish Academy of Fine Arts. Although I will touch upon some of the fundamental ontological and epistemological issues of artistic research, I will mainly focus on the practical aspects of doctoral programs and artistic research.

1 THE CONCEPTS OF ARTISTIC RESEARCH AND PREJUDICES AGAINST THEM

Practice-based research, practice-led research, studio-based research, performative research – there is no shortage of names describing research conducted in art universities and other higher education art-institutions. The nuances and slight differences between these terms are not relevant, however. They all seek to put a name on research in which practice plays a more central role than in so-called ‘purely’ theoretical and/or conceptual research. A much more important distinction is that between *arts research* and *artistic research*.

Arts research is the investigation of objects or phenomena of art that are separate from the person conducting the research and therefore the researcher’s direction is towards the art. Artistic research is an investigative endeavor undertaken with the means of and the direction here is from *art towards the world*. Arts research is traditional qualitative academic research, in which new knowledge is communicated textually in the form of a disser-

tation, just as universities have always done, whereas, in artistic research, the process and result consists not only of text or other type of verbalizations, but also works of art intended for sensory appreciation, and whose meaning may be quite complex and ambiguous.

The artistic aspect of artistic research has often been criticized for containing a dimension of subjectivity and relativity. In essence, the critics ask: How does this kind of practice differ from other artistic practice, what is the need for so-called research? Is it not enough that artists make works of art just as they have always done? In what follows, I will try to respond to this criticism.

Works completed within the context of artistic research do not necessarily differ dramatically from art made 'elsewhere' in the art world, and the venues where they are exhibited are often traditional art galleries and museums. However, only few critics of artistic research have discussed the fact that the practice and works of doctoral students may have developed during their studies in a direction that would not have been possible under the conditions of 'ordinary' artistic practice. How can such development be promoted in practice, and how is it evaluated? It is promoted, just as the work of students is promoted in all branches of education, through pedagogy, that is to say, professional and competent artistic supervision as well as seminars and critiques that take place within a circle of others engaged in research. It is evaluated by experts (supervisors), numerous visiting critics, and finally by external opponents.

It should be borne in mind that artistic research also includes writing or other types of verbalization. It does not necessarily have to be scientific and academic, but it does have to produce knowledge in its own field, and at best also to serve others who are interested in art. There is a general misconception that artists engaged in artistic research only write about themselves or their own work. In actual practice, however, artists may even be too careful not to focus on themselves and their own practice, in which case they run the danger of drifting too far from their own core competence. The 'self' seems to have

become almost a taboo, which is rather surprising, considering the increasing prominence of auto-ethnography in humanistic and social-scientific research. One reason for such neglect of the self may also be that the notion of artists as people who have 'a big ego endlessly generating itself' has lost its prevalence – operating in the world of contemporary art demands that practitioners engage in constant contextualization, sometimes even too much of it.

There is also an interesting issue in artistic research that has largely been overlooked, namely the question of what effects reflection and contextualization of one's practice, undertaken in writing, have on the artist's works. There has, of course, been some discussion on this, but it has mostly been rather superficial, and has even in some cases involved underrating the artist's intellectual capacity. In the golden age of Modernism (mostly in the 1940s and 1950s) it was actually thought, rather simplistically, that 'verbalization has a detrimental effect on the artist's freshness and uniqueness' or that 'a conscious artist will only illustrate theories'. Through most of history, a writing artist has been considered more or less a curiosity; some have even advanced the notion that art making is a kind of compensation for not being able to express oneself in writing or conceptually. This has changed over the past couple of decades however, especially in the 1990s: many contemporary artists are excellent writers, and it has been discovered that many artists who in the 1950s and 1960s were considered 'mute' did actually write, but never published their texts. And one only needs to take a look at the shelves of any major art bookshop in Europe or America: there is a new category known as 'Artists' Writing'.

But to return to the main question: How are artists and their practice affected by theorizing, contextualizing and writing? Are the artists more conscious as a result? Does it improve their eye for the artistic game? Yes, certainly – there is no doubt about it.

But these are fairly automatic results, and any artist worth his or her salt is careful not to become a mere mechanical producer at the expense of his or her artistic creativity. A much more interesting effect is that which takes place

in between practice and thinking (or writing/theorizing/contextualizing), in the meeting between the cognitive and the bodily and sensory aspects of the craft. It is this grey area which comprises the greatest benefit that artistic research confers on the artist, his or her colleagues and audience, but the underlying methodology and associated 'knowledge' are difficult to define and to share.

2 THE ARTIST AND DOCTORAL EDUCATION

Many doctoral programs do not like to take on recent graduates, demanding that their students, after master education, have practical experience of operating in the profession. This is a sound principle – after all, doctoral studies are much more demanding than studies for the Master's degree. Student admission is one of the most difficult and complex issues in any doctoral research program. One key factor in this is that, unlike the BA or even MA level, post-graduate education does not seek to 'shape' students, but is instead concerned with steering their interests towards research. The main criterion for doctoral student admission is therefore not talent and/or skills, but suitability. Consequently, we must ask: do the portfolio and research plan of the prospective research student include such elements that they might eventually constitute artistic research? And what would such 'elements' be? The question could also be reformulated more broadly and more provocatively: are all artists (with an MFA in their pocket) suited to artistic research on the doctoral level?

Artistic research requires that the student have the desire and the ability to engage critically in the interaction between conceptualization and practice. It is clear that this is not every artist's cup of tea, if only for the reason that many are quite satisfied with just the practice. Moreover, many artists find it difficult to make long-term commitments to a specific theme, research question and research plan. But what about those who have the willingness and the interest – are some of them more suited than others, and how can we find out? Perhaps by reading their research plans? Undoubtedly so, but it is at least as important, if not more important, to consider the evaluation of the prospective students' portfolios as part of the

admission criteria themselves. This may sound a truism, but it is not. Portfolio evaluation calls for experience in traditional artistic practice as well as research, and most artists do not possess this combination, not to mention the required theoretical knowledge. This lack of expertise is quite common in institutions of artistic research – they simply lack the required tradition, experience and structured guidelines...

In art universities linked to science universities, this lack of competence is solved by delegating evaluation to people with formal qualifications, which in practice translates to doctors of academic disciplines – which is unforgivable, considering the nature of artistic research. My contention is that the criteria of a good application to artistic doctoral research program should include not only an interesting textual research topic, but also, and more importantly, artistically interesting work. If this is not the case, artistic research runs the risk of ending in a ghetto of uninteresting arts research.

POSSIBILITIES OF DESIGN IN THE RESEARCH LANDSCAPE

Martin Prominski

There is plenty of excellent abstract reflection on design research¹, but very few reflections on implemented design research projects, especially those which have received external grants and thus been recognized by mainstream research institutions such as the DFG (German Research Foundation – the main research funding institution in Germany). Obviously, one of the reasons for this discrepancy is the low number of design research proposals accepted, especially in landscape architecture. One problem is posed by the difficult criteria these research foundations set for proposals, which make it impossible that single designs or “just designs” qualify as research. From reviewers of research proposals the DFG demands evaluation of the following aspects²: The proposal has to be original – it needs to pose a new research question. This question has to be relevant inasmuch that working on it will result in an advancement of knowledge. This knowledge has to be of scientific significance, thus the proposal has to reflect the scientific context in a critical way and set itself in relation to it. Finally, a broader impact has to be demonstrated by showing how the knowledge can be communicated and transferred to future cases.

So far, the author has had experience with two different design research strategies that meet these criteria. The first one is rather classical and works with existing design projects (which could be designed by others and/or yourself). However, design projects themselves are not the conceptual core of the research; rather, they are embedded in a much wider context and reflection. This starts with the development of the research questions, which in my view is always the most important part of any research

¹ Borgdorff, Henk: The Debate on Research in the Arts. In: Focus on Artistic Research and Development, no. 02, Bergen 2007.

Michel, Ralf (ed.): Design Research Now. Basel 2007.

Mareis, Claudia: Design als Wissenskultur. Interferenzen zwischen Design- und Wissensdiskursen seit 1960. Bielefeld 2011.

² Deutsche Forschungsgemeinschaft (DFG): Guidelines for the Written Review. URL: www.dfg.de/formulare/10_20/10_20e.pdf (accessed 19-07-2012).

endeavour. Only these questions can set the criteria to identify the appropriate design projects, furthermore they define the broader theoretical context from which the projects can be analyzed and reflected. The result of this reflection should be the generation and communication of transferable knowledge.

In contrast, the second research strategy cannot rely on existing projects because the research question is so new and unique that there simply are no design examples in the world to be studied. Thus, the research needs to work with designs proposed by the research team, which then have to be reflected upon in the light of the research questions, and in the end the result should also be the generation and communication of transferable knowledge. This second strategy is much more exciting from a design perspective, but less frequent because, in actual fact, new questions do not come up very often. In the following, three research projects will be presented – one working with existing designs, one with proposed designs, and one that mixes existing and proposed designs.

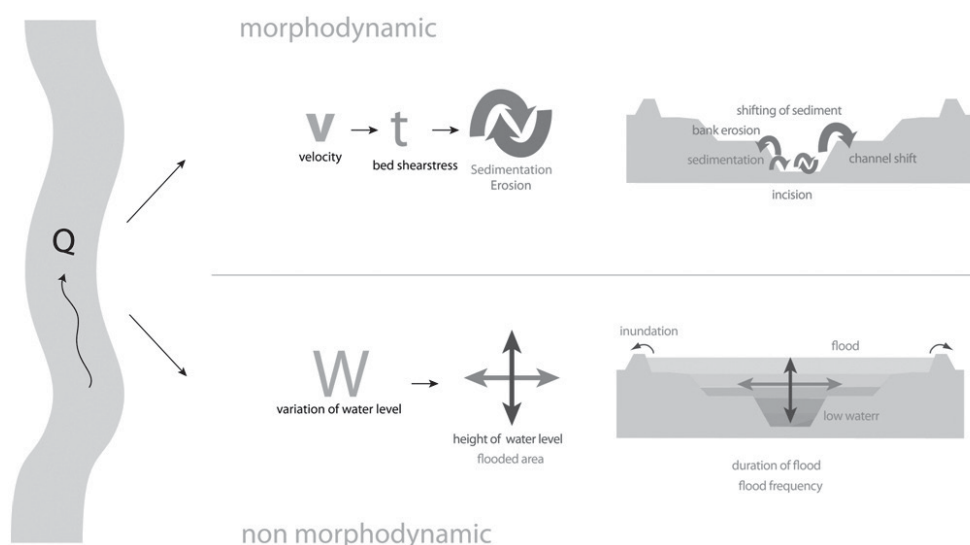
1 PROCESS-ORIENTATED DESIGN OF URBAN RIVER SPACES (WORKING WITH EXISTING DESIGNS)

This research project was funded by the German Research Foundation (DFG) from September 2008 to September 2011. The team leaders were Antje Stokman and the author, supported by Susanne Zeller, Daniel Stimberg and Hinnerk Voermanek as research staff. It originated in the context of the European Water Framework Directive (2000) and the European Flood Directive (2006), which demand an integrative management plan of water systems as well as flood risk management plans from all EU member states. Our hypothesis was that concentrating exclusively on flood protection and ecology – a pragmatic approach that many communities were likely to follow – meant that the open space quality of urban river spaces would be increasingly neglected. There are already many examples where dikes or other protection devices have been made higher, blocking or obscuring visual and physical contact between the urban fabric and the river.

From this perspective, we were interested in a multifunctional approach and asked the following research questions in our proposal: How could the demands of flood protection, ecology and attractive open spaces be connected in process-orientated design strategies? – and, because we also thought that representation of processes was a neglected issue, we added: How could the complex relations between design elements and water dynamics be described and graphically communicated, rendering them transferable and applicable for future design tasks?

We started by identifying existing best-practice projects in Europe that already implement a multifunctional approach. The projects – finally amounting to fifty – selected for further analysis represented a broad spectrum of scales and situations for urban river spaces. After visiting and describing them, the most difficult part of the research began: How to organize and abstract the different aspects of the designs so that transferable knowledge could be gained from them? Since water processes played such a crucial role, we started by clarifying what processes actually occur in river spaces. We came up with a fundamental division into two types: morphodynamic processes which actually change the river space by sedimentation and erosion, and non-morphodynamic processes which only involve a change in water level without changing the river space itself (Fig. 1).

Fig. 1 The two fundamental types of river processes: morphodynamic processes and non-morphodynamic processes. © Martin Prominski et al.



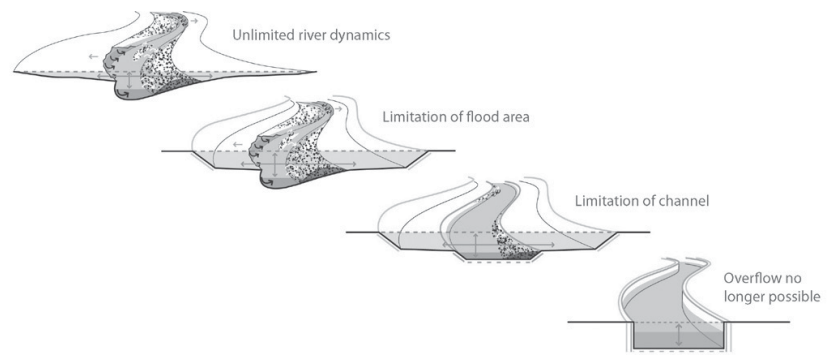


Fig. 2 Limits to control river processes. © Martin Prominski et al.

