

Making Research | Researching Making

Creative Practice Conference 2015
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Proceedings

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Preface

Making Research | Researching Making

What can be explicated from the art, design and architecture fields of practice about our particular models of making research? Where does making research take place? Who and what can be involved in the processes of making research? How is research initiated within the work of practitioners? How does research connect and intersect with the processes of making within creative practice?

The international conference on creative practice research 'Making Research and Researching Making' brings together around 100 artists, designers and researchers- from across 13 disciplines, travelling from across 3 different continents and 11 countries - to share their work, knowledge, and expertise, and to build new understandings of the productive and critical capacities of making.

The conjoined topics of making research and researching making emerged as an area of investigation within the European research training project ADAPTr - Architecture, Design and Art Practice Training-research – which develops capacity for practice-based research through supporting established creative practitioners to uncover and develop the knowledge within their work through engaging in doctoral research. Architects, designers and artists invited to present and develop their work in the spaces of universities, bring with them a panoply of understandings, experiential and embodied knowledge of creating and making. They open up for discussion and investigation the processes of designing and making developed through years of practice, and, further their practice through positioning it as

a central element within their research.

Turning fresh eyes, and design acuity, on the processes of research, creative practitioner-researchers can also contribute much to the questioning of our understandings of how knowledge is produced (by diverse human and non-human interactions); rethinking how, where and with whom, or what, research is made. The aim in initiating this conference was to provide a purpose-made forum for making and developing knowledge and understandings of what it means to make research and to research making, across the wealth of forms of making: sculpting, drawing, crafting, manufacturing; also social, collective and relational forms of making. We are interested in the designed and/or contingent processes of how creative practice research happens, understanding research as an embodied, emplaced, material and social undertaking.

Our call for participation, issued earlier this year, garnered an amazing response. From 165 abstracts, 50 presentations were selected, through a process of peer-review by our international scientific committee. In keeping with the field of practice-based research and theme of making, around half of the presentations will be structured around exhibits of materials, artifacts, and sound and video works.

The conference call offered up four themes and sets of questions as a catalyst for contributions. These themes are listed below; grouped with them are the session titles which emerged from matching or contrasting

preoccupations in the submissions we have received:

Knowing How

The call for contributions raised questions as to how the dynamic forces of materials, and the generative potential of objects and artefacts, influence making research. We were interested to understand more about what the conceptual tools of practice research are, and how they relate to design tools, or tools of artistic practice. We also invited discussion of what 'other ways of knowing' allow practitioner-researchers to recognise, and reflect, as their practice changes or shifts?

The conference sessions which emerged in relation to this theme address both the techniques and technologies of creative practice research, and its diverse materials and the constructive role they can play. Conference sessions and workshops relating to this theme are:

E1 Lost and Found – engaging with the already existing

E3 Informed by Materiality

E5 Technological Mediation of Making

P6 Drawing as Research - Drawing as Practice

W2 Re-searching, Re-creating (workshop)

Experiment & Surprise

In creative practice we have a cultural acceptance of surprise, of an out-of-control agency of the materials of design. We make things, artefacts, models, prototypes, drawings, actions... And then we respond to it: to the materiality, to how it feels to make it, to how different elements come together. This process can be termed as 'experiment', 'action', 'test' or something other. The conference sessions which emerged in relation to this theme address the agency of making and of the unexpected or uncertain within processes of research:

E4 Interferences and obstructions as creative drivers

P1 Change and Chance in Making
W1 The Uncertainty Paradox (Workshop)

Contributions of Making Research

There is an ongoing debate about how the materials, works, and artefacts practitioners make are 'counted' as research, how they contribute to research knowledge. The contributions of creative practice research can be understood as diverse, in terms of contributions to knowledge in its many forms, contributions to different research publics or to society, or by other means. In the conference call we questioned through what elements and what means making research makes its contribution, and where the outcomes of creative practice research are seen, heard, read or felt.

The conference sessions which emerged in relation to this theme address different ways of knowing and practice research knowledge, and also reflect on the different roles of the practitioner researcher as maker or creative agent:

E2 Embodied Making

P3 Knowing in Practice Research

P4 Practitioner and Maker in a research perspective

P7 Concepts and Practices of Creativity

Sites of Making Research

Directing attention to the sites of making research, recognises that making research may require specific sites, both in terms of the object of the research activity, and the requirements of the processes of making involved. 'Site' raises questions of access, participation and purpose.

The conference sessions which emerged in relation to this theme address the impact of site and place, and also the ability to impact on and explore the city or place through making research:

P2 Contested Sites of Making

P5 Researching and Making (in) Place

In creating a space for presentation, exposition and discussion of the topics of *making research and researching making*, we are keen to shape a forum which welcomes practitioners who are new to research, as well as established researchers, and those developing a dual trajectory in practice and research. We follow in the footsteps of the first ADAPT-r conference 'Mediators', held at KU Leuven in August 2014, in curating an event that gives equal precedence to paper presentations and a wide range of exhibition presentations.

This conference is conceived of as a space of encounter between disciplines concerned with researching making: it comprises papers and exhibits from practitioners and researchers working across the design disciplines, fine arts, architecture and landscape, as well as interdisciplinary contributions. We extend an invitation to all presenting and receiving practice research to try to communicate in such a way as to foster openness and inclusivity, and to build understandings together. We are looking forward to making this a lively and creative collective research experience, forging new connections across research and practice.

Acknowledgements

This event is initiated by the Architecture, Design and Art Practice Training research (ADAPT_r) Initial Training Network, a four-year collaboration between seven creative practice research institutions. ADAPT_r aims to significantly increase European research capacity through valuing practice and creative processes. At its core is the development of a deep understanding of the knowledge and the knowledge processes which are embedded in a creative practice. ADAPT_r ITN has received funding from the European Union's Seventh Framework Programme FP7/2007-2013.

E1

**Lost and Found -
Engaging with the Existing**

Breathing Buildings

A practice-led response to the 'dissolving' architecture of Kengo Kuma

Japanese architect Kengo Kuma writes evocatively of the spatial transformation that a rainy day affects – of melting boundaries between sea, sky and water, and of the sensation of envelopment that comes from a mingling of solid, liquid and gas. ¹Kuma asks us to consider architecture as a condition of dissolution in which our attention is directed away from the physical matter of architecture to an instinctive, sensorial registration of interactions between natural phenomena. The lived experience of the body in these spaces is paramount and becomes, in a sense, the measure of the work. This gives rise to the difficult question of how we might research and communicate a series of personal and ultimately un-shareable experiences of architectural space. How might creative practice-led research assist in accessing the territories of the un-sayable and the un-knowable to offer insight into Kuma's architecture? How might such research cater for complexity and conflict?

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Keywords:

Architecture, Kengo Kuma, Medium, Dissolution.

¹ Kuma, K. 2008. *Anti-Object: The Dissolution and Disintegration of Architecture*. London: Architectural Association, 81.

1. Walls

It is widely accepted that practice-led research is most effectively situated within our institutional environments when the practice of making is paired with the practice of writing – whether it's writing about, of, around or beyond is another matter, but for me the twin orbits of making and writing often shear against each other. I recently find writing generally to be an impossibly torturous process, particularly when I am asked to write about my work, or to describe my work, and I often retreat accordingly. If there were words for it, then there would be no need to make it. The resistance is like a brick wall in the midst of a creative process that instantly shuts down the complex networks I've spent months or years nurturing and I... must!... break!... through!... ... Alas, there are walls aplenty in what we do. My walls are probably not unique.

Writing alongside the work, however, presents less angst and more often than not actually extends the networks the practice establishes. I think of it as writing in the margins – it is not the core, but it is often a distilled idea or reading that enables an understanding of it. For me, and possibly also for you. So here in Aarhus I present a creative work and two margin-works. There is a video, *Breathing Buildings*; a paper, which is what you read now; and another margin-text that is read against the video. Three works in mutual orbit.

2. Oscillation

I have questions. Questions about space, about architecture, about material, about inhabitation. I make work with a purpose and intent not only to answer the questions, but also to form and reform the questions as the work is made. It's a restless process and it is rarely comfortable or pleasant. It's often full of uncertainty, unknowing, and it is prone to spontaneous unravelment. Just as I am hopeful of a conclusion-of-sorts I find myself back at the beginning – or worse, beneath the

beginning. Ross Gibson writes of this backwards-forwards research process as a kind of compulsive oscillation:

"Inside – but also outside – but also inside – but also outside – but also inside. The rhythm of this narrative acknowledgement is restless. And it's necessary. Because the world of lived experience and discovery-based research is restless like this, not simple, static or stable." (Gibson, 2010, p 11).

The restlessness Gibson describes is at once the site of the richness of practice-led research, and is simultaneously the site of the difficulties associated with it. The state of constant oscillation means nothing is ever complete or concluded because there is always, by necessity of process, an alternative position to move towards. When you get there, to the inside or the outside, you see things differently. And so you cross the boundary again only to find that the point of origin has in fact shifted, and that shift sets off a chain of subsequent responses and adjustments that in turn begin influencing the initial questions. This constantly evolving terrain in which the inside and the outside consistently generate and re-generate the other is in the very best situations the site of what Gibson refers to as an 'intelligent shimmer' (Gibson, 2010, p 9) – a space of productive vibration between opposing conditions, or the creative energy of two distinctly different but complementary parts. It is a research process that is iterative, expansive and exciting. It is also never, ever, 'finished'.

In my recent project *Breathing Buildings*, I attempted to make work in which this process was held in tension against my own ingrained architectural expectations of what a research process is or should be. The work was built on quiet rebellion, disparity, even fracture. It ignored all sense of architectural process and artefact in favour of experience. The initial premise was straightforward – I would visit a number of buildings by an architect in whose work I felt some interest. I would experience a series of spaces in

some capacity based upon the circumstances of the day, and I would then form a response. I did not look at drawings, I did not look at models. I did not read about the buildings, nor talk to the architect. I simply went to a series of buildings and spent time there. I felt a position of this extremity was necessary in order to establish the 'raw data' of spatial experience.

The buildings I visited were designed by Japanese architect Kengo Kuma: Z58 in Shanghai, China, completed in 2007; Conservatoire Darius Milhaud in Aix-en-Provence, France, completed in 2014, and the Daiwa Ubiquitous Computing Research Building at the University of Tokyo, Japan, completed in 2014. Three different buildings, three different countries, three different functions, three different materials.

I filmed aspects of the buildings instinctively, according to what made an impression on me. I purposefully disregarded any obligation I felt as an architect to 'explain' the buildings and conceive them as complete spatial systems – I went in as a 'user' and allowed myself to be 'moved'. This process involved the active suppression of parts of my architectural self, which naturally swayed toward wanting to 'know' the extent of the buildings in all their detail. I found it difficult to make a work that refrained from engaging in architectural narrative or that was somehow based upon the progressive sequence of spaces that linked one logical moment to another. In the space of Gibson's oscillation I found that much forgetting was required in order to successfully navigate the inside and the outside. With each movement I had to entirely forget the previous crossing, and only once this crossing was safely forgotten could a new crossing could be enabled. I fought hard to resist the architectural commentary of 'now we pass through the main entry, and are swept down a grand stair' in favour of 'I am here and my breath is causing the fog on this pane of glass and the moment I stop exhaling the fog will retreat'.

"Being thus immersed and extracted, involved yet also critically distanced, ill-disciplined and shiftily but also disciplined and reflective – as in an artist's studio – you stand a chance of knowing both the world and yourself more comprehensively, not only more intuitively but also... and there's no denying that this seems

enigmatic and illogical... not only intuitively but also more analytically." (Gibson, 2010, p 10).

Am I immersed and extracted, involved and critically distanced, ill-disciplined and shiftily? Yes, yes, yes. But if Gibson's logic is anything to go by – and I think it is – this research process is not only valid but indeed necessary to understanding situations of complexity. Researching space is necessarily complex because we can never remove ourselves from our present spatial situation, nor ignore the sensory registration of our environments. We are not spectators in the complicated entanglement of air, body, sense, thought – we are the entanglement.

"Given that most experts agree that complexity can be understood only by experiencing it directly, by imbibing and appreciating it from inside the systematics of its always-unfolding occurrence, then it follows logically that artists are specialists in this major aspect of contemporary life. In short, complexity needs to be investigated by means of a special, doubled mentality – a means of being fully attentive both inside and outside the unfolding phenomena – and artists are potential leaders of research concerning this paradoxical capability." (Gibson, 2010, p 7).

Breathing Buildings is an attempt to engage with and celebrate this doubled mentality. By building a set of related visual and sonic narratives that is flexible and ultimately unrelated to the sequential experience of architectural space, I hope to create a reflective site for the contemplation of architectural space. The narratives do not describe Kuma's spaces in any comprehensive manner, but instead attempt to build a new narrative from a series of fragments that impressed themselves upon me, the researcher, as I experienced space. I don't think of it as a finished work, but rather as a series of dynamic and evolving relationships (Gibson, 2010, p 8).

(Fig. 1, 2).

3. Insufficiency

In this space of restless oscillation, Kuma's work itself also facilitated the doubled mentality of repeated shifts from inside to outside, not by polarising these conditions in an architectural sense, but by limiting the way in which the buildings could be understood as isolated objects in the world. The conception of a building as an object, Kuma argues, separates human beings from the complexity, ambiguity and profundity of reality (Kuma, 2013, p 55). The building as object forces the world into incontestable conditions of interior and exterior, which ultimately separates architecture from environment and thus from the world.

In a similar vein, Kuma has also declared an intent to make 'weak' architecture – that is, architecture of a limited lifespan that is largely dictated by the deterioration of relatively fragile materials (Kuma, 2007). The use of 'weak' materials undermines the conception of architecture as an object because objects resist and endure – they stand in opposition to the world, they are defensive – whereas the utilisation of materials in which degradation is welcomed and indeed celebrated reflects a broader awareness of potentialities that extend into their past and future conditions. Yuriko Saito describes an awareness that fallen cherry blossoms are aesthetically superior to those in bloom precisely because they have previously achieved the state of full blossom. Similarly, chipped ceramics continue to be held in high regard precisely because they were once whole. This poetics of 'insufficiency' seems core to Kuma's retreat from the 'object'. He welcomes a sense of interconnectedness and intertwinement (Kuma, 2013, p 38) that grows from this artistic sensibility:

Many Japanese artistic activities both presuppose and encourage the artists' listening to and submitting themselves to the voice and dictate of the material and subject matter, as well as affirming the various elements of accidents and surprises beyond their control. The attitude toward society, nature, and life as well as artistic work encouraged as virtuous is to acknowledge and accept the given condition... even including their painful, difficult, or disappointing aspects, and to appreciate what is given. (Saito, 1997, p 383).

4. Medium

How then, can architecture be made to disappear? (Kuma, 2013, p 5).

In his text 'Anti-Object' Kuma observes that in Japan, space is neither complete in itself nor closed, it is merely a medium (Kuma, 2013, p 61). For people, the medium of space, the inhabited environment, is normally the air that we need to breathe, to move about in, to make things and to touch things (Ingold, 2011, p 22). It affords movement and perception (J Gibson cited in Ingold, 2011, p 22). It is a medium that can be articulated, influenced, and mediated – but not controlled or isolated. It is in constant exchange around and within our bodies (Leder, 1990). It is a space of turbulence where nothing is fixed or stable, and everything is contingent on everything else. Sustaining this uncertainty, keeping things unfixed and in play, and suspending the process of rigid definitions, are part of an active process... (Cottrell, 2014, p 59).

In this framework, we can consider Kuma's question concerning the disappearance of architecture as a logical extension of his belief that architecture is always situated in and connected to the world (Kuma, 2013, p 47). James Gibson's notion of medium, surface and substance is helpful here: space is a medium, and since spatial concerns are the domain of architecture, architecture may be considered as the negotiation of a medium by means of carefully placed surfaces that deteriorate or diffuse in time. The medium acts upon the surfaces and the surfaces register the restlessness of the medium. The medium is a constant in space – it is space. It is in continual motion and exchange and is always in relationship to the inhabiting body. It comes into being around us as a world of formative and transformative processes, existing not in and of itself but as the ambience of its inhabitants (Ingold, 2007, p 525).