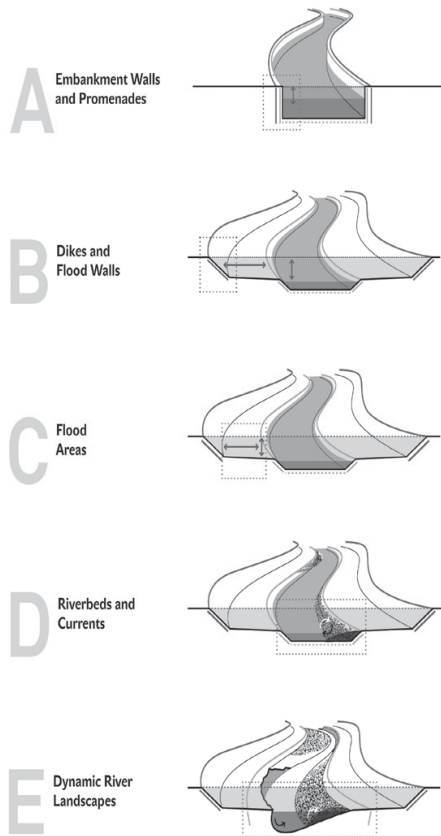


Fig. 3 For urban rivers, there are five types of process spaces. © Martin Prominski et al.

In each urban river space, these two processes are more or less controlled by setting limits. One line sets the limitation for floodwater; another line limits the channel development (Fig.2). The two process types along with the two limit types gave us a specific point of view from which to analyze our fifty urban river spaces. We found that there are basically five different spatial types, each of which has its specific strategy to deal with water processes. We called those types “process spaces” (Fig. 3). This abstraction, which allowed us to systematize the broad range of specific solutions, was the most crucial phase in the research project. It took many months with several failed attempts to arrive at this typology – it was like designing where you play with different solutions until you finally arrive at a coherent proposal that fulfills the program with elegance.

For the five process spaces, we proposed four to six different design strategies, again by abstracting what we saw in our specific design cases (Fig. 4). Each strategy has its specific design elements illustrated in a conceptual way, giving future designers more freedom to transfer these approaches to their specific cases.

In summary, the analysis of existing projects was embedded in a preliminary set of original research questions and a following systematic reflection of their basic design strategies. The result is an abstraction of process spaces with specific design strategies and elements that can be transferred to future design cases of urban river spaces.

We communicate this new knowledge in a “topological atlas”³ and hope it will have a widespread effect to facilitate multifunctional solutions for the many new urban river spaces which will have to be designed in the near future in Europe and beyond.

3 Prominski, Martin / Stokman, Antje / Stimberg, Daniel / Voermanek Hinnerk / Zeller, Susanne: River. Space. Design. Basel 2012.

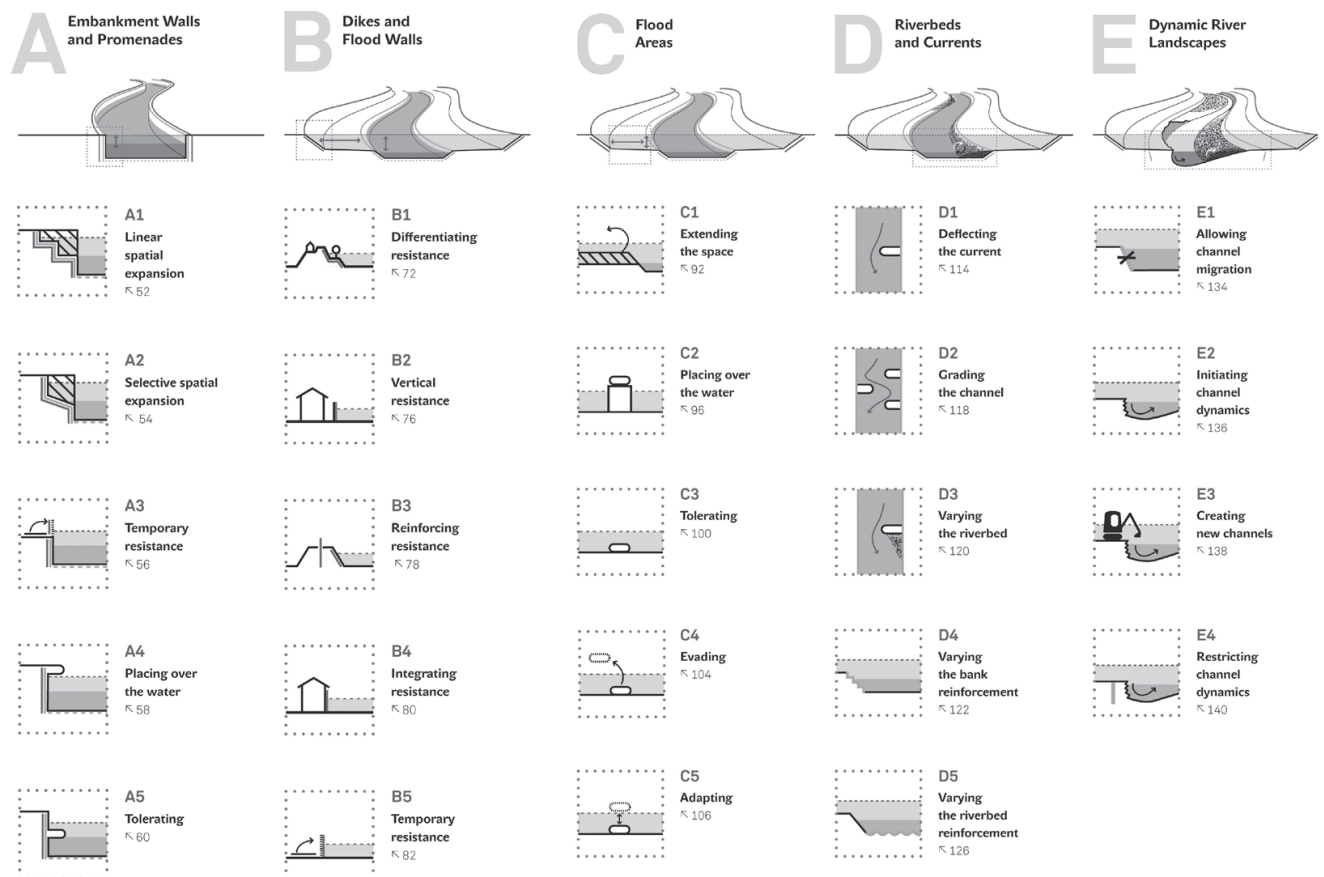


Fig. 4 Design strategies possible within the five process spaces.
© Martin Prominski et al.

2 DESIGNING URBAN NATURE (WORKING WITH EXISTING AND PROPOSED DESIGNS)

This ongoing project, funded by the Deutsche Bundestiftung Umwelt (DBU), started in February 2012 and will end in November 2013. Its motivation derives from the fact that compensation measures, the result of environmental impact assessments, generate spaces which are often devoted solely to nature protection and exclude human uses. This leads to conflicts, especially in the urban realm, due to the limited availability of space, and sometimes even to acceptance deficits for nature protection itself. Thus, we proposed the following research question: Within processes of environmental impact assessment, how can nature compensation be combined with open space use to

create multifunctional urban spaces? The research team dealing with this question is led by the author, and the research staff comprises landscape architect Malte Maaß and environmental planner Linda Funke. Additionally we have two project partners, the “Free Hanseatic Town of Bremen, Senator for Environment, Construction and Transport” and “Town Development and Environment Authority of the Free and Hanseatic Town of Hamburg.” These partners bring a productive challenge to the research because they each have a concrete design task where they want to apply the preliminary results of the project. In Bremen, we will work on the “Waller Fleet,” a huge allotment garden area to the north of a working-class district. It is separated from the city by railway tracks and a motorway, and due to this and other disadvantages an increasing number of lots are falling vacant. The city is now following a strategy to pool its compensation measures in the “Waller Fleet” and wants to create an area where leisure and nature protection form a productive symbiosis. The task in Hamburg is completely different. According to paragraphs 20 and 21 of the German Nature Protection Law, the city must develop a network of habitats within its territory – but because of its high settlement density Hamburg cannot rely solely on nature protection areas to achieve this goal; it also has to integrate existing green open spaces. Thus, appropriate areas need to be identified where compensation measures help to enhance the habitat without decreasing amenity value.

The project starts similarly to the urban river research, with identifying and analyzing best practice examples that combine nature protection and open space use. Design strategies and elements of these examples will be provisionally systematized and abstracted to serve as a basis for the designs in Bremen and Hamburg. In designing these two projects, we shall be very open in the beginning by testing a broad spectrum of strategies. Our hypothesis is that we will expand the range of design strategies by transforming existing ones as well as by inventing completely new ones. Since the two design tasks in Bremen and Hamburg are broad and complex, we are optimistic that they can play a significant role in developing relevant design strategies. This “research through design” phase

will be finished shortly after halfway through the research project, and the following main phase will then systematize and abstract the multifunctional design strategies and elements derived from both existing and proposed designs. In the end, the results should be published as a design guide for nature compensation in urban areas.

3 DESIGNING POST-OIL-REGIONS (WORKING WITH PROPOSED DESIGNS)

Until today, no realized large-scale landscape design for renewable energy landscapes has been implemented in Germany. The subject and its urgency is so recent – with the decision by the German parliament for the transformation of the energy system was made only in July 2011 – that the consequences have not even been thought through. Thus, for this topic one cannot rely on any existing project from which to learn. Instead, design can exercise its potential for conceiving future realities.

The issue of renewable energy landscapes is pressing. Targets set by the German government (e.g., 80% of energy demand to be met from renewable sources by the year 2050) will have a significant impact on the German cultural landscape because the main types of renewable energy sources – wind power, solar collectors and biomass – need a lot of surface area. So far, these renewable energy producers are mainly seen as a blot on the landscape, and their acceptance in (German) society is low. Even so, landscape architecture could have the capability to generate a win-win situation by using these elements to create an even stronger landscape identity than that without renewable energy sources. To achieve this, it is crucial to shift the focus from the energy sources themselves – which is currently dominant – towards the landscape.

The following research question can be derived from this situation: How can we design renewable energy landscapes that enrich a region's identity and spatial quality? The author has not received an external research grant to deal with this question so far, but we have been working intensely on the topic in design studios with students. This type of teaching is an ideal testing ground for dealing with research questions, and sometimes the results could even count as full research.

In the winter term of 2011/12 we sent our students the abovementioned research question in the design studio “Post-Oil-Region – the example of the Bremen region” (taught by the author together with regional planner Prof. Rainer Danielzyk; Bachelor of Science Landscape Architecture and Environmental Planning, fifth Semester; additional tutor Dipl. Ing. Börries von Detten). The aim of the studio was a design vision for the region of Bremen in the year 2050 under the premises of the “energy transition”, i.e., 80% of electric power and 50% of heat demand to be met from renewables. The studio started with a research phase on renewable energies as well as the landscape of the region. After this, a mix of analytical methods (e.g., land use diagrams or topographical models), intuitive studies (e.g., atmospheric collages) and interviews (with residents as well as stakeholders) set the basis for the regional design vision. Each group had to prove that the amount of renewable energy in their designs would match the expected demand for electricity and heat in 2050, for which we had pre-set calculated figures. The students should focus on just three types of renewable energy sources: wind turbines, solar collectors and biomass, because geothermal energy and water energy do not have significant potential in this region. In the following, three different approaches will be presented.

FORMAL APPROACH: ENERGY RINGS

(LISA OHLS, JENNIFER RAUF, LUISA WALTERBUSCH)

This design places renewable energies in circular rings around the cities or larger villages in the region. Only the city of Bremen is not included because it has not enough open countryside around it. Since a city of Bremen’s size (550,000 inhabitants) without an urban hinterland can, in principle, never be self-sufficient in terms of renewable energies, the other cities and villages have to support it. The ring around the cities or larger villages is a sufficient distance from the settlement area and should provide the necessary amount of electricity and heat needed for the respective city or village, plus a surplus for the city of Bremen (Fig. 5). The goals of this concept are manifold: By creating a closeness of the residents to renewable energies as well as profit sharing by community wind- and solar parks, it aims to improve the identification of residents with the

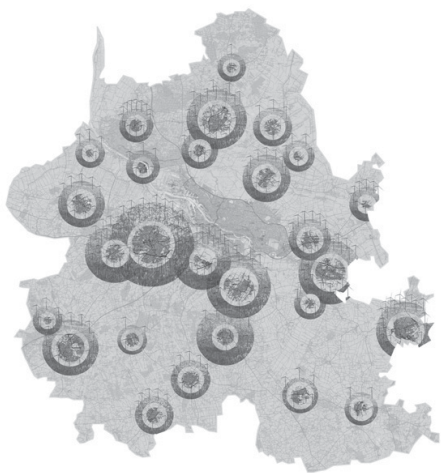


Fig. 5 Energy rings with perspectives that show how the concept is strategic rather than formal. © Lisa Ohls, Jennifer Rauf, Luisa Walterbusch

new energy sources. Furthermore, a fair distribution of charges is reached through the precise relation between local energy demand and the surface area needed. It is necessary to stress that the energy rings are first and foremost a strategic device – aesthetically they are surprisingly insignificant.

LANDSCAPE TYPOLOGY APPROACH: SPACE OF STRUCTURES (CONSTANTIN MÄHL, MELANIE SYRING, BENTE TREMP)

This team started with an in-depth analysis of the regional landscape characters, and six typologies with different structures were identified. The arrangement of renewable energies builds upon these structural features and articulates the distinctive qualities of each of the six regional landscapes (Fig. 6).

Chain Space

This landscape type developed along the border between geest and marsh and is characterized by chains of settlements and woodlands. Wind turbines and biomass areas are also arranged in chains to bring out this character. The wind turbines are set at the higher level of the topographical edge and permit better readability of the topography.

Mesh Space

A dense mesh of drainage ditches in this former peat bog area still dominates the landscape character. Only wind turbines are used for renewable energy supply in this area. They are placed in fields of 15–30 installations at the intersections of ditches, creating a windpower mesh as an additional landscape layer.

Band Space

Settlements are orientated along drainage channels, an arrangement that creates a linear appearance of the landscape. Wind turbines and photovoltaic are combined in rows to emphasise the landscape character.

Mosaic Space

This spatial type covers the city of Bremen and its suburbs. In this mosaic of different building typologies, only photovoltaic and solar thermal collectors are possible. The designers give no rules for their distribution and the char-

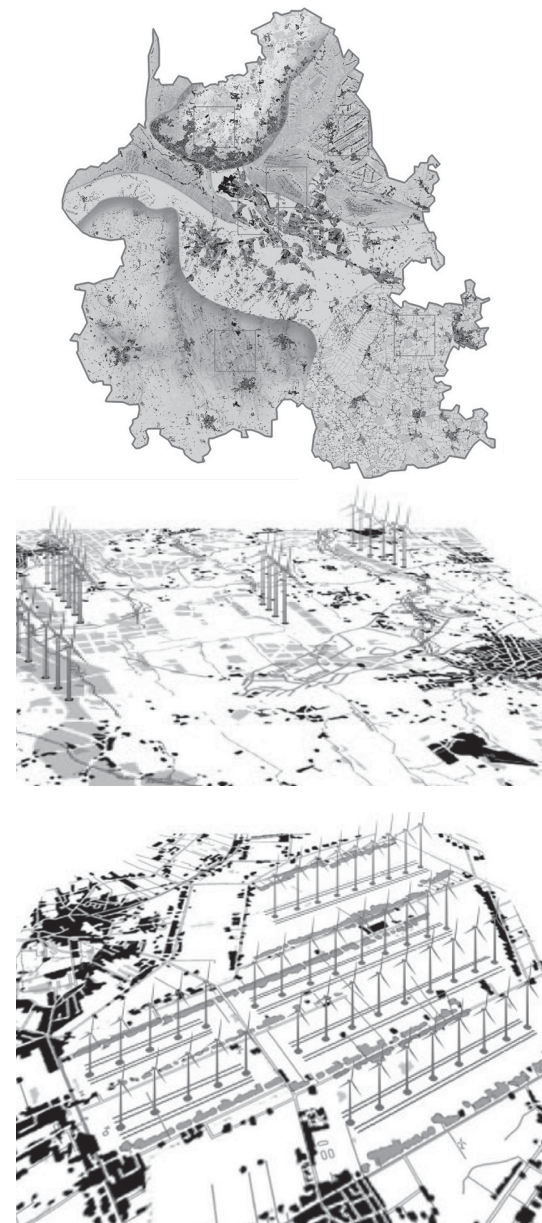


Fig. 6 Concept “Space of structures” with two examples of typologies: chain space (top) and band space (bottom). © Constantin Mähl, Melanie Syring, Bente Tremp

acter of the mosaic will be intensified by the random distribution of these rooftop elements.

Furrow Space

This part of the region is characterized by several rivers that cut into the Northern German plain. Wind turbines and biomass areas are set along these cuts to emphasize the change in level.

Point Space

In this less densely settled part of the region, villages and farms are like small dots in a green sea. To support this small-scale character, wind turbines will be placed only in small groups of 3–5 and biomass areas will be of limited size and random distribution. By this composition of renewable energy sources, sensitive to the existing landscape characteristics, the designers aim to increase their acceptance among the inhabitants.



PATH NETWORK APPROACH: IN SIGHT OUT –
ON THE PATH OF RENEWABLE ENERGIES
(FELICITAS HÖRINGKLEE, FRAUKE LEIFERT,
VICTORIA WIERSDORFF)

The focus of this design is an existing bicycle path, 220 kilometres long, the “Grüner Ring Region Bremen”. It circles the city of Bremen at a distance of between 20 and 40 kilometres and passes through the main landscape types of the region – marsh, peat and geest. The aim of this group was to arrange renewable energy sources along this path to enhance its aesthetic experience. To achieve this, the group concentrated on the distribution of wind turbines, placing them strategically along the path, while biomass and solar collectors were distributed evenly in the region (Fig. 7).

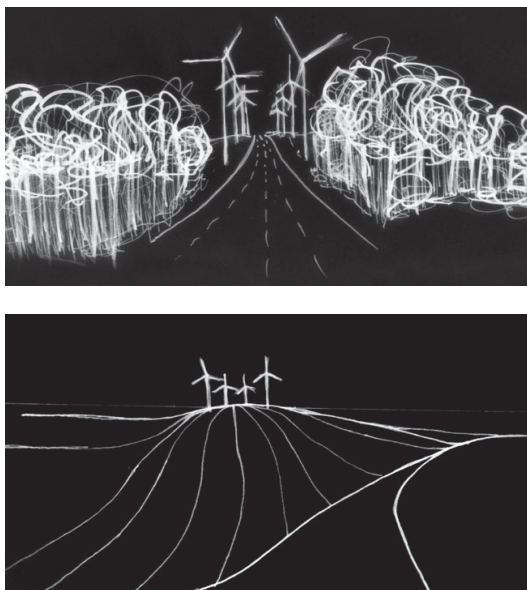


Fig. 7 “In sight out – on the path of renewable energies” with two examples of the scenography: double rows of wind turbines create deep perspectives (top) or small groups of wind turbines on existing elevations serve as landmarks (bottom).

© Felicitas Höringklee, Frauke Leifert, Victoria Wiersdorff

In a scenographic concept, the students explained their strategies: Some placements of wind turbines work with the topography, e.g. single rows along topographic edges increase their readability or small groups on existing elevations serve as landmarks. In flat areas, double rows of wind turbines are used to create deep perspectives, or large fields in loose order emphasize the vastness of the Weser plain. Overall, every strategy treated the existing

qualities of the landscape in a sensitive way and generated new visual relations as well as aesthetic effects. The concept proves that an intelligent spatial design with wind turbines can improve the experience of riding or walking along this regional paths.

In summary, the design studio “Post-Oil-Region” already expresses many aspects of “research through design”. It has an original research question and comes up with a typology of design approaches, which is an advancement of knowledge. Still missing in this and other ambitious design studios is a wider reflection on the results that should then be communicated to achieve a broad impact. Conventinally, most design studios just stop after the designs are done by the students; exceptions are some good examples where the teachers continue the studio by reflecting upon the results⁴ or in the “Pamphlet” publication series⁵ by the chair of landscape architecture at ETH Zurich, Christophe Girot. An even more promising strategy to make the most of design studios could be that master studios at universities include a reflection phase in their schedule after the designs are finished. In this way, students could already contribute to the larger context of research through design.

CONCLUSIONS

We have discussed two different strategies for design research. Design projects played an important role in them – in one case existing designs, in the other case proposed designs. Even so, it became clear that design research cannot be based solely on design projects. They have to be embedded in a larger theoretical framework, one which starts with a research question that is a result of reflection on the cultural and scientific context. In the end, further reflection is necessary: How can the insights from the designs be transformed into knowledge which is transferable to other, future cases? And finally, how can this knowledge be communicated? Only if this demanding reflection at many levels is successful can the above-mentioned criteria of research institutions be met, and design work become design research.

4 E.g., Roncken, Paul A.: Rural Landscape Anatomy. In: Public Space and Civil Yards in Dutch Rural Landscapes of the Future. *Journal of Landscape Architecture*, 2006, pp. 8–19.

Roncken, Paul A. et al.: Landscape Machines: Productive Nature and the Future Sublime. In: *Journal of Landscape Architecture*, 2011, pp. 68–81.

5 Girot, Christophe (ed.): Pamphlet. Publication series, Zurich, since 2005.

1910s	GREEN MODERNISMEN Fig. 1 Schillerpark Berlin, Friedrich Bauer. © Susanne Yacoub	1980s	POSTINDUSTRIAL Fig. 7 Landscapeparc Duisburg- Nord, Peter Latz. © Latz+Partner
1920s	ART DÉCO Fig. 2 Le jardin Gabriel Guevrikan in Paris. © Rachel K. Ward	1980s	DECONSTRUCTIVIST Fig. 8 Parc de la Villette in Paris, Bernard Tschumi. © Philip JSF Winkelmeier
1930s	MONUMENTAL Fig. 3 Maifeld and Olympiaparc Berlin. © Hansa Luftbild	1990s	CORPORATE Fig. 9 Autostadt in Wolfsburg, WES LandschaftsArchitektur. © Jörg Modrow
1950s	ABSTRACT FORM Fig. 4 National Horticultural Exposition Swizerland in Zurich, Ernst Cramer. © ASLA Archiv für Schweizer Landschaftsarchitektur	1990s	MATURE FORM Fig. 10 Landscape Parc Munic-Riem, Gilles Vexlard, Laurence Vacherot / Latitude Nord. © Wolfgang Mülke
1960s	STRUCTURALIST Fig. 5 Ira Keller Fountain in Portland, Oregon, Lawrence Halprin. © The Cultural Landscape Foundation	2000s	NEW SENSUALITY Fig. 11 Princess-Diana-Memorial in London, Katryn Gustafson / Gustafson Porter. © Nicolai Benner
1970s	DEMOCRATIC-ORGANIC Fig. 6 Olympiaparc Munich, Günther Grizmek. © Olympiapark München	2010s	CRISIS Fig. 12 Tempelhofer Fields in Berlin. © Philip JSF Winkelmeier

INFLUENTIAL PROJECTS AS CONTRIBUTION OF KNOWLEDGE TO THE DISCOURSE OF LANDSCAPE ARCHITECTURE

Jürgen Weidinger

How, in the field of landscape architecture, does progress arise? How much influence do academic disciplines have on the discourse of landscape architecture, and how significant, in contrast, is the influence exerted by seminal landscape architecture projects. The influence of the projects shown here is generally recognized, both amongst designers and in landscape architecture critique and theory. The recognized effectiveness of these influences is evidence for the new knowledge that is generated through designing.

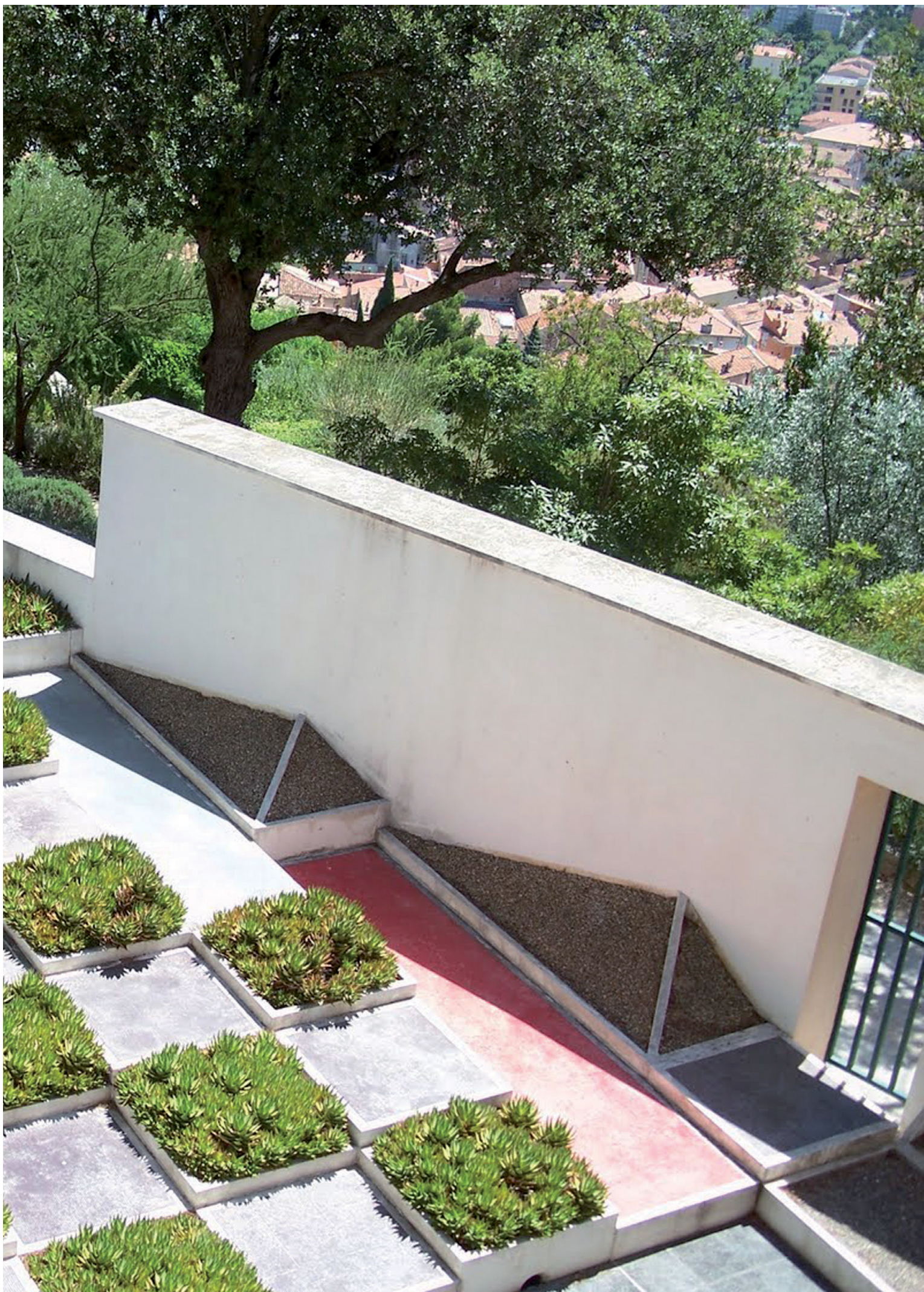
For the academic disciplines, such as landscape architecture theory, structural engineering or project management, knowledge from design projects is transferred though explicit and verbalized, or mathematically described knowledge.

For designers knowledge from design projects is transferred through implicit knowledge. The design project or the built

space includes the new – be it of aesthetic or functional quality or as a synthesis of both – in form of new spatial composition. Knowledge for designers is contained in form and composition. The extraction of new knowledge from design projects, either of explicit or implicit nature, represents research in form of critical descriptive and evaluative processes.