To understand how people can inhabit this world means attending to the dynamic processes of world-formation in which both perceivers and the phenomena they perceive are necessarily immersed. And to achieve this we must shift our attention from the congealed substances of the world, and the solid surfaces they

Figures 1 and 2. Z58, interior façade details (photographs: author, 2014)

Paper

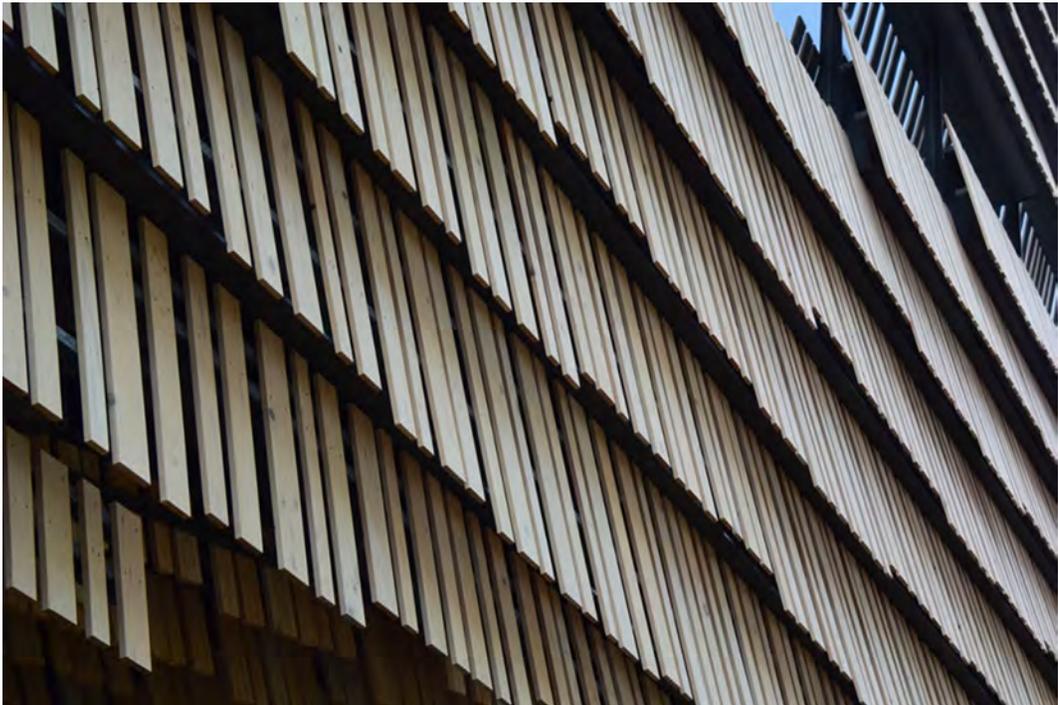


Figures 3 and 4. Conservatoire Darius Milhaud, exterior façade details (photographs: author, 2014)



Paper

Figures 5 and 6. Daiwa Ubiquitous Computing Building, exterior façade details
(photographs: author, 2015)



present, to the media in which they take shape, and in which they may also be dissolved. (Ingold, 2007, p 528).

We breathe inside buildings, within buildings; we also breathe them in, as both bodily and cerebral permeation. We inhale the medium and in doing so we inhale the architectural space. It is an environment, and we are in exchange with it. We are not in it as foreign bodies, we are the environment together with all its constituent elements. It is an interconnected system in which it is impossible and unnecessary to distinguish between the medium we inhale and the medium we inhabit. The same goes for the outside. We breathe outside buildings, beyond buildings; we also breathe them out, as exhalation, as a kind of micro-climate. Our inhabiting bodies are immersed in the fluxes of the medium by virtue of physiology. Life is... lived in a zone in which substance and medium are brought together in the constitution of beings which, in their activity, bind the weather-world into the textures of the land (Ingold, 2007, p 534). The Japanese conception of space as a medium is the precursor for the disappearance of architecture, and ultimately for its dissolution.

(Fig. 3,4).

5. Filter

In Shanghai, on my walks to Z58, the 'medium' is visible. My hand is indistinct in front of me because I view it through air that is laden with particulate matter. The medium is hovering there, in a great suffocating mass, over the entire city. In this context, it's not a stretch to see Z58 as a filter. At least two of Kuma's previous projects utilise the word filter in their titles – River/Filter (1996) and Sea/Filter (2001). In both these buildings the striated planes that have become a hallmark of Kuma's architecture can be seen. These planes bring a unique character to the interior space, but more importantly act as a device for mediating between the inhabitant and the world (Kuma, 2013, p 43). This mediation can be understood as a kind of filtering – the façade becomes a porous device that removes impurities. At Z58 it's a 'green louvre' system that is a haunting rhythm of ivy and stainless steel. It is a surface comprised

of substance that at once absorbs and reflects the medium. This façade is a mediator, an anti-object; it draws the medium in and offers it back in an ongoing exchange. It is dynamic; it is restless.

To return once more to Kuma's question of how architecture can be made to disappear: it is helpful to consider his suite of façades. Many of Kuma's façades can be read as ambiguous surfaces – not only Z58, the Conservatoire and the Ubiquitous Technologies Building, but others as well including Sunny Hills (2013), Xinjin Zhi Museum (2011), Stone Museum (2007), Chokkura Shelter (2005), Nagasaki Prefecture Museum (2005), Great (Bamboo) Wall (2002), and Water/Glass (1995). Kuma consistently builds a permeable architectural envelope, striated or gridded, and often pulled gently away from a secondary, more complex envelope that incorporates operable openings. Kuma's façades are often literally permeable in that air is allowed to pass freely through the envelope; other times the permeability is visual in nature and created through sightlines or the assembly of a complex series of reflections. In my view, the permeability of the architectural envelope is key to understanding Kuma's meaning when he speaks of wanting to make architecture disappear. It is not a sudden disappearance that he speaks of, or a disappearance that carries a sense of removal or negation. Rather, it is more akin to a sense of active dissolution within the medium:

On rainy days, the boundaries between world and architecture melt: sea, sky and pool are transformed into a mass of blue-grey particles that envelop the subject. Even the distinctions between solid, liquid and gas disappear. In such moments, the building expands infinitely and becomes identical with the world. At the same time, everything in the world is compressed into and embedded within the building. (Kuma, 2013, p 60).

The striated façades of Kuma's buildings connect the exterior world with the interior world by allowing the spontaneous connection of disparate parts through the medium. The experience of the buildings is one of simultaneity – of seeing interior with exterior, and built matter with natural matter. This simultaneity means that the complexity of the architectural space is perceived gradually, in time and in movement. It forms spontaneously as a

series of unique moments or situations combine. It is unpredictable and irreplicable. Saito observes that one of the defining features of traditional Japanese design principles is a kind of harmony brought about by the juxtaposition of disparate elements in which the unity of the whole emerges spontaneously from the contribution of each part rather than from within a preconceived, overall plan (Saito, 1997, p 378). In many ways this works against an architectural grain which preferences predictability, order and completeness.

Kuma speaks of this process as ‘particlisation’, in which architecture is consistently and spontaneously constructed and re-constructed in relation to the medium and to the inhabitant of that medium, rather than through the stable combination of parts in fixed relation to each other. The striated facades – the louvres – whether they are made of wood, metal, glass, plants, textile or stone, all serve to ‘particlise’ the architecture, splitting its elements into multiple components that allow simultaneous experiences of interior and exterior, and of past and future. This ambiguity is desirable and necessary in the consideration of space as a medium:

Louvres stand between the environment and the subject and reflect that relationship; they interact more than they reflect. If materials that have an invariable and distinctive colour, texture and degree of transparency are absolute, then louvres are relative: their character is not fully determined by the designer or architect but is left in part to each observer, allowing for his or her input. In that way louvres are like rainbows. A rainbow is not something absolute that exists somewhere, but instead it is generated by the relationship between the sun, droplets of water and the observer. Rainbows are relative because they are collections of particles... (Kuma, 2013, p 205).

(Fig. 5, 6).

6. Dissolution

Kuma asks us to consider architecture as a condition of dissolution in which our attention is directed away from the physical matter of architecture to an instinctive, sensorial registration of interactions between natural phenomena. This

sense of redirection opens the architecture to a broader sense of place, in which a building is never to be understood in isolation from its environment. Indeed it is part of the environment, inseparable from the medium in which it is located, which infiltrates it and holds its substances and surfaces in relation to each other. Kuma makes a clear declaration: ‘using actual matter, I would like to create an architecture that mediates and relates (Kuma, 2013, p 62). It is a clear intent with a clear material strategy and yet refutation abounds:

Kuma wants to erase architecture from the city or an isolated natural site like a mathematical subtraction. The image of architecture has been deleted from our mind and our imaginative landscape. The building becomes a rational deletion of the place of architecture. Instead of building a whole architecture he builds only a half. (Weiner, 2007, p 249).