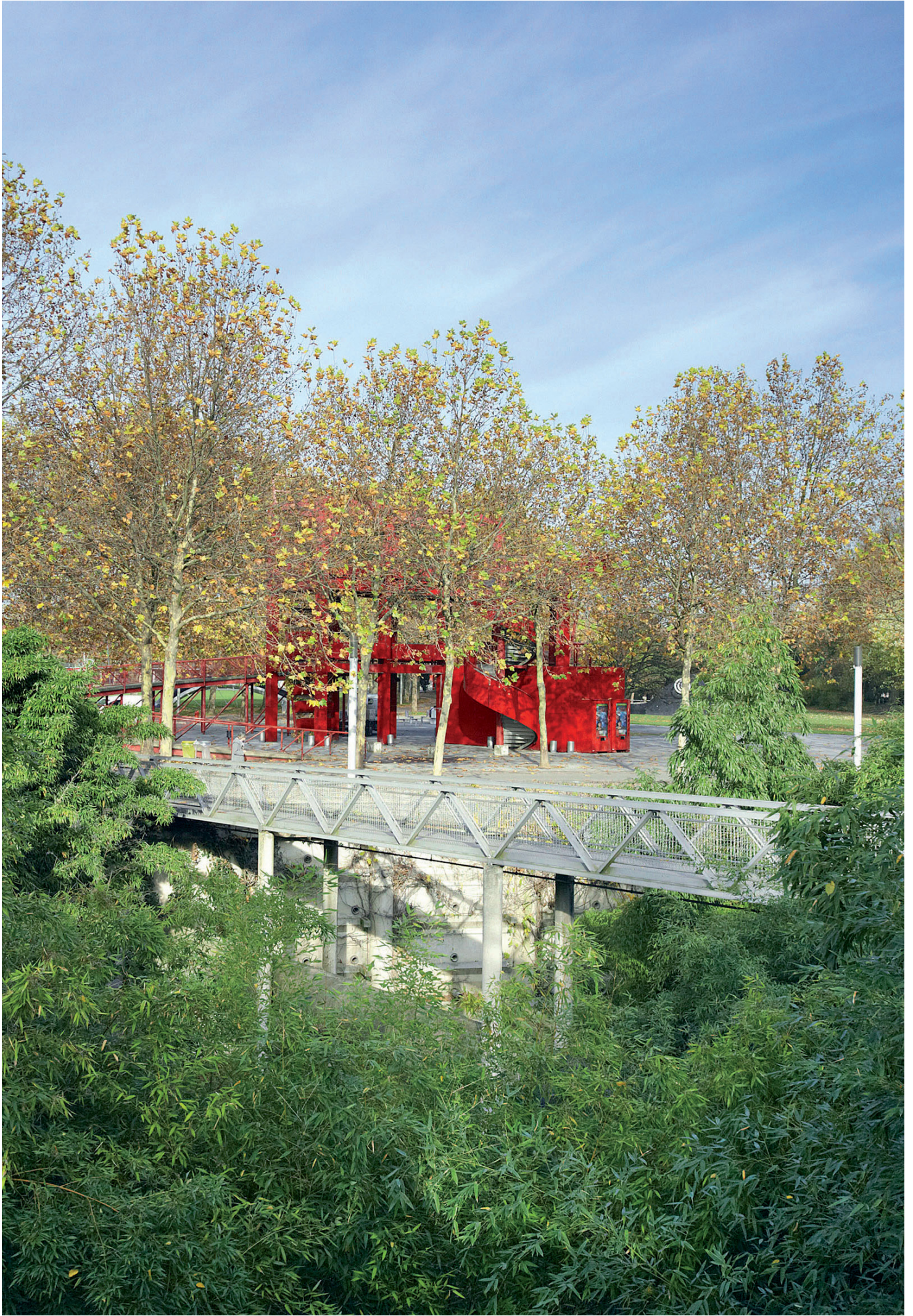






















NOTE

This chapter discusses recent trends in research by design in the field of architecture and, as such, it attempts to introduce the present challenges and weaknesses of the method. Findings from recent developments and positions in artistic research will be analysed in order to introduce key components of research by design. Furthermore, a scheme is introduced that assists in discussing the different ways that design (as an activity) can be relevant when undertaking a research project. A clear definition of research by design is proposed in the hope of improving both transparency and clarity in current discourse. The aforementioned developments in artistic research provide confirmation for the proposed definition. A few examples will also be given in the later stage of the chapter.

Then, reflecting upon the recent developments in research by design, the chapter concludes with some thoughts on the importance of designing as a vehicle to develop understanding and knowledge, as well as of how to keep an open and liberal attitude toward the form and content of design research while simultaneously maintaining high academic standards.

THIS IS RESEARCH BY DESIGN

Johan Verbeke

INTRODUCTION

Ever since the joint declaration of the European Ministers of Education convened in Bologna on 19 June 1999, university education in Europe has been evolving toward a strict Bachelors/Masters/PhD structure¹. The idea is to establish a transparent structure in which every Bachelors degree requires three years of full-time study, a Masters degree requires two additional years, and a PhD a further three. This organisational plan forces schools of architecture (as well as those of art, design and cognate disciplines) to increasingly focus on research endeavours and establish appropriate doctoral degrees. Moreover, recent accreditation procedures, such as in Sweden, Denmark and other European countries, now require schools to clearly report on their research structures and outputs. The consequence of these changes is that architectural schools have begun to explore how the core of the field (that is, designing and artistic activity, and its related activities) can become the basis of, or vehicle for, research. This chapter therefore aims to establish a clear and sharp definition of the term 'research by design'. It is proposed as that kind of research in which the process of designing, as well as experience gained from practice, plays a crucial role in research – not only as inputs to be observed, but, more importantly, as the actual methods and outcomes of the research itself.

A growing number of conferences on research by design and artistic research in general have been organised during the last decade, and many proceedings from these conferences have been one of the tangible results. These conferences include: 'The Unthinkable Doctorate' in Brussels, Belgium (2005)²; 'Design Enquiries' in Stockholm, Sweden (2007); 'Research into Practice Conference' in

¹ The European Students Union: Bologna with Student Eyes. Leuven 2009. URL: www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/MDC/BOLOGNA_DECLARATION1.pdf (accessed 05-02-2013).

² Belderbos, Marc / Verbeke, Johan (eds.): *The Unthinkable Doctorate. Proceedings of the International Conference*. Sint-Lucas School of Architecture. Gent / Brussels 2005.

3 Art and Design, vol. 5. URL: http://sitem.herts.ac.uk/artdes_research/papers/wpades/vol5/index.html (accessed 25-02-2013).

4 Getting, Anne K. / Harder, Ebbe: Changes of Paradigms in the Basic Understanding of Architectural Research. School of Architecture, The Royal Danish Academy of Fine Arts / EAAE / ARCC, Copenhagen 2008.

5 Jakimowicz, Adam / Verbeke, Johan (eds.): Communicating (by) Design. Proceedings of the 2009 international conference at the Sint-Lucas School of Architecture. Ghent / Brussels, 2009.

6 European Association for Architectural Education. URL: www.eaae.be (accessed 25-02-2013).

7 The European League of Institutes of the Arts. URL: www.elia-art-schools.org (accessed 25-02-2013).

8 Royal Institute of British Architects. URL: www.architecture.com (accessed 25-02-2013).

9 Architects Council of Europe. URL: www.ace-cae.eu (accessed 25-02-2013).

10 Biggs, Michael / Karlsson, Henrik (eds.): *The Routledge Companion to Research in the Arts*. Abingdon/ Oxon 2010.

11 Journal for Artistic Research. URL: www.jar-online.net/ (accessed 5-08-2012).

London, UK (2008);³ 'Changes of Paradigms in the Basic Understanding of Architectural Research' in Copenhagen, Denmark (2008);⁴ 'Communicating (by) Design' in Brussels (2009);⁵ 'The Place of Research/The Research of Place' in Washington, DC, USA (2010); 'Knowing by Designing' in Brussels (2013), and many others. In addition, the European Association for Architectural Education (EAAE);⁶ the European League of Institutes of the Arts (ELIA),⁷ as well as a number of professional bodies – for example the Royal Institute of British Architects (RIBA)⁸ and the Architects Council of Europe (ACE)⁹ – are all paying increasing attention to architectural research and its developments, especially that which is grounded on practicing and designing architecture.

Also, after a major effort by an international group of experts, *The Routledge Companion to Research in the Arts* (2010) has been published and includes many interesting experiences and relevant positions for those engaged in artistic research.¹⁰ Likewise, the *Journal for Artistic Research* was established in 2011.¹¹ Research has clearly become a hot topic: buzzwords like 'research-based education', 'knowledge society' and 'knowledge processes', for instance, have put research endeavours high onto the agenda of politicians and academic policy makers. This is especially the case in architecture and the arts, where a lot of specific PhD degrees have only recently been created. An example is the situation in Flanders in Belgium, where I am based. After signing the Bologna Declaration, the Flemish Minister of Education began a process to reform the university education system, and the Flemish parliament duly adopted a new Higher Education Act in April 2003. The degree structure, based on the three main Bologna 'cycles', constitutes the core of this legislation, and the structure was introduced for all degree programmes in the 2004–5 academic year. A variety of new doctorates in the arts, music, product design, and architecture (including by design) were created. For all these disciplines, therefore, research is becoming ever more important. And as a consequence, more explicit reporting on research outcomes is required, since it now has a growing impact on governmental financing of Flemish universities. It is also important to note that teaching staff in the fields of the arts,

music, product design, and architecture largely consist of leading practitioners; hence, schools are bringing top-level professional expertise directly into their curricula. These adventurous practices are some of the important foundations of their educational systems. Faced with a period of change in which the development of research has become a crucial concern, most schools in Flanders found they had to address many important questions. What is the context for these educational changes? How should they then develop appropriate methods of research? What indeed is research by or through design? How can it lead to a research project that will eventually lead to a viable PhD award? And what should be the requirements for undertaking research by design?

Within this frame of reference, it seems logical to begin to examine these questions in relation to the highly-developed design competences that are available in almost all the schools of architecture across Europe. On average, half the curriculum for a Bachelors or Masters degree is comprised of practical and design work; this is also in line with European requirements for achieving a balance between theoretical and practical courses (Fig. 1). Thus, it seems logical to try to find ways to extend this kind of balance into new PhD programmes as well, and to acknowledge how designing and making can not only play a crucial role in the intellectual work of the researcher but also contribute to the creation of knowledge.

From the analysis besides, it is evident that there was strong pressure from politicians and academic policy makers following the 1999 Bologna agreement – both in Belgium and other European countries – to increase the research endeavours of universities, and so as to ensure that research activity in Europe would not be eclipsed by that in the USA, Asia, Australasia and elsewhere. This then triggered the organisation of a good many research conferences, and induced research policy documents from European associations in subjects such as architecture. In the following section it will be shown that the understanding of what knowledge is has been shifting over time, with the more recent positions being most helpful for the field.

	CURRICULUM	
	Theoretical components	Practice-based/design components
PhD	?	?
Masters	50%	50%
Bachelors	50%	50%

Fig. 1 Balance of the architectural curriculum for Bachelors and Masters Courses in typical European schools of architecture, posing the question of what proportion to apply to PhDs in a design-orientated school (modified table).¹²

12 Verbeke, Johan: Research by Design is up and running. In: AE Architecture and Education Journal, vol. 5, 2011, pp. 111–119. URL: <http://revistas.ulusofona.pt/index.php/revlae/article/view/2682> (accessed 5–01–2013).

KNOWLEDGE FORMATION

Following the lines set out in the Frascati Manual, research and experimental development is defined as creative work undertaken systematically to increase the stock of knowledge – including knowledge about humanity, culture and society – and to use of this stock of knowledge to devise new applications.¹³ Although this definition has been discussed exhaustively, the focus on a contribution to knowledge is generally accepted and crucial to this discourse. As one example, the RAE 2008 assessment of UK university research applied the following definition:

“‘Research’ ... is to be understood as original investigation undertaken in order to gain knowledge and understanding. It includes work of direct relevance to the needs of commerce, industry, and to the public and voluntary sectors; scholarship; the invention and generation of ideas, images, performances, artefacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including design and construction.”¹⁴

This kind of acknowledgement is generally understood as an important step forward for the fields of architecture and the arts, and is seen as an open categorisation that includes architectural projects and artworks as research outputs. As Fraser has pointed out in regard to the UK’s RAE 2008 exercise, design research outputs tended to be rated highly by those on the architecture and built environment panel.¹⁵ How then does this affect the pursuit of design research? The principal criterion for awarding the degree of Doctor of Philosophy is whether a project represents an original and significant contribution to knowledge. This, however, raises the question of what is understood to be knowledge. The following overview describes a wide range of positions toward knowledge in order to show that it is much more than the traditional understanding of explicit written-down knowledge.¹⁶ The important point is that, in reality, far more kinds of knowledge are needed than just the explicit one. Already in the 1950s and 60s Michael Polanyi started arguing that there was more than factual and explicit knowledge.¹⁷ In his famous book

13 Organisation for Economic Cooperation and Development (OECD): *The Measurement of Scientific and Technological Activities: Frascati Manual – Proposed Standard Practice for Surveys on Research and Experimental Development*. Paris, 2002.

14 Higher Education Funding Council for England (HEFCE): *Research Assessment Exercise 2008: Guidance on Submissions – RAE 03*. 2005. Bristol, 2005, p. 32.

15 The feedback report written by the H.30: Architecture and the Built Environment sub-panel in RAE 2008 is viewable in the Main Panel H folder on the HEFCE RAE 2008 website. URL: www.rae.ac.uk/pubs/2009/ov/ (accessed on 28-03-2013). For confirmation of the relative success of design research in that UK assessment exercise, see Murray Fraser’s contribution to *Evaluating the Evaluation of Research*. In: *Architectural Research Quarterly*, vol. 14 no. 1, 03/2010, pp. 6–10.

16 Verbeke, Johan / Glanville, Ranulph: *Knowledge Creation and Research in Design and Architecture*. In: Ameziane, Faris (ed.): *EURAU 04: European Symposium on Research in Architecture and Urban Design, Marseille 2004 – Considering the Implementation of Doctoral Theses in Architecture*. Marseille, 2006.