‘Dissolution’ and ‘deletion’ are radically different ideas and the reflective call for an architecture that gives presence to the medium through the careful manipulation of surface is both sober and resonant. Deletion is an act of violence, an irreversible act – it is the complete removal of something and the eradication of its memory. It is an aggressive act, and it leaves nothing behind. Dissolution is profoundly different. It is a comingling, an additive process in which one thing is integrated into another. It is a positive process in which complexity is developed through change. The understanding of space as a medium that becomes richer through a process of dissolution allows architecture to be understood in relation to climatic elements that influence the medium such as air pressure, wind and temperature. Weiner’s concern, that by allowing the language of environmentalism to invade our thinking about the making of architecture we have inadvertently turned architects into meteorologists or climatologists (Weiner, 2007, p 252), seems to overlook the fact that architecture does not and cannot exist only in reference to itself.

This reflection on the experience of these three Kuma buildings through the production of creative work revealed that it is possible to work with a range of imprecise conditions without an obligation to resort to reductive, linear strategies. Creative practice-led research allows

us to choose dissolution over deletion, and to investigate complexity through complexity. There is no need to say what cannot be said or to name what cannot be named, but we can continue to oscillate consciously and productively between the inside and the outside, and approach our questions through the 'doubled mentalities' of looking/listening, registering/contemplating, and responding/disseminating.

refutations and conjectures of quality in the work of Kengo Kuma and W. G. Clark. *Architectural Research Quarterly* 11 (3-4). p. 245 – 253.

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Acknowledgements

Breathing Buildings is supported by a UNSW Australia Built Environment ECR grant.

Breathing Buildings

Breathing Buildings is a creative research project investigating aspects of air, medium and dissolution in relation to three buildings by Japanese architect Kengo Kuma. The buildings are Z58 in Shanghai, China, completed in 2007; Conservatoire Darius Milhaud in Aix-en-Provence, France, completed in 2014, and the Daiwa Ubiquitous Computing Research Building at the University of Tokyo, Japan, completed in 2014. In making this work, I aimed to create a reflective site for the contemplation of architectural space through the construction of a set of related original visual and sonic narratives. The narratives do not describe Kuma's spaces and actively avoid engaging with sequential architectural narrative. Instead, the work is an attempt to build an entirely new spatial narrative based on actual experience. It is assembled instinctively from a series of fragments that impressed themselves upon me, the researcher, as I experienced the spaces of these three buildings. The piece is contemplative in nature, with an original score composed by collaborating artist Kuba Dorabialski.

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Keywords:

Architecture, Kengo Kuma, Breath, Medium, Dissolution.

1. A cognitive quickstep

Artist-researchers have the chance to woo two modes of knowing: the implicit and the explicit. They have the chance to entwine the insider's embodied know-how with the outsider's analytical precepts. The attraction between these two modes of knowing must be both felt and spoken. And as the world blooms in the artist's consciousness, the mutual commitment of the two modes can abide and provide. At our best, we can set immersion and critical distance oscillating in a cognitive quickstep that takes us continuously and instantaneously inside and outside the dynamic experiences that we are always seeking to understand (Gibson, 2010, p 11).

Here I shall offer a margin-text, a 'cognitive quickstep' that seeks to expand a reading of the work by sharing a range of associations, generative thoughts, texts and asides.

2. Z58: Shanghai, China

Accordion

The accordion is suspended in the space between two hands that move in relation to each other. The air is slowly compressed, and turned, and then stretched and compressed once more. The air moves through; the air moves across. It sets elements in motion and enables vibration. One finger depresses one button and without tone, all we hear is the passage of air through the instrument.

...breathing out and breathing in are not the precise reverse of one another. The one is a movement of propulsion; it is haptic. The other is a movement of gathering; it is atmospheric. Herein lies the hinge between the lines of the meshwork and the fluxes of the weather world, between movements and moods, between our awareness of the world and the ways the world conditions our awareness between sensitivity and sentience, and between the temporality of becoming and the temperament of being (Ingold, 2014, p 53).

Disappearance

I walk Panyu Road in Shanghai on my way to Z58.

There's the full array of activity along the street – idle smokers and newspaper-readers, elders minding grandchildren, ladies washing their hair. I walk straight past the building I've come to see – I do not even notice it. The green façade disappears so effectively and so completely that I when I realise I've missed it, I know it is exactly right. The very best architecture disappears entirely.

Sliding in the medium

Advance, retreat, bounce, reflect. People walk backwards. Bicycles ride upside-down. The void is reflected or mirrored. Spaces fold into each other and collide to create new spaces. There's an impossibility to sliding. It's a movement akin to a dream. It's a horizontal falling across space that runs contrary to gravity and a sense of what is and isn't possible.

3. Daiwa Ubiquitous Computing Building: Tokyo, Japan

Air

What, then, of the air? When you breathe, or feel the wind on your face, are you engaging with the material world? When the fog descends, and everything around you looks dim and mysterious, has the material world changed, or are you just seeing the same world differently? Does rain belong to the material world, or only the puddles that it leaves in ditches and pot-holes? Does falling snow join the material world only once it settles on the ground? (Ingold, 2011, p 21).

Glass is a slow moving liquid

It's not. It IS. I cannot shake this belief, despite knowing all the 'truths'. For me, glass is glacial. It moves, quietly and imperceptibly, advancing within its own structure – I read it, I believe it, as

liquid, a slow-moving material that articulates the medium of space. It is a material of possibility and ambiguity. In this strange belief the openings in buildings are considered as moments of material dissolution – they are gaps in the ‘known’ world.

Breath

In Zen meditation, the rise and fall of the breath serves as a repetitive and calming stimulus that establishes a neutral focus, allowing customary structures of thought to be disregarded (Leder, 1990). Lefebvre likens this rhythm to the sound of a seashell:

He hears the wind, the rain, storms; but if he considers a stone, a wall, a trunk, he understands their slowness, their interminable rhythm. The object is not inert; time is not set aside for the subject. It is only slow in relation to our time, to our body, the measure of rhythms. An apparently immobile object, the forest, moves in multiple ways: the combined movements of the soil, the earth, the sun, or the movements of the molecules and atoms that compose it... To the attentive ear, it makes a noise like a seashell. (Lefebvre, H. 2004, 20).

4. Conservatoire Darius Milhaud: Aix-en-Provence, France

Rhincodon typus: Whale Shark

The building sits on its site, which sits on a ridge. Frank Weiner brings up the whale. He says ‘Kuma is making buildings that are unapologetically swallowed up by the surroundings like Jonah by the whale’ (Weiner, 2007, p 249). I think of a whale shark, and of its gills. The solid surface of patterned skin splits into a series of crescent-shaped openings as it glides past. The gills quiver in the movement and the intake of water and suddenly it’s not solid mass but active, responsive tissue. It is not breathing – it is receiving. The medium of water just is; it flows to saturate every available space.

Origami

What is this, this urge to spin? It’s not a response

that I anticipate. Is it the way the planes fold into one another, the constant and regular collisions between striated surfaces? And what of the compulsion to experiment with the disassembly and reassembly of the folds? I spin them in different directions and think of the multiple ways that the building forms and reforms in the architectural imagination.

Air

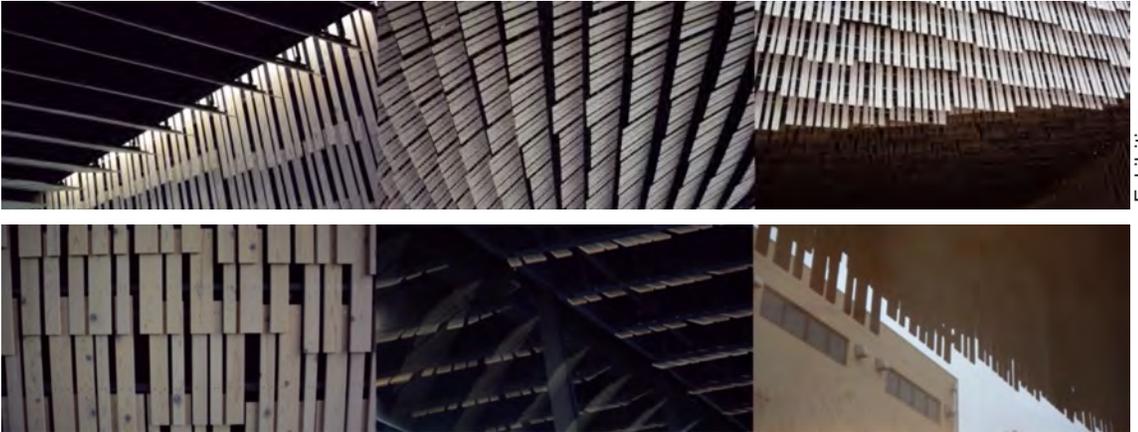
Air, for all our architectural determination to control it, will penetrate, will seep and will ultimately ensure the ongoing relationship between the body and space. Like a great heaving ocean in which everything is immersed, air saturates and unifies. In the constant exchange between the hollows of our bodies, our buildings and our landscapes that Leder likens to a ‘swinging door’ between the breath of all things (Leder, 1990, p171).