17 Polanyi, Michael: *Personal Knowledge: Towards a Post-critical Philosophy*. Chicago, 1958. Polanyi, Michael: *The Tacit Dimension*. London, 1966.

on *The Reflective Practitioner*, Donald Schön introduced the importance of reflective thinking in the development of understanding and knowledge in creative disciplines.¹⁸ His insights and ideas have been quoted widely, especially within architecture, where they are regarded as one of the primary ways of developing knowledge. However, reflection-in-action has also become a key process in all disciplines where doing and making are essential. What is less known is that Schön's underlying intention was to make an argument against the positivist position, and thereby to stimulate focus on the importance of other types of knowledge. In this sense, he was already aware of the aforementioned developments in research and science, and he wanted to balance those with a focus on other ways of understanding – stressing always the importance of *other* types of knowledge. Gibbons and colleagues introduced the important distinction between 'Mode 1' and 'Mode 2' knowledge.¹⁹ In their view, 'Mode 1' knowledge is defined as:

"The complex of ideas, methods, values and norms that has grown up to control the diffusion of the Newtonian model of science to more and more fields of enquiry and ensure its compliance with what is considered sound scientific practice."

On the contrary, 'Mode 2' is:

"Knowledge production carried out in the context of application and marked by its transdisciplinarity, heterogeneity, organizational hierarchy and transience; social accountability and reflexivity ... It results from the parallel expansion of knowledge producers and users in society."

'Mode 1' knowledge therefore includes the scientific knowledge developed in university laboratories, concepts drawn from architectural theory and so on, whereas 'Mode 2' knowledge is the kind that is transferred by architects from practice into the design studio. These definitions were later used by Halina Dunin-Woyseth to stress the importance of multidisciplinary research in the field of architecture.²⁰ Furthermore, based on a distinction raised by Gerard De Zeeuw, Ranulph Glanville has introduced the concepts of 'knowledge of' and 'knowledge for':

18 Schön, Donald: *The Reflective Practitioner: How Professions Think in Action*. New York / London, 1983.

19 Gibbons, Michael / Limoges, Camille / Nowotny, Helga / Schwartzman, Simon / Scott, Peter / Trow, Martin: *The New Production of Knowledge*. London 1994.

20 Dunin-Woyseth, Halina: Some Notes on Mode 1 and Mode 2: Adversaries or Dialogue Partners? In: Biggs, Michael / Karlsson, Henrik (eds.): *The Routledge Companion [...]*, pp. 64–81.

21 Glanville, Ranulph: Design prepositions. In: Belderbos, Marc / Verbeke, Johan (eds.): *The Unthinkable Doctorate* [...], pp. 115–26.

22 Glasersfeld, Ernst von: Aspects of constructivism. Vico, Berkeley, Piaget. In: *Idem: Key works in radical constructivism*. Rotterdam 2007, pp. 91–99. This essay was originally published in Italian in 1992. URL: www.vonglasersfeld.com/139.2 (accessed 5-08-2012).

23 Gillespie, Alex / Cornish, Flora: Intersubjectivity: Towards a dialogical analysis. *Journal for the Theory of Social Behaviour*, Vol. 40, 2010, pp. 19–46.

24 Windelbrand, Wilhelm: *Geschichte und Naturwissenschaft* (1894). In: *Präludien: Aufsätze und Reden zur Philosophie und ihrer Geschichte*. Tübingen 1915.

25 Östersjö, Stefan: *Shut up 'n' play! Negotiating the Musical Work*. Unpublished PhD Thesis, Lund-Malmö Academies of Performing Arts, Lund University, Sweden 2008.

“What designers need is knowledge for changing the world, not knowledge of what it is. Scientists want knowledge of what it is. They want to tell us how things are. Designers want to change it. Design is not interested in describing what it is, but changing what is”.²¹

All of this must be considered within the general context of human learning. Human learning and (social) constructivist thinking are strongly based on experiences, perceptions, and interactions between people.²² It is then argued that, as a result, these groups of people develop a mutual inter-subjective understanding.²³ The problem hence with academia today is that it undervalues the diversity in knowledge, as has been clearly formulated by Glanville:

“One of the problems for design and research is that research and the academy has become very specialized; science as a word used to mean knowledge ... It has come to mean a particular type of knowledge formed in a particular way, reflecting a particular world view.”

This overly particular interpretation is one of the major problems that the ‘creative’ and ‘making’ disciplines currently face as they attempt to incorporate several types of knowledge. In this context, it is also worth mentioning the difference between ‘nomothetic’ and ‘idiographic’ sciences as introduced by Wilhelm Windelbrand.²⁴ Nomothetic sciences are those that search for general laws (or at least generalised knowledge), as is the case in most of the natural sciences. Windelbrand remarks that even a humanistic discipline like history might have a similar aim, so no intrinsic differences exist between disciplines. However, he maintains as a fact that, in the study of history (or art or architecture, it is tempting to add), general laws are not normally of interest, for example for tracing historical development. Rather the focus is on single events, single periods, and single personalities; here the idiographic disciplines are those which study their subjects in terms of their specificity. For example, Stefan Östersjö’s doctoral thesis at Lund University in Sweden, titled ‘Shut up ‘n’ Play’ introduced the concepts of ‘thinking-in-action’, ‘thinking-through-practice’, ‘thinking-through-performing’, and ‘thinking-through-hearing’.²⁵ This PhD nicely describes the

critical moments in developing insight during practice/play; hence, it acts as an exemplar of research where the 'doing' plays a crucial role.

Donald Schön's ideas were, later on, further developed by Nonaka and Takeuchi when they highlighted the different sub-processes of knowledge: combination, internalisation, socialisation, and externalisation.²⁶ It is the interaction between these sub-processes that brings a field forward. Vital in their arguments is the interaction between explicit and implicit knowledge, something which is especially relevant to the fields of architecture, art and design since they incorporate mainly implicit knowledge (this being transferred in a design studio setting). The key point that Glanville has made is that there is no such thing as research that is not designed.²⁷ Research itself is design. It is not just setting up something and doing it – it has to be modified, changed and fiddled with until it works; then the results are looked at and learned from, which changes things, and the process is begun again. His conclusion is therefore that it is ridiculous to try to make design subject to the rules of research, when research itself is only possible because of design. Hence, in this way, designing has the power to facilitate the generation of knowledge, as indicated by J. Christopher Jones:

"In any creative process, what some of us call the intuition (of the imagination) must have priority. Reason (and science) must be used to support, not to destroy, this essential confidence and vision. Otherwise, the intuition, or creativeness, which does not perform to order, will 'fly out of the window'".²⁸

From the above observations, it is clear that the scientific understanding of what is knowledge has been changing over time and has been seriously broadened as a consequence. For the discipline of architecture, it is important to find ways to value the insights and outcomes developed during design activities. In a similar way, creating and making are the core processes of the arts in general. To wrap up this part of the discussion, the field of architecture incorporates a good deal of tacit knowledge, which is crucial but often very difficult to communicate precisely.

26 Nonaka, Ikujiro / Takeuchi, Hirotaka: *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford 1995.

27 Glanville, Ranulph: *Researching design and designing research*. In: *Design Issues*, vol. 15 no. 2, 1999, pp. 80–91.

28 Jones, John C.: *A Theory of Designing*. In: *Softopia: my public writing place*. 2000. URL: www.softopia.demon.co.uk/2.2/theory_of_designing.html (accessed 25-01-2013).

This is the challenge for the development of research in the domain: on one hand, researchers need to exploit the possibilities and the competences that have, for centuries, been developed in the field (designing and making); on the other hand, this competence needs to be further developed in order to find ways that allow peers to understand and discuss the knowledge being created. Given that similar debates are taking place in various artistic subjects, the following section describes recent developments and the main positions taken.

WHAT IS HAPPENING IN THE ARTS?

As is well known, architecture and the arts were strongly linked in the past. Therefore, it is worth exploring the recent developments in those kinds of arts in order to reflect back onto the field of architecture. In 2006, Jan Kaila published a fascinating document called *The Artist's Knowledge*.²⁹ In his introduction, the problem of the relation to knowledge and the interaction between theory and practice was nicely formulated:

“The postgraduate program aimed at producing new knowledge based upon the artist’s own artwork, rather than searching for straightforward models from the world of the sciences ... In this manner it was hoped that a dialogical relationship could be maintained between artistic research, art audiences and art-related institutions and that the troubling isolation often incurred within academic research could be solved ... The so far most unresolved question of the methodology of artistic research and the doctoral studies program is related to theory. How can the artist devise theory from his/her practice, theory which can be linked in part to the almost non-existent tradition of artistic research, which can dispute legitimacy in an investigative manner, but not necessarily resemble traditional academic research methodology.”

A similar position comes from Jan Baetens when discussing the relation of literary theory to reading and writing:

“Why do we need literary theory? Because literary theory can enhance the quality of literary practice. If literary

²⁹ Kaila, Jan: *The Artist's Knowledge: Research at the Finnish Academy of Fine Arts*. Helsinki, 2006, p. 9.

theory matters, then practice (of reading as well as of writing) really matters ... I have also identified the basic problem of modern literary theory, namely the fact that theory is no longer aimed at producing better practice (of reading as well as of writing), but as something else (and that something else can be extremely diverse, such as theory for theory's sake, for instance). However, linking theory and practice should be the basis of any serious academic education and research ... More in general it should be observed that a fruitful relationship between theory and practice seems to work better if initiated by practitioners, not by theoreticians.”³⁰

Henk Borgdorff has been one of the driving forces in developing artistic research throughout Europe; and he states:

“Characteristic of artistic research is that art practice (the works of art, the artistic actions, the creative processes) is not just the motivating factor and the subject matter of research, but that this artistic practice – the practice of creating and performing in the atelier or studio – is central to the research process itself. Methodologically speaking, the creative process forms the pathway (or part of it) through which new insights, understanding and products come into being. In part, then, the outcomes of artistic research are artworks, installations, performances and other artistic practices, and this is another quality that differentiates it from humanities or social science research – where art practice may be the object of research, but not the outcome. This means that art practice is paramount as the subject matter, the method, the context and the outcome of artistic research. That is what is meant by expressions like ‘practice-based’ or ‘studio-based’ research. This points to an important distinction between art practice in itself and artistic research. Artistic research seeks in and through the production of art to contribute not just to the artistic universe, but to what we ‘know’ and ‘understand’.”³¹

And Borgdorff continues in his same essay in *The Routledge Companion to Research in the Arts*:

“As a rule, an original contribution in artistic research will result in an original work of art, as the relevance of the

30 Baetens, Jan: Allemaal terug naar de klas: Over het nut van retoriek voor literatuur. In: *Rekto Verso*, no. 52, 2012, pp. 71–73. Original in Dutch, translation by the author.

31 Borgdorff, Henk: The Production of Knowledge in Artistic Research. In: Biggs, Michael / Karlsson, Henrik (eds.): *The Routledge Companion [...]*, pp. 44–63.

artistic outcome is one test of the adequacy of the research. The reverse is not true, however; an original artwork is not necessary an outcome of research in the emphatic sense. The requirement that a research study should set out with well-defined questions, topics or problems is often at odds with the actual course of events in artistic research. Formulating a question implies delimiting the space in which a possible answer may be found. Yet research (and not only artistic research) often resembles an uncertain quest in which the questions or topics only materialize during the journey, and may often change as well. Besides not knowing exactly what one does not know, one also does not know how to delimit the space where potential answers are located. As a rule, artistic research is not hypothesis-led, but discovery-led ... whereby the artist undertakes a search on the basis of intuition, guesses and hunches, and possibly stumbles across some unexpected issues or surprising questions on the way."

In another essay in the same book, Helga Nowotny, who chairs the European Research Council, confirms the purpose of endeavours in the arts:

"Research is the curiosity-driven production of new knowledge. It is the process oriented toward the realm of possibilities that is to be explored, manipulated, controlled, given shape and form, and transformed. Research is inherently beset by uncertainties, since the results or outcomes are by definition unknown. But this inherent uncertainty proves to be equally seductive: it promises new discoveries, the opening of new pathways, and new ways of problem-solving and coming up with novel ways of 'doing things,' designing and transforming them. To put research (back) into the arts, to (again) make visible and explicit the function of research in the arts and in the act of 'creating knowledge' is a truly ambitious undertaking, because it takes up a vision and a project that originated in the Renaissance. After centuries of separation, it promises to close a loop. But the techno-sciences, important as they are, are not alone in leading these explorations and pursuits. Artists have quickly realized the artistic challenges offered by hybrid forms and the vast domain of crossing the natural with the artificial. Most significantly, they extend their

creativity beyond the range covered by the techno-sciences. True to the humanistic spirit of the Renaissance, they bring the human back into this world that continues to be transformed by the techno-sciences and their societal impact. It is this humanistic impulse that should continue to invigorate research in the arts. It has the potential to bring forth a new Renaissance.”³²

As noted earlier, the *Journal for Artistic Research* has recently been established for the field of the arts. Moreover, networks like SHARE (Step-change for Higher Arts Research and Education),³³ EPARM (European Platform for Artistic Research in Music),³⁴ and ADAPT-r (Architecture, Design and Art Practice Training – research),³⁵ and other initiatives indicate that artistic research has become a priority for the leading European art schools, almost all of which are now busy developing artistic research. What becomes obvious from these kinds of quotes is the central place given to exploration and curiosity-driven activities. Artistic research is not so much hypothesis-driven, but is built on experiences and explorations. It uses the production of art, and of making and performing, as the key paths to develop insight, understanding, and knowledge. Transferring these developments to the field of architecture, it seems logical to use designing as the main knowledge process for developing research. Complementary to research in history and theory, building physics and sociology, and also research connecting to other disciplines, the act of research by design – if developed appropriately – has the potential to bring another dimension to architectural research. Furthermore, it is clear that in the arts, the main processes in research are the core activities of the field – that is, the making of art, the playing of music, the designing of objects and such like. It should be the same in architecture, so let us now ask what is happening in our field.