To feel the wind is not to make external, tactile contact with our surroundings but to mingle with them. In this mingling, as we live and breathe, the wind, light, and moisture of the sky bind with the substances of the earth in the continual forging of a way through the tangle of life-lines that comprise the land (Ingold, 2007, 519).

1 and 2. Breathing Buildings (video still: author, 2015)

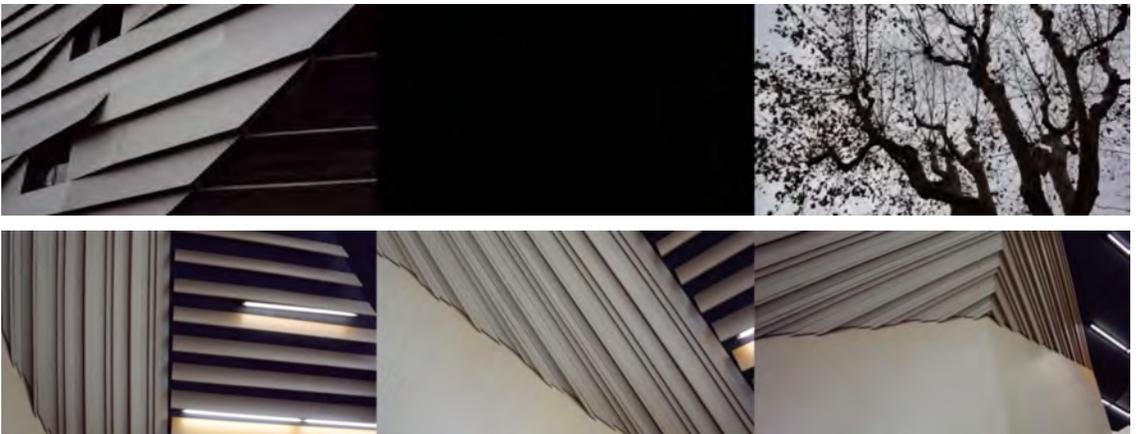


3 and 4. Breathing Buildings (video still: author, 2015)



Exhibition

5 and 6. Breathing Buildings (video still: author, 2015)



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Acknowledgements

Breathing Buildings is supported by a UNSW Australia Built Environment ECR grant.

Search Dogs

Stratification of Research

Within the context of a conference based on Making Research - Researching Making, the position of this operation is to bring forth the idea of accumulation and process of selection in research as a formal structure. There is a performativity behind the practice of research that here becomes the work presented, where I would like to catch and focus on the moment in between the making of research – which is the path of search that influences the work.

The questions that become the base for my interest are: how we collect information - how we select knowledge - and how do we carve through the mass possibilities of material? I'm intrigued in the way we utilize the vast vessel of knowledge through Internet, library, documentary, videos, places, people, etc. to produce our own journey of research - What we select and what we leave behind. There is the subjective perception in this selection of what is relevant and what not, and there is a current of big data and external forces that influence these choices.

In the context of this conference, where there is exchange of ideas, opinions and criticisms within a set time, this project presents another way of interacting with the research content presented by the participants.

Keywords:

Collect, Select, Knowledge, Subjective, Search, 'Hund', Trolley, Exchange, Movement, Information.

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Description of Exhibition; two parts

1.

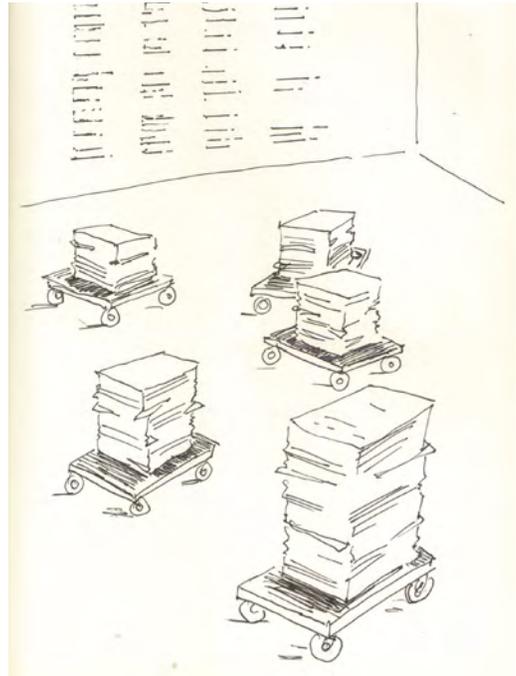
Wall surface with the text list of the references of all the research papers being presented at this conference. I am interested in the pattern that might reveal from putting all the references in one area – perhaps if any to see repetitions and overlaps. This wall constitutes a common ground of research – it is a common board available to all created by all.

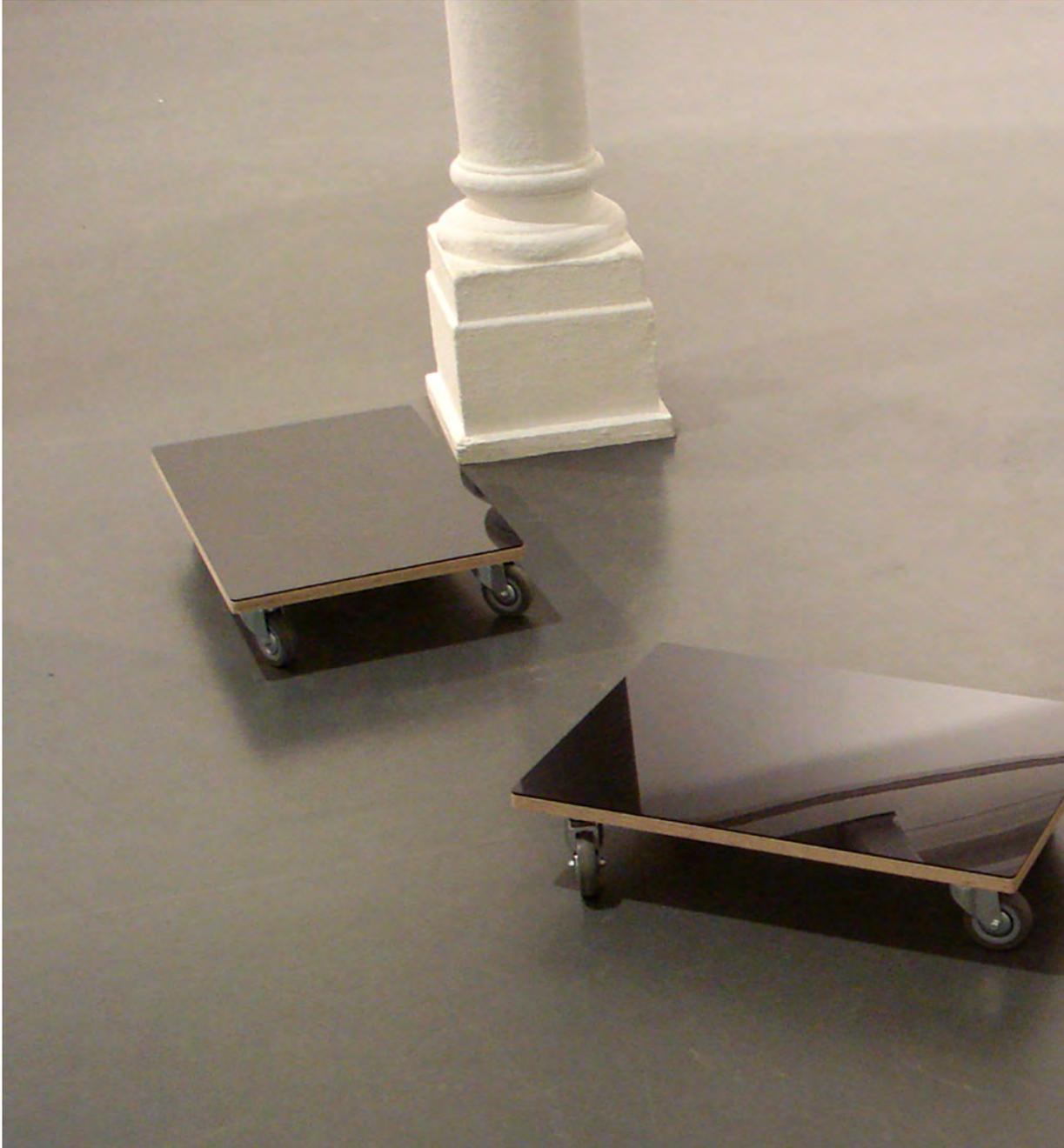
2.

Trolleys with stack of A4 printed sheets of the reference content. I will select a limited number of conference participants (volunteers) where each individual will be represented as one trolley (the selection is due to the limit of space and resources). The specific Trolley is called 'hund' in German, which means 'dog': these are wooden bases with wheels that are used to carry crates or heavy objects. The 'hund' has been used in various other projects of mine, interest in this object that is always put in the position of carrying other more valuable objects. I have played with shifting this hierarchal position of this everyday tool in different ways. In this exhibition the 'hund' is the support of researched information – holding printed paper stacks of references – it becomes the carrier of knowledge. The installation is also a metaphor for the mobility, movement, exchange of information, research and knowledge that is the nature of these conferences.

The viewers interested in engaging with this exhibition will have the chance to go through the stacks of references on the trolley and

engaged with the space of an individual process of research. And the wall as an accumulated list will hold the references as influences of what is being shared at the conference as a whole. This wall becomes like a sort of painting, from far it is an abstract pattern, like codes, and when looking closer it reveals a vast amount of resources.









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Acknowledgements

The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement n° 317325.

Rites of passage

Artefacts of Making

Pamela Johnson in her introductory essay 'Moments of Being'¹ identifies the commonality of the relationship between memory and textiles and our moments of being, of experience that 'cluster(s) around and is contained within the textile object'.² This work investigates such moments of being, personal histories and collaborative narratives relating to memory, cloth, and rites of passage.

The work is based in the narrative tradition of embroidery articulating a process as Benjamin writes 'responding to the fabric of life and concepts of knowledge interwoven with imagination'.³

The textile pieces are based on a practice-led developmental approach with the intention to explore and develop understanding of the interaction of the sensibilities of the hand/ craft practice applied to the use of digital technology.

The work for the installation includes finished and developmental samples with supporting photographs and text providing additional understanding of contextual dimension. Textile materials include metallic, polyester and cotton threads, nylon net, silk and cotton. Please give a concise description of your workshop or exhibition here.

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Keywords:

Practice-Led, Digital Embroidery, Craft.

Rights of passage

Within ritualistic textiles embroidery has long been used to denote status and power. From the earliest times materials with intrinsic wealth or rarity were used to show rank and position. The trappings of state occasions are examples of embroidery and textiles suggesting continuity, history and ritual.

Arnold Van Gennep in *The Rites of Passage* described the notion of ritual that marks significant events in the human experience within the societies in which they are raised, in 1908. In this he classifies and describes the three phases of the acts of transition associated with the social lives of individuals as the preliminal rites (rites of separation), the liminal rites (rites of transition) and the post liminal rites (rites of incorporation) seeing these key periods of transition as essentially sacred and requiring ritual. If we examine the transitional states within our own society it can be seen that textiles are often an important part of the rituals within birth and naming, adolescence and the end of childhood, betrothal, marriage and death.

Opportunity to explore textiles steeped in ritual came with the Collaborative International Research Project (eCHO) with Queensland University of Technology. Archival museum materials were made available to handle and study for research. Selected items of clothing informed the design process, textile development drawing inspiration from analysis of the historical pieces. These pieces displayed fragile materials evoking a sense of transient memory, by the passing of time and the vulnerability of textiles affected by wear. 'Using historic textile practice or process has been used by many textiles designers to inform creative practice and practice-based research.'¹⁴

Traditionally the primary function of a garment was for protection and warmth however ceremonial garments were also handed on between families, these often requiring renovation over time. The addition of elaborate embroidery, particularly in this recycling process, was often done on very base materials, renewing and enhancing garments

making them both functional and decorative. The concepts of renovate and renew are clearly evident in the 19th/ 20th century christening robe selected from the eCHO collection.

Christening robes were created for occasion of ceremony, a rite of passage. The eCHO christening robe is made of cotton muslin with a central triangular panel on the bodice that is mirrored by an inverted triangular panel of net in the skirt. The net is embroidered from the waist to the hem with motifs relating to the embroidery designs of the bodice.

The bodice is embroidered with a stylised floral design of small leaves surrounding stems and flowers. The net panel of the skirt gives the appearance of being heavily worked with hand embroidery but on close inspection is of an applied fine braid couched onto net. The braid is cleverly twisted and couched to the fabric surface giving the appearance of heavily worked bullion knots and surface stitchery.

The bodice has a considerable proportion of embroidery in comparison to the scale of the pattern pieces. The embroidery on the net panel of the skirt is thick, weighty and heavy overpowering the delicate ground. Areas of luxurious surface detail are balanced by the simplicity of the fabrics used.

The original purity of colour of this christening robe has been altered through time becoming stained with age. Details of darn, stain and patch informed the work; showing evidence of traces of lives lived and the absence of the body. Repeated laundering, hand mending and finishing on the inside of the garments evidences repair and reuse.

The embroidery has become unraveled in places, detaching itself from the ground and laying bare the fabric underneath. This marking and disintegration process of the echo garments was key to the development of textile ideas.

The textile pieces are based on a practice-led developmental approach with the intention to explore and develop understanding of the interaction of the sensibilities of the hand/ craft practice applied to the use of digital technology. The work uses the digital not only as facilitator of process but subverts the technology to use also as the instrument through which new developments take place affecting process and aesthetics. Sometimes the very restrictions of CAD/CAM technology can inform the development of design.

By referencing the disintegrating lace of the christening robe a digital degraded heavy lace was embroidered. This was used as a print resist suggestive of both the unravelled thread and absence of previous stitching on the eCHO piece. Different thread weights and combination of thread types were investigated, some resistant to sublimatic dyes. The resisted print image was overstitched with the original motif offset.

The digital process was interrupted; incomplete motifs were used; stitching was stopped and restarted; stitching was restarted off centre; process was interrupted; fabric was reversed within the frame; stitching/printing/restitching, unpicking, unravelling; applying; all developing the surface through process parallel to hand and craft but through exploration of the digital.

Re-used and altered, the original traces remain, creating a palimpsest. The concept of slow textiles is referenced re-establishing value through process linking to characteristics within the original of repair and weighty embroidery and forming a new narrative through the metaphor of collage, chance and accident.

In his book 'Abstracting Craft: The Practiced Digital Hand' (1998), Malcolm McCulloch suggests 'Our use of computers ought not to be so much for automating tasks as for abstracting craft.'

CAD/CAM embroidery software programmes provide a suite of tools that offer a fast, flexible way to create, edit, organise embroidery designs with special effects and processes as standard with increased opportunity for variety and more relation to hand processes. Wilson, co-founder of Wilcom embroidery software company, speaking

of their software innovations over the past decade states that "the ability to add the human touch was really important in top quality designs".⁵

Digital CAD/CAM embroidery works with a pre-determined design and offers stitch perfection but not all digital embroidery is desirable. Some designers are more able to manipulate the software than others. The introduction of computerized tension system allows for the possibility for work that most resembles hand stitching and for moving away from the industry standards by pushing the boundaries of the technology.

Through a dialogue with materials and processes the work intends to translate analysis of textiles related to moments of being around rites of passage to explore the positive use of CAD/CAM in combination with hand process as part of a methodology of practice.

Unravelling thread references the eCHO garment disintegration and also the historical practice of unravelling and reusing of costly metal thread embroidery. Process was repeated building of layer upon layer using incomplete motifs, restarting, reversing, and restitching to create deliberately over-weighted and unstable embroidery, distressing to the point of disintegration.

The project has broadened to now embrace further more autobiographical rites of passage and refocuses towards the narrative referencing the work of Sovleigh Goett; Can knitting socks be scholarly research? How to research the fabric of life.⁶

Wrapped in cloth, the title of Goett's work, is a much-referenced idea in both fashion and textiles that our bodies are in contact with cloth from birth to death.

Embroidery is a medium that has been used to illustrate stories from earliest times. The work is based in the narrative tradition of embroidery. It will articulate a process as Benjamin⁷ responding to the fabric of life and concepts of knowledge interwoven with imagination.

Autobiographical memory combines personal factual autobiographical knowledge about one's own life plus very specific mental representations of moments of experience, called 'episodic

memory'. Episodic memories contain other information - sensory, perceptual and emotional memories plus information about context and time.