BACK TO ARCHITECTURE

As prepared by the Research Committee of the European Association for Architectural Education, the following text formed part of the Research Charter approved by the EAAE’s General Assembly in September 2012:

32 Nowotny, Helga: Foreword in: Biggs, Michael / Karlsson, Henrik (eds.): *The Routledge Companion [...]*, pp. xvii–xxvi.

33 Share network website. URL: www.sharenetwork.eu/ (accessed 25-01-2013).

34 Association Europeene des Conservatoires. URL: www.aecinfo.org/Content.aspx?id=2279 (accessed 25-01-2013).

35 ADAPT-r Marie Curie Initial Training Network website. URL: www.adapt-r.org (accessed 28-03-2013).

36 European Association for Architectural Education (EAAE): EAAE Charter on Architectural Research. URL: www.eaae.be/research.php (accessed 5-01-2013).

“In architecture, design is the essential feature. Any kind of inquiry in which design is a substantial constituent of the research process is referred to as research by design... In research by design, the architectural design process forms a pathway through which new insights, knowledge, practices or products come into being. It generates critical inquiry through design work. Therefore research results are obtained by, and consistent with experience in practice.

Architectural research meets the general criteria of originality, significance, and rigour. It produces forms of output and discourse proper to disciplinary practice, to make it discussable, communicable and useful to peers and others. It is validated through panels of experts who collectively cover the range of disciplinary competencies addressed by the work.”³⁶

Later in the research charter, it adds:

“The following characteristics could help to guide architectural research to a high level of quality and open up new horizons:

- the research is meaningful and relevant for practice, for the discipline, and for society; it explores limits and expands them;
- it contributes to design practice, to the exploration of spatial understanding and/or the creative design process;
- it contributes to knowledge through intellectual work that is characteristic of architecture and design practice;
- the results are consistent with experience in practice;
- the research endeavors to make its processes and foundations as clear and explicit as possible;
- method, context, process and results are communicated and submitted to regular peer review; they refer to the work of peers;
- the research explores emotional, intuitive and/or artistic aspects of the domain, it engages architectural competences and experience in practice;
- it creates and exploits trans-disciplinary connections.”

From this EAAE document, therefore, a few points emerge which are important for propelling research by design in a positive manner. Firstly, in terms of research by design, the

act of designing is the key process to develop understanding and knowledge. Secondly, peer reviewing is essential to maintain quality (as indeed it is for all other disciplines). Thirdly, research by design needs to be openly connected to practice and studio work. And finally, we should be careful not to impose a strict list of qualitative aspects, as a sort of checklist, but rather keep things open for interpretation by practitioners, reviewers and research assessment panels. Perhaps above all, the EAAE Research Charter repeatedly stresses the importance of the link to practice for research to thrive.

What is common between research by design and scientific research is that their assessment is based on intersubjective standards which are shared within the specific field; it is precisely this plane of reference that is established through the discourse of peers. And peer review has long since established itself within the field of architecture through the evaluation of design competitions, award juries, etc. The intention of research in all disciplines is to expand the horizon and to enrich the world. High-level research shifts boundaries by discovering new areas and understandings. Careful investigations, explorations, and broadening experiences reveal new aspects of architecture and practice. And the quality of research output is best judged by those in the field itself, including those who practice architecture outside of academia. This principle is not affected by the fact that channels other than traditional academic journals are used.

Unlike other research that is chiefly analytical and seeks to understand current realities, architecture and design try to project into the future, and thus to change things. Research outputs should also follow the media which are most appropriate for the field: maps, drawings, sketches, models and so on. Results have to be related to the practice of designing and making in a meaningful way; this kind of practice, as well as design studio work, are the essential aspects for research by design. A good example of the exploitation of the potential of non-textual communication was the final PhD exhibition by Arnaud Hendrickx, who recently completed at the Sint-Lucas School of Architecture in Belgium. The doctoral research by Hendrickx explored the idea of



Fig. 2 Overview of the PhD exhibition on 'displacement' by Arnaud Hendrickx in an old industrial building in Brussels cleaned up for the purpose.



Fig. 3 Scale models and drawings as part of the doctoral explorations by Arnaud Hendrickx.



Fig. 4 Part of the exhibition showing the reuse of 'found' spaces and materials

'Substantiating Displacement' through a range of design work and installations (see Figures 2–5). In this manner, his final exhibition in the spaces of an old factory created a specific experience aimed to make the audience understand and feel the tangible aspects of displacement.

A SCHEME TO DISCUSS THE ROLE OF DESIGNING AND PRACTICE IN RESEARCH PROCESSES

Based on the work of Gerard De Zeeuw, I developed an investigatory scheme into general research processes that was published in my 2002 essay on the nature of architectural research.³⁷ For the purposes of this present chapter, it is sufficient just to show the diagram in Figure 6, and give an explanation of the terms involved:

"Input refers to what in relation to the research activity will be known as 'local statements' at the start-up. These may include answers/reports from people who have been interviewed (by the researcher, or by others as reported in the literature, e.g., in interviews, earlier research) about their experiences concerning some tool or some form of support, as well as external observations on people working as architects. The input may also compromise some of the starting ideas and thoughts of the researchers who are interested in the design process. It also includes literature review and what is known at the start of the project. *Operations* refers to anything that is (proposed to be) done to change the input. Operations include getting more input (new interviews, new experiments, new experiences), subdividing and thus combining part of the input, replacing some of the input by improved versions of the input.

Output/Knowing refers to anything which results when the application of an end rule to the process of operating (the applying operations) on the input comes to a stop. Output may include general statements, but also actual 'design rooms', of which it can be said that they implement the stated conditions, or else 'teaching tools' which ensure that students achieve certain pre-specified results. *Deliverables* refers to all tangible manifestations of the outputs. Examples include computer programs, design rooms, design tools and databases, papers and/or exhibitions."

What is perhaps most important for an understanding of research by design is the question of in which phase of the research process should the design and/or practice work take place? Three different possible situations can be distinguished:

1. Designing and/or practice takes place in the early *input* phase: this is the case when, for example, a designer finds his or her research on earlier designs and experiences. In such instances, drawings, and possibly actual buildings, play a crucial role in the research of or observations on design and/or practice. This is what is sometimes referred to as research 'on' architecture.
2. Designing and/or practice takes place in the final phase of making the *deliverables*, with it then being part of the illustration of the outcomes from the research process. Hence the research outcomes are incorporated into architectural projects and/or artworks. These projects are thus used as 'illustrations' of theoretical concepts.
3. Designing and/or practice forms the key component of the entire research *operations*. This can happen while realising new design projects, or when work from practice becomes one of the main ways of generating understanding within the research. Hence, designing, making, studio work, practice, and/or artwork are the generators of insight, understanding, and knowledge: they are part of the intellectual work and complementary processes of reflection and knowledge creation.

It is important to note that this kind of distinction is seldom applied exclusively. In a number of research projects, there is a mixture of methods and processes: a combination of the three types formulated above. Yet it is the third category, when the design and/or practice drives the whole research project throughout its entirety, which seems to offer the most fertile condition for research by design. It is worth explaining why. Traditionally, research tries to take a distant view, as it does in architectural history and theory. In research by design, however, it is the researcher who is also the designer, and who develops knowledge through their design activities. This process thus differs from normal practice in that it also includes explicit knowledge formation that is openly communicated and

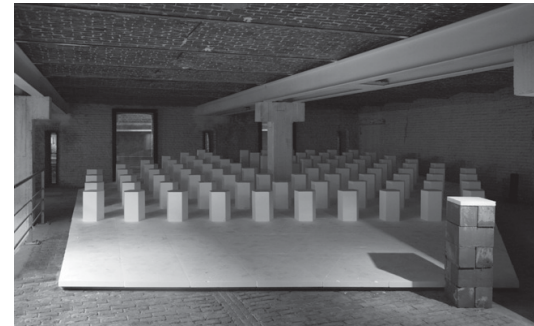


Fig. 5 Uncanny spatial installations created by Hendrickx as part of his PhD defence presentation

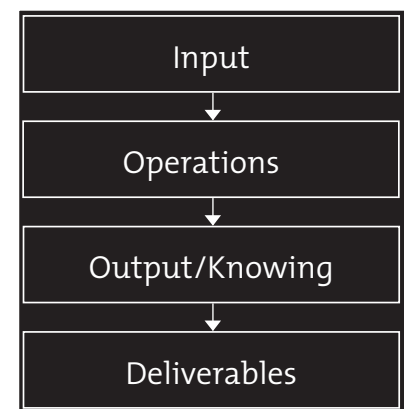


Fig. 6 Extract from the general research scheme as given in Verbeke (2002).

37 Verbeke, Johan: Gerard de Zeeuw and Architectural Research. In: System Research and Behavioral Science, vol. 19 no. 2, 03–04 / 2002, pp. 159–166.

All figures © Johan Verbeke

peer-reviewed. And this is why it is so important that the term 'research by design' should only really be used for the type of research described under item 3) above, or for that research in which the activities listed in that item are primary and essential. This definition of research by design is proposed here in the hope of improving transparency and clarity in current discourse, so that everyone knows what is being proposed by the term.

As described earlier, designing can be recognised as the core of a type of research process within the field of architecture. This is identical to what is happening in the arts, where the artist-researcher continually produces art or plays music – that is, they utilise the acts of making and doing – as the central process in the generation of understanding and/or knowledge. So, the key issue for developing architectural research is to incorporate practice and design studio work into it. Instead of simply research 'on' architecture, researchers should try to establish research 'in the medium' of architecture:³⁸ this means to investigate architecture through architecture and not through history, theory, social science or environmental science (although, of course, those types of work are also valuable research). The basic rationale behind all this is that it is important to value the qualities of designing, and hence to avoid intermediaries when undertaking research. It is the designer themselves who needs to exploit their design competence to obtain understanding and knowledge. In such cases, the designer looks back at finished work and gives an overview, and extracts key aspects of his or her understanding, and explores these aspects through further design work, as well as through connections to the work of other practitioners. It means that their research work is regularly peer-reviewed. The designer must also project into the future, mentioning key aspects that will be useful for the field. Research results and outcomes are presented through drawings and text in an exhibition and a written exegesis. This way of working in research by design has been developed, for instance, at RMIT University in Melbourne for many years and has been described in detail by Leon Van Schaik and others.³⁹ The RMIT approach has lately been extended to Europe, workings with myself and colleagues at the Sint-Lucas School of Architecture in Ghent and Brussels, and as a model it functions as a

38 van Schaik, Leon / Johnson, Anna (eds.): *Architecture and Design, By Practice, By Invitation: Design Practice Research at RMIT*. Melbourne, 2011.

39 Ibid.

key example for any serious developments in research by design. As Van Schaik has pointed out, it is the reflection on, and contemplation of, the processes of designing and making which impact on the results of the research in a fundamental way, and as a result give it its unique quality.

SOME RECENT EXAMPLES OF RESEARCH BY DESIGN

The following three cases are given as very different examples of possible ways to undertake research in connection to practice, design, and creative practice work. While these doctorates can be said to be representative of the principles of research by design, they are also extremely distinct in their subject and approach. The first is another, like Arnaud Hendrickx, which was finished recently at the Sint-Lucas School of Architecture. It also could not have been realised without the crucial contribution of designing and making/performing.

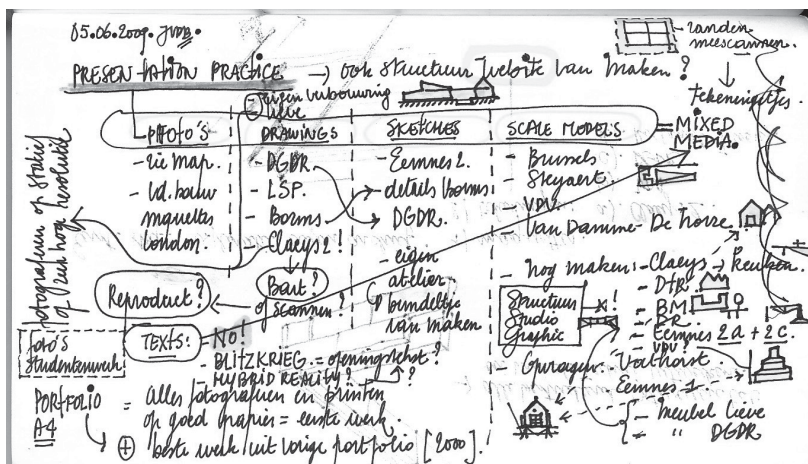
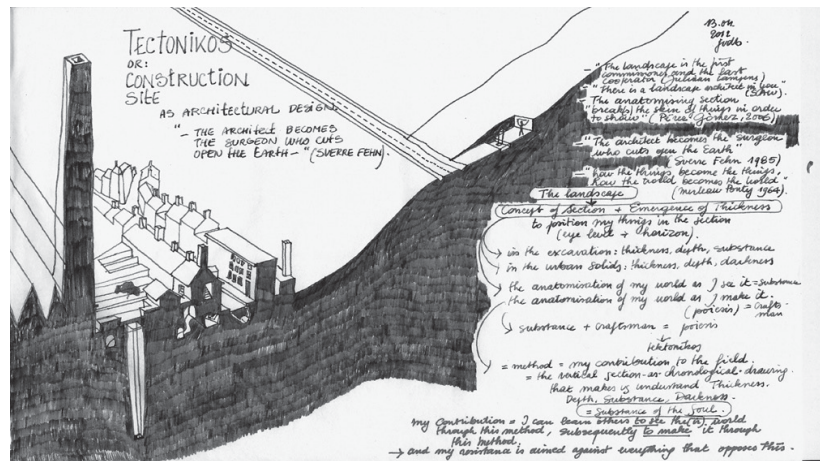


Fig. 7 Initial ideas trying to structure the PhD research progress presentation by Johan Van Den Berghe.