Virginia Woolf's memory is triggered by a visual image. The work in progress now focuses on episodic memory of autobiographical rites of passage; the whole sensory memory contained by the moment triggers the construction process, a mental representation – the chapel anniversary, the tension of the occasion, the ritual and the celebration. The photograph initiating the recall of the sensory feel and sound of the fabric than the visual.

'Knowledge, Benjamin suggests, does not just sit on library shelves but can also be found in bedroom drawers ... researching lived experience needs imaginative and sensory methods from the toolbox of everyday life as much as or maybe even more than it needs words.'

Virginia Woolf's earliest memory from 'A Sketch of the Past' Moments of Being (London 1985) recalls a printed fabric –

.I begin: the first memory. This was of red and purple flowers on a black background – my mother's dress;...I was on her lap. I..can still see purple and red and blue...

Footnotes

¹ Johnson, P. 1997. *Moments of Being. Jerwood Prize for Applied Arts 1997- Textiles*. London, 1985, p 72.

² *ibid*

³ Benjamin, W. (2006), *Berlin Childhood around 1900*, translated by Howard Eiland, *The Belknap Press of Harvard University Press, Cambridge/ Mass. & London/England*, 2006.

⁴ T.N.Essamplaire: *An Approach to Working at the Technology/ Art/ Design Interface in Textiles (Etcetera Offset, Boras, Sweden, 2011)*.

⁵ <http://www.wilcom.com>

⁶ Sovleigh Goett. *Can knitting socks be scholarly research? How to think through the Fabric of Life*.

⁷ Walter Benjamin. 2006. *Berlin childhood around 1900*.

Not to be reproduced

A narrative through time, 3D printing and painting

Nottobereproduced is a collaboration between a painter and a PhD researcher and technologist, the focus of the project was in the interdisciplinary collaboration between art and technology practitioners. The collaboration led to a better understanding of creative explorations and specially the role of technology in creative practice development. Besides the debates about shared ownership this project reflects on collaborative research and the issues that arise from it, as well as, issues related to practice led research such as validation of knowledge and distance to and articulation of the content of the piece (Ingold, 2013). By exploring the uncanny and perturbing perceptions about digital intimacy we try to throw the spectator out of their epistemological stance (Candy and Edmonds, 2010)

Diego Zamora¹

Mark Connolly²

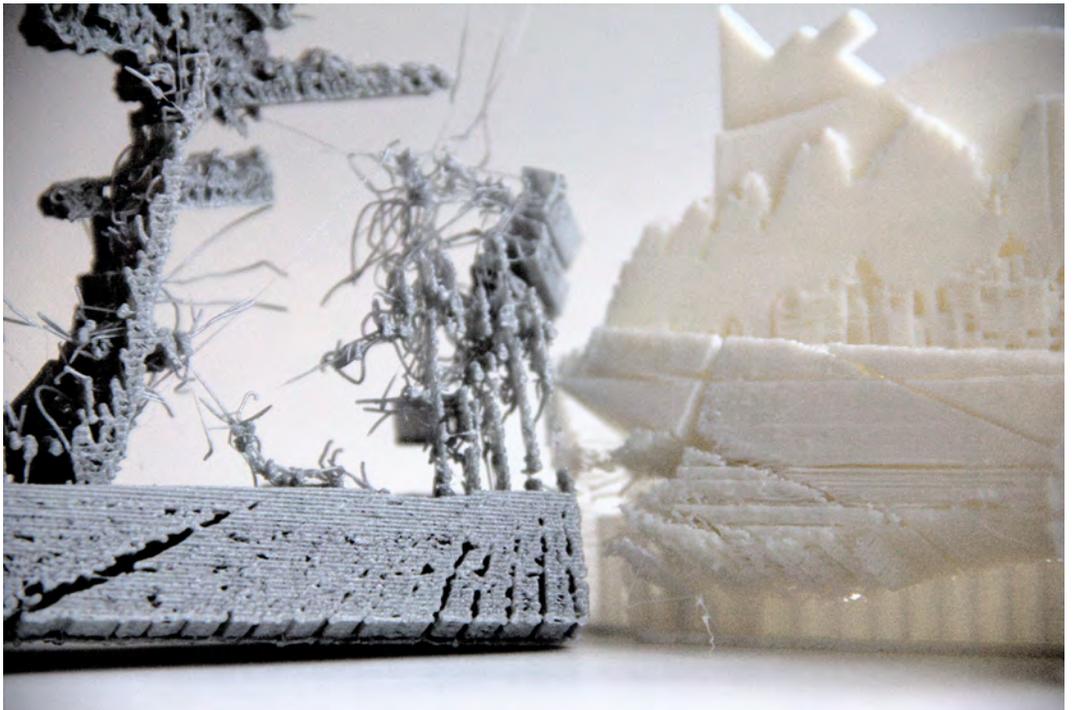
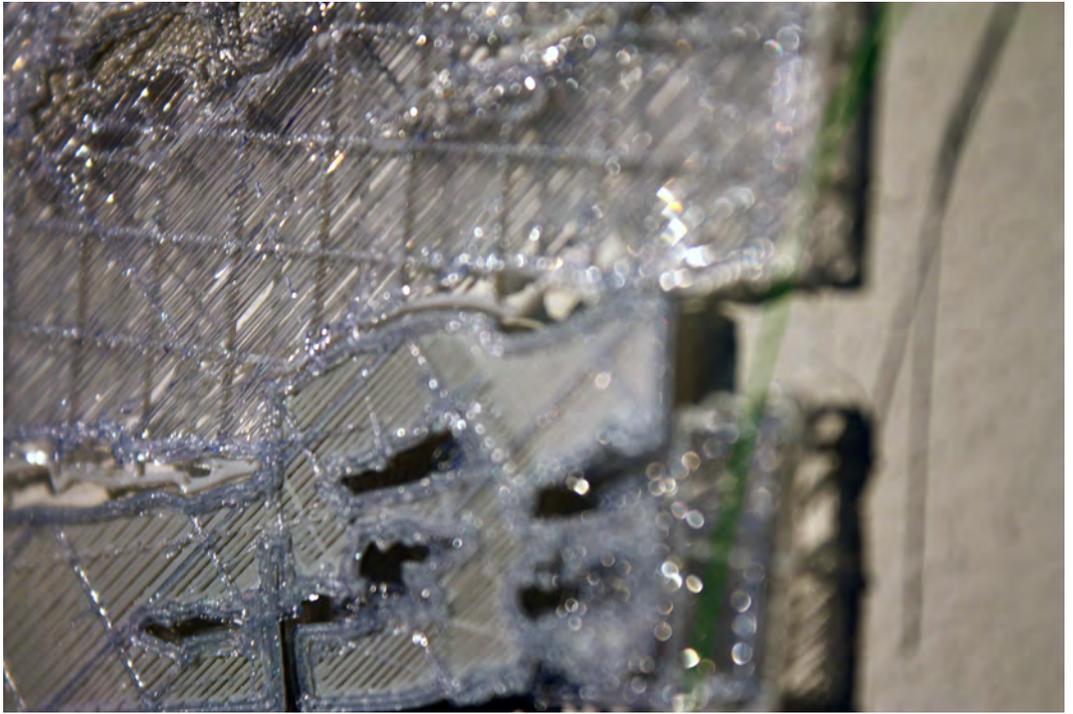
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Keywords:

Social Media Appropriation, Object Oriented Ontology, 3D Printing, Practice Led Research, Creative Collaboration.



Project summary

Nottobereproduced is a collaboration between a painter and a PhD researcher and technologist, the focus of the project was in the interdisciplinary collaboration between art and technology practitioners. The collaboration led to a better understanding of creative explorations and specially the role of technology in creative practice development.

Besides the debates about shared ownership this project reflects on collaborative research and the issues that arise from it, as well as, issues related to practice led research such as validation of knowledge and distance to and articulation of the content of the piece (Ingold, 2013). By exploring the uncanny and perturbing perceptions about digital intimacy we try to throw the spectator out of their epistemological stance (Candy and Edmonds, 2010).

We envisage a functioning system stemming from the injection of others' memories and experiences into the work via stolen pictures from social networks. We appropriate real life situations to create an amalgamation of familiar, yet uncanny, sculptures. The unwilling or unknown participation brings to the front issues around ownership and attachment to digital content. The pieces that we create give personal imagery a second chance to be reconfigured and reinterpreted. This afterlife reflects how we lose control over shared online content, be it images on social networks, 3D models in online repositories or digitalised art pieces.