This PhD project was by Johan Van Den Berghe, a member of staff at Sint-Lucas, and it began in, and then went back to, his own award-winning architectural practice. Under the title of 'Theatre of Operations, or: Construction Site as Architectural Design', Van Den Berghe's research was conducted as a series of observations made about past and present design actions. As such, his research could be seen as participant observation that builds on design work which is an integral part of the doctoral research. Some of the architectural projects in his thesis are described as if they were a crime scene investigation (that is, the projects of his practice as if they were 'victims'). Other projects are

Fig. 8 Imaginary section drawn by Johan Van Den Berghe through his grandmother's house in an old Belgian industrial town to help organise his thoughts and projects.



treated more like the reconstruction of far older crimes from the past which need to be recreated (such as 'My Grandmother's House'). Still other projects are offered as 'new crimes' which are still in the process of being committed. Through investigations of his own work and the work of other architects, through intensive reading, by making new designs as the core of his PhD, by self-validation, peer-reviewed presentations and discussions, and writing his text, Van Den Berghe worked his way through the research process. The contribution to the field is manifold, yet all elements hide under his basic assumption – that is, that it is wrong when the creative process in architecture is considered all too automatically as a unidirectional one that begins with the poetic image of the designer and is then subsequently substantiated on the construction site. Van Den Berghe's research reveals that this assumed unidirectionality is a false assumption, and that the process of creation, including its built substantiation, is much more negotiated and two-directional. He also argues, through a careful analysis of his work and that of his architectural peers, that the poetic image is more often triggered by construction practice. In other words, the 'dream' is triggered by the 'substance'.

Following the framework set out by Leon van Schaik, Van Den Berghe also explored his own mental space by moving from an implicit to an explicit awareness of its potential in the creative process. He discovered in his work, and in the work of others, a series of concepts and made them explicit: these included the emergence of thickness, the concept of section, depth as the first dimension, the meaning of eye level in the perspective, the passing of time, the Greek

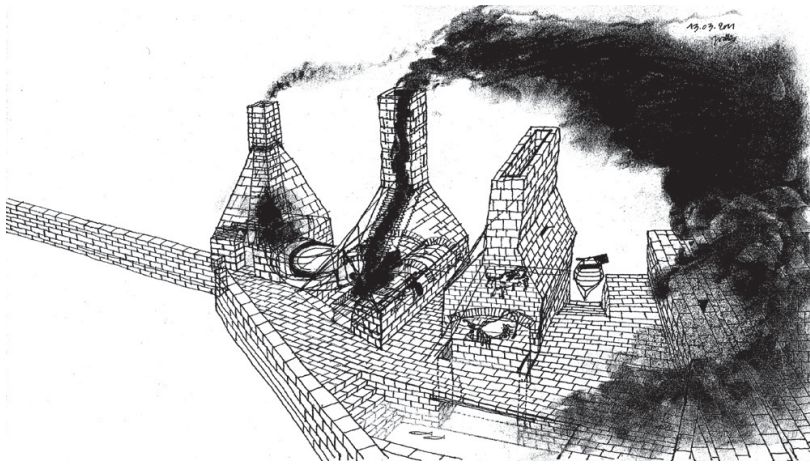


Fig. 9 Exploring the own mental space of the design researcher through drawings of past buildings.

notion of *tektonikos*, the chronological drawing, x-ray images, and ideas of chronology and substance as found on the drawing table. Together, these investigations were used by Van Den Berghe to support the main argument, and to make it work for his (future) architectural practice; these too are parts of his contribution to the field. They co-exist as a specific moment in a specific place, merging the moment of *to dream* with the place of *to make* into energetic momentum: this is the acute moment of creation when the designing architect is able to place themselves at the strategic intersection of time and space, and thus create new forms. Van Den Berghe calls this moment of acuity the 'State of Emergency'.

The other two doctorates that I wish to refer here are taken from music schools elsewhere. One is the aforementioned PhD by Stefan Östersjö, titled 'Shut up 'n' play! Negotiating the Musical Work', which was delivered at the Malmö Academies of Performing Arts at Lund University, Sweden in 2008. The research incorporates the interaction between Stefan Östersjö and several composers. It is through this process of interaction, the playing and performing, that a deeper understanding is able to be developed. As noted, this PhD discusses useful concepts as 'thinking-through-playing' and 'thinking-through-performing': thus the collaborations with the composers are described in great detail to explain the critical moments in the development of joint understanding and knowledge.

The PhD research of Carl Van Eyndhoven (who works at the Lemmensinstituut in Leuven) reconstructs the carillon music (both in terms of repertoire and performance practice) which existed in the southern Netherlands in the

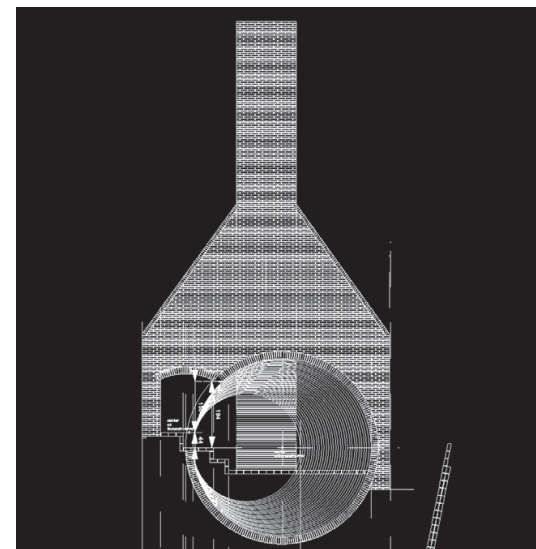


Fig. 10 Detailed constructional drawing for a brick chimney illustrating the impact of materialisation on the 'dream' of the designer.

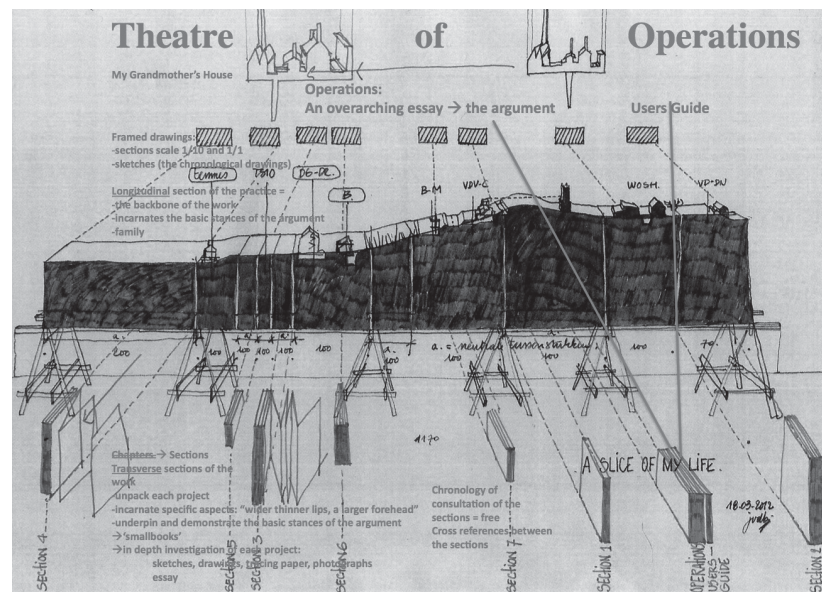


Fig. 11 Sketch design for the final exhibition of PhD research work by Johan Van Den Berghe.

seventeenth century. Carillons were instruments made up of rows of bells set within a church tower or municipal building. Since there are no primary musical sources with carillon music dating from this period, he had to use the so-called versteekboeken, collections of arrangements that were placed onto the large drums of the automatic playing systems of the carillons. By playing these arrangements himself on a carillon – originally, they had only been meant to be played automatically – Van Eyndhoven acquired new knowledge about the way that carillonneurs had played music in the seventeenth century. Through this ‘research by playing’, as performance pieces, he succeeded in reconstructing a historical musical vocabulary which had been lost. Hence in all these examples, the PhD research work serves to report, monitor, connect, and reflect from and upon experience and practice. Practicing and designing are the core processes for developing new understanding and knowledge.

CONCLUSION

It should be clear from the above that artistic research and research by design are developing in a wide manner at this very moment. Research endeavours like these have become crucial for all schools of architecture (and those in the arts). The idea behind this momentum for new PhD research programmes is to build upon the already strong competences of the field in terms of designing,

making, and developing projects, as well as to find ways to value knowledge and experience derived from practice. Research by design is hence high-level research in which these core competences of the field in designing and making – including that also of leading architectural practices – are the main pathways to establish new understanding and knowledge. It creates cutting-edge exploration and progress, both in practice and in studio work. It results in the development of spatial understanding and human ecology which daily impacts upon behaviour and living conditions. It is not about analytical thinking in the narrow sense, but rather about exploration – that is, searching, searching, and searching again to find new insights and aspects of architecture. It is about extending horizons, changing borders, stimulating curiosity and exploration. It is about imaging, visualising and projecting alternative worldviews, as well as developing spatial understanding and making possible future worlds – and thus also contributing to the understanding of underlying processes of the present.

In order to increase clarity in current communications on the subject, this chapter has introduced a scheme with which to structure our discussions of research activities. It also proposes that the term ‘research by design’ be used only for the kind of research where design activities (including activities undertaken in ‘real world’ practice) are the central means to develop understanding and knowledge. In establishing research by design as a new development, it is important to continue to explore and develop other directions and research lines.⁴⁰ Researchers should learn from these in order to improve the outcomes and research outputs. This continual process of exploration will help to develop the knowledge base for the discipline in all its strength, variety, and plurality. Above all it implies an open and liberal attitude toward the form and content of research by design, while at the same time maintaining high academic standards of the research content. In order to achieve this highest level of quality, it is important to organise peer review on a regular basis, communicating externally and connecting to knowledge and experience drawn from practice. Within the broader debate on what research is, the experience and the perspective of the designer should be valued.

40 Kjørup, Søren: Pleading for Plurality: Artistic and Other Kinds of Research. In: Biggs, Michael / Karlsson, Henrik (eds.): *The Routledge Companion* [...], pp. 24–43.

ACKNOWLEDGEMENTS

The author wants to thank Johan Van Den Berghe, Arnaud Hendrickx, Stefan Östersjö and Carl Van Eyndhoven for providing input and material about their PhD projects. He is also thankful to Halina Dunin-Woyseth for her valuable feedback on a first draft. This chapter is a majorly reworked version of my previous paper on ‘Recent Trends in Research by Design(ing)’, as published in 2012 in the *Proceedings of the 3rd Symposium of Architectural Research 2011: Research & Praxis* by the School of Architecture, University of Oulu, Finland.

ABSTRACT

Wissen ist nichts Angeborenes. Es muss gesammelt und aufgebaut, manchmal angezapft und immer ausgetauscht werden, um es vermehren und nutzen zu können. Anhand von Projekten seines Büros und seines Lehrstuhls zeigt Günther Vogt die Bedeutung des Wissens für die Entwurfsarbeit und erklärt, wieso Laien dabei genauso eine Rolle spielen wie Experten.

KNOWLEDGE-BASED DESIGN

Günther Vogt

Wissensbasiertes Entwerfen, oder knowledge-based design, ist in erster Linie Gegenstand unserer Arbeit im Büro. Die Ausbildung, also das Studium der Architektur bzw. Landschaftsarchitektur, formt den Weg dorthin. Die Lehre in den Fächern Planung, Architektur und Landschaftsarchitektur, aber auch in weiter entfernten Disziplinen wie der Soziologie bildet die Grundlage für das Wissen, das wir später im Beruf zum Entwerfen benötigen. Dabei ist es nicht das Ziel, genug Fachwissen zu vermitteln, um Absolventinnen und Absolventen unmittelbar grosse Projekte anzuvertrauen. Es geht viel mehr darum, das Verständnis für unser Fach zu wecken, den Studenten die Werkzeuge – und dazu zählen die richtigen Begriffe – der Landschaftsarchitektur aufzuzeigen und sie dazu zu animieren, miteinander in den Dialog zu treten.

Ein gewisses Grundwissen und eine gehörige Portion Neugierde sind Voraussetzung für den Entwurf. Joseph Paxton war ursprünglich Gärtner und eher nebenbei mit der Architektur in Kontakt gekommen, als er, neugierig, ehrgeizig und mutig, begann, Stahl und Glas zu kombinieren und die Konstruktion eines Gewächshauses bis zum Bau des Londoner Kristallpalasts weiterzuentwickeln. Von Berufs wegen hatte der Gärtner und Unternehmer Joseph Monier noch weniger mit Konstruktion zu tun. Da ihm jedoch immer wieder seine Pflanztröge zerbrachen, tüftelte er selbst so lange, bis er haltbare Gefässe entwickelt hatte: weidenbewehrte Tröge, deren Weiterentwicklung der heute standardmäßig verwendete Stahl- oder eben Monierbeton ist. Beide Männer kann man zur Kategorie der Bastler zählen: Im Gegensatz zum Ingenieur, der ein Problem theoretisch löst und sich dann die dazu benötig-

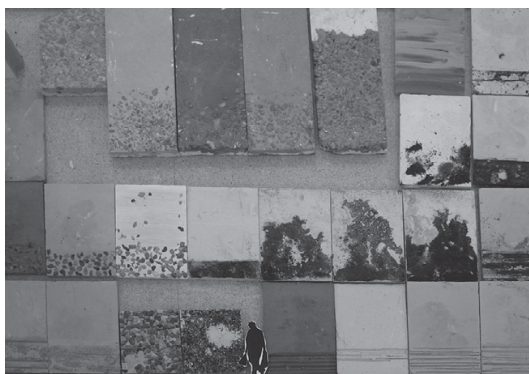


Fig. 1 Studien zur Färbung und Bearbeitung von Beton. © VOGT



Fig. 2 1:1-Modell der Mauer. © VOGT

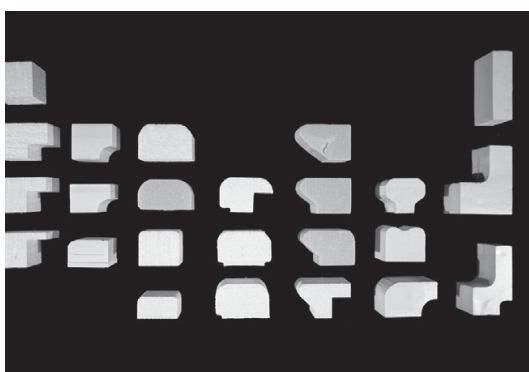


Fig. 3 Studien zur Gestaltung des Mauerkopfs. © VOGT

ten Materialien zusammensucht, benutzt der Bastler die ihm zur Verfügung stehenden Materialien und löst damit das Problem.

Als Entwerfer ist es uns erlaubt und manchmal unvermeidlich, die Kenntnisse und Erfahrungen anderer Personengruppen anzuzapfen. Unser Wissen besteht in solch einem Moment also darin zu wissen, wen wir fragen müssen. In Bremen baute das Büro VOGT eine ehemalige Hafenanlage um. Zentraler Baustoff für die dazugehörige Promenade war farbiger Fertigbeton. Für die Entwicklung der Betonteile haben wir intensiv mit Experten zusammengearbeitet, die sich mit dem Material auskennen und wissen, wie man es färben und so grossflächig wie möglich verbauen kann (Fig. 1). In der Praxis bedeutet das einen ständigen Informationsaustausch zwischen dem Entwerfer, der seine Wünsche äussert, und dem Experten, der Möglichkeiten kennt und nennt und im Idealfall versucht, Neues zu entwickeln, um die Ideen des Entwerfers so weit es geht umzusetzen. Das Ergebnis solcher Arbeit erinnert nicht selten an das Workbook eines Künstlers. Auch unser 1:1-Modell der Promenade könnte man als Kunst bezeichnen (Fig. 2). Dieses sowie die kleineren Studien (Fig. 3) dienen jedoch weder der Kunst noch der Forschung, sondern dem Entwurf, und spiegeln letztlich einzig unsere Entwurfsversuche in Zwischenschritten wider. Das Ergebnis des Austauschs – und der kurzfristigen Wissensanzapfung – sieht man in Bremen (Fig. 4).

Es gibt Projekte, in denen zunächst die Grundlage geschaffen werden muß, auf der ein Entwurf aufbauen kann. Ein ehemaliges Farmgelände in der Nähe des Flughafens London Heathrow ist so ein Beispiel. Auf einer Fläche von ca. 500.000 qm wird für die nächsten 25–30 Jahre Kies für die Betonherstellung abgebaut. Um die Anwohner in diesem Zeitraum nicht unverhältnismässig mit einem riesigen Loch und den Nebeneffekten des Abbaus (Lärm, Staub etc.) zu belästigen, schlug der Bauherr von Anfang an eine Parkeinfassung oder Ähnliches vor (Fig. 5 und 6). Bei der Konzeptentwicklung ging es zunächst darum, zusammen mit Architekten, Ingenieuren und Ökologen zu planen, wie sich das Gelände im Laufe der Arbeiten entwickeln wird. Das bedeutet auch, aktuelle Kartengrundlagen für

das konkrete Gebiet (und London hat eine unglaubliche Vielfalt an Kartengrundlagen) zu verwerfen und eine eigene Karte zu erstellen: aus unserer persönlichen Interpretation der vorhandenen Pläne, unseren Eindrücken vor Ort und in der Umgebung, eigenen Kartierungen und der Höhlenstruktur, die der Kiesabbau mit sich bringen wird; aber auch aus unserer Erfahrung mit dem vorhandenen Material, die wir aus anderen Projekten mitbringen.

Eine gegenteilige Ausgangslage bietet sich in einem Park am Zuger See, wo die jüngste Geschichte des Englischen Landschaftsgartens aus jedem Baum und jeder Wegbiegung spricht. Doch auch die Schweizer Landschaft lässt sich aus der Topographie ablesen. Hier sollte ein Ausbildungszentrum für das Top-Management eines weltweit agierenden Unternehmens integriert werden. Unser Entwurf konzentriert sich auf die historische Landschaft, die über die Parkgrenzen hinaus geht, und ihre Pflanzenvielfalt. Die Schulungsgebäude waren als Pfahlbauten geplant, unter denen die Landschaft gleichsam hindurch fließt. Diese extrem enge Verzahnung von Architektur und Landschaftsarchitektur erfordert eine sehr gute Kommunikation und funktioniert nur mit einem guten Verhältnis zum Partnerbüro, am besten mit einer guten persönlichen Kenntnis des Planungspartners, und Verständnis für das andere Fach. Durch die Arbeit am gemeinsamen Modell und den ständigen Austausch können wir sicherstellen, parallel in dieselbe Richtung zu entwerfen (Fig. 7).

Für den Entwurf nützliches Wissen kommt nicht immer von Experten. Das Thema der Biennale 2012 in Venedig war „Common Ground“; eine Absurdität angesichts der Eintrittspreise für die Ausstellung. Wir wurden eingeladen, einen Beitrag zur Veranstaltung zu leisten. Zusammen mit Assistenten der ETH entwickelten wir ein Konzept, das den Titel wörtlich nahm und die Biennale nach Venedig brachte und nicht andersherum. Durch Passantenbefragungen an verschiedenen öffentlichen Räumen in der Stadt versuchen wir zu erfahren, wie diese Orte benutzt und angeeignet werden, wie die Menschen – lokale Bewohner genauso wie globale Touristen – sich darin bewegen und orientieren und was die spezifischen Merkmale und Qualitäten sind. Der Kiosk, der von uns entwickelt wurde, diente als



Fig. 4 Europahafen Bremen: Mauer entlang der Promenade. © Christian Vogt

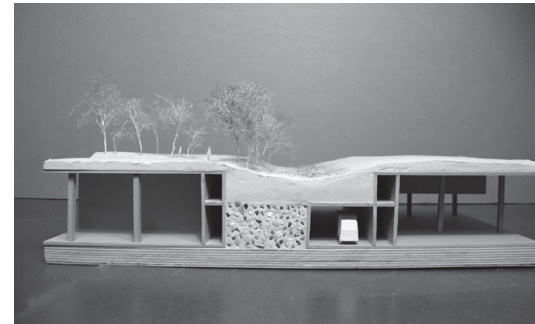


Fig. 5 Modell: Topographie und Bepflanzung puffern Nebeneffekte des Kiesabbaus. © VOGT



Fig. 6 Mögliche Parksituation auf 500.000 qm. © VOGT, Carmody Groarke



Fig. 7 1:200-Modell zur gemeinsamen Bearbeitung. © VOGT



Fig. 8 Zentrale Lage des Kiosks – vereinfachte Darstellung im Modell.
© Case Studio VOGT



Fig. 9 Der Kiosk in Venedig.
© Case Studio VOGT

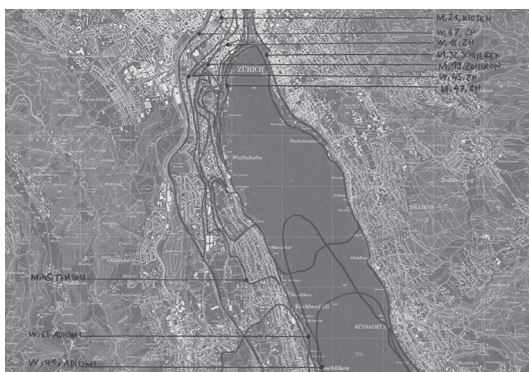


Fig. 10 Wahrgenommene Grenzen des Zürichsees. © Professur Günther Vogt, ETH Zürich

Kommunikations- und Präsentationsplattform für die Resultate dieser Befragungen (Fig. 8 und 9). Abgeleitete Erkenntnisse wurden in die Sprache des Kiosks übersetzt, an dem dieses ungewohnte Venedig in Form von Zeitungen, Postkarten und weiteren Kioskartikeln verkauft wurde. Alle Artikel wurden an die Vorbeigehenden abgegeben unter der Bedingung, dass sie an der Befragung teilnehmen, womit sie selbst und ihr Wissen wiederum Teil des Projekts wurden.

Ähnlich setzen wir im Forschungsprojekt „Urbane Potentiale und Strategien in metropolitenen Territorien am Beispiel des Metropolitanraums Zürich“ an. Betrachtet man den Alpenraum im Hinblick auf Besiedlung, stellt man fest, dass sich alle Großstädte in der Randlage befinden. Unsere Theorie ist daher, dass die Alpen selbst einen Park für diese Städte darstellen. Gleiches gilt für den Zürichsee im Bezug auf die Stadt Zürich. Auch in diesem Forschungsvorhaben spielt die Passantenbefragung eine wichtige Rolle: Fragebogen, Mental Map und Instant Photographie sind die Werkzeuge. Die Passanten werden gebeten, mit einer Einwegkamera je drei Bilder zu machen von Dingen oder Orten im öffentlichen Raum, die sie mögen bzw. nicht mögen. Wir übersetzen die Beiträge in Karten: mit erstaunlichen Ergebnissen. Gingen wir noch schlicht davon aus, dass der See von den Zürichern als Park aufgefasst wird, zeigen die Karten, dass nicht unbedingt die Ufer die – wahrgenommene – Seegrenze bilden. Topographie und Bebauung spielen eine zentrale Rolle und geben dem See plötzlich eine neue Form (Fig. 10).

Als Entwerfer benötigen wir beides, das emotionale Wissen des Laien ebenso wie das rationale Wissen des Experten, und verbinden so die Forschung mit der Praxis.

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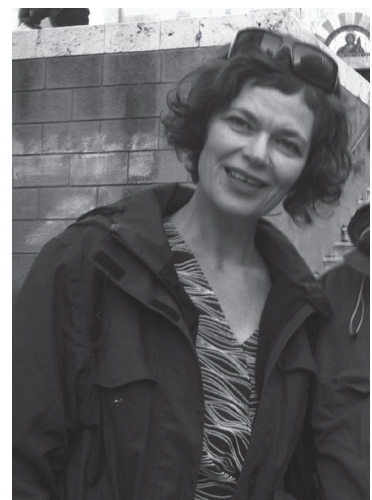
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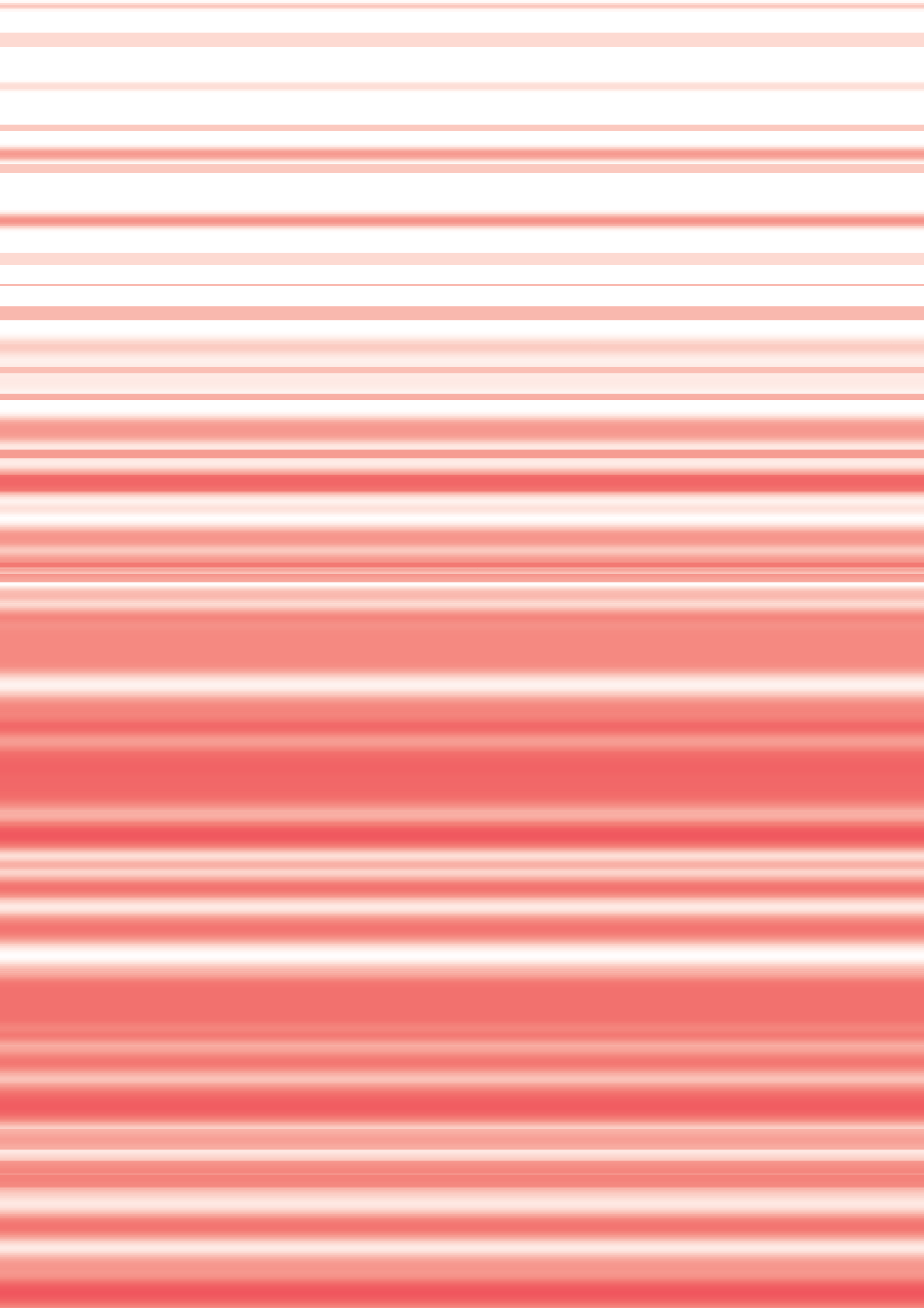
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