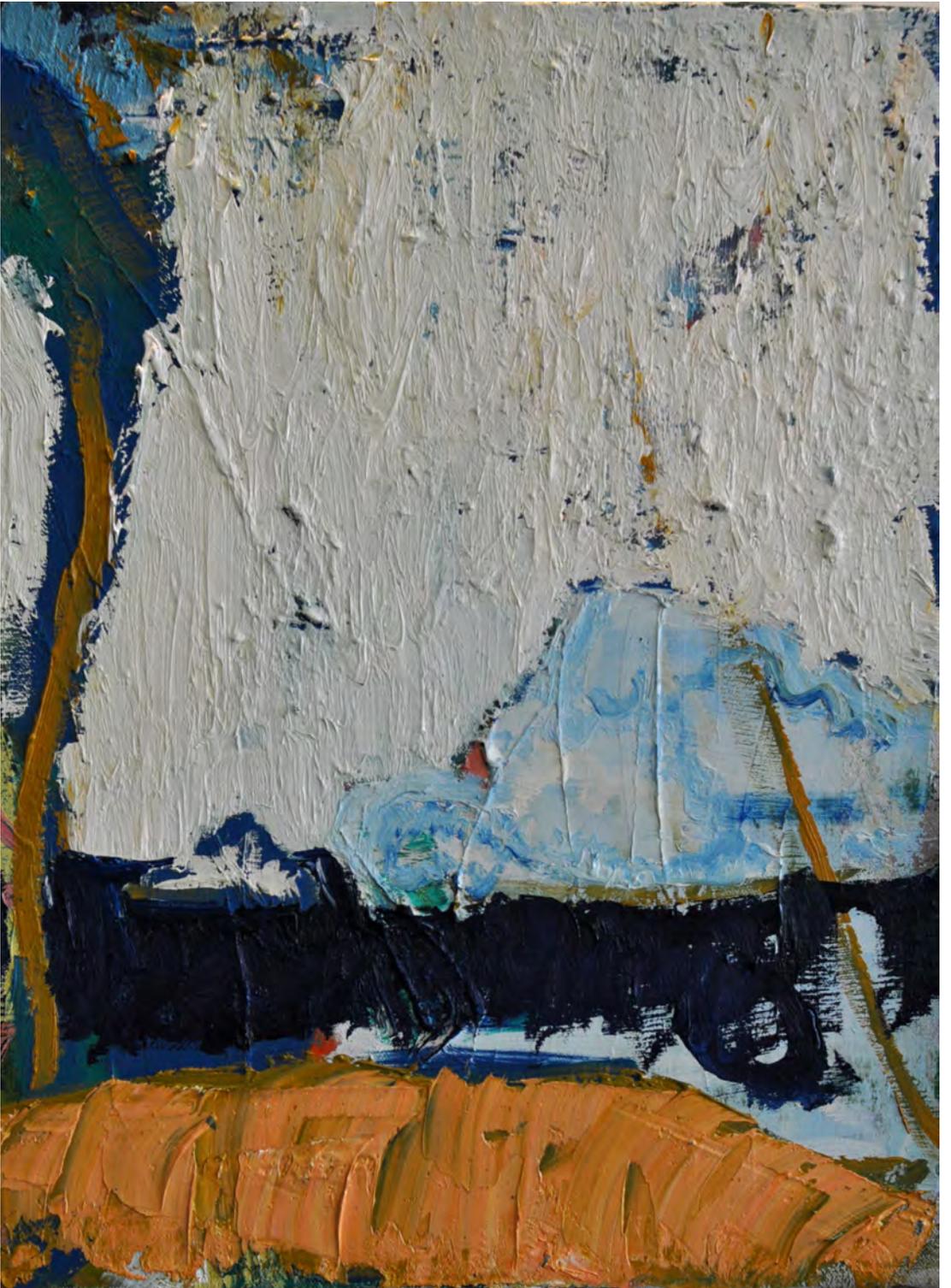
For this project we merged several separate coexisting places into a printed plain to create a series of hybrid objects. Through the absorption of a multitude of places these objects form representations of condensed time. The overlapping and compressing of time and space is central to our collaborative investigation of 3D printing and painting. Rene Magrittes' works 'the key of ice', 'time transfixed' and 'Not to be reproduced' offer plausible scenarios that are represented in a direct and concrete manner, we have translated his traditional approach whilst introducing them into 3D printed format.

By exploiting the commonalities in our personal practices we identified new traits within the medium of 3D printing that are contributing to the development of a new form of expression. The 3D printed objects accumulate labyrinthine qualities derived from a self-conscious landscape. We reiterate our relations with the 2D by consistently exploring conventional forms of presentation. We believe that 3D printing can be exploited and subverted in order to find alternative channels of expression.

Our narrative thrives on the exploration of the unfinished and the by-products of the process. Unfinished prints, errorful creations and disrupted mechanical processes are central to our way of doing. We find the term "unfinished thinking" serving as a double blade when applied to our research, both in the most strict meaning defined by Borgdorff (2011) as well as an invitation into the distorted presence of our pieces.

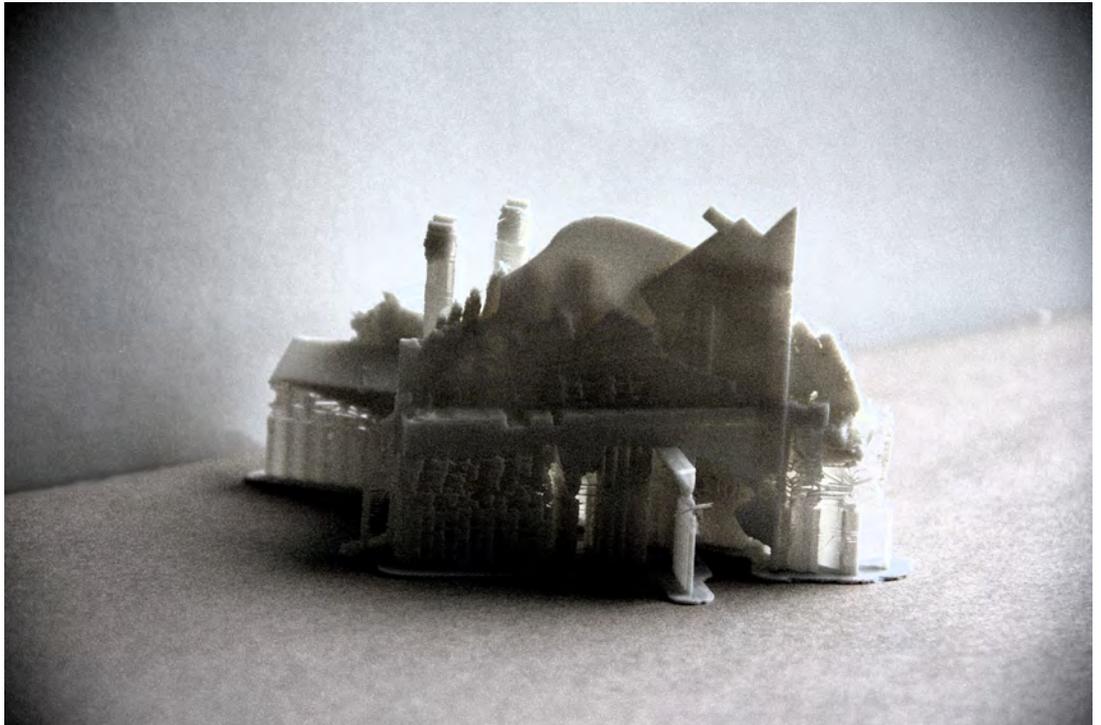
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Exhibition





E2

Embodied Making

Facescapes: and Physiognomic Landscapes (2015)

Facescapes is an interdisciplinary work in progress that has developed from related practice-led research exploring notions of identity in relation to positivism, typology, architecture and facial recognition technologies. The underpinning research spans a decade and is a consideration of vision, technology and the architectural spaces of the biomedical body. Facescapes plays on Jonathan Crary's statement that Nineteenth Century physiology reinforced the prevailing scientific view of "...excitement and wonderment about the body, which now appeared like a new continent to be explored, mapped, and mastered..." (Crary:79:1992). This is precisely what the project attempts: it maps the human face, in this instance my own face, first by using MRI to strip it down to its basic structural form, then digitally recoding this data to create a contour map of the face as if it were a land or city scape. This is then printed as a 3D model, and subsequently digitally reverse printed to create a semblance of the original face, only now the face is more akin to a built structure than a recognizable portrait. Informed by discussions with Dr. Jeremy Tree, a cognitive psychologist and face recognition specialist, Facescapes provokes the question what is a face?

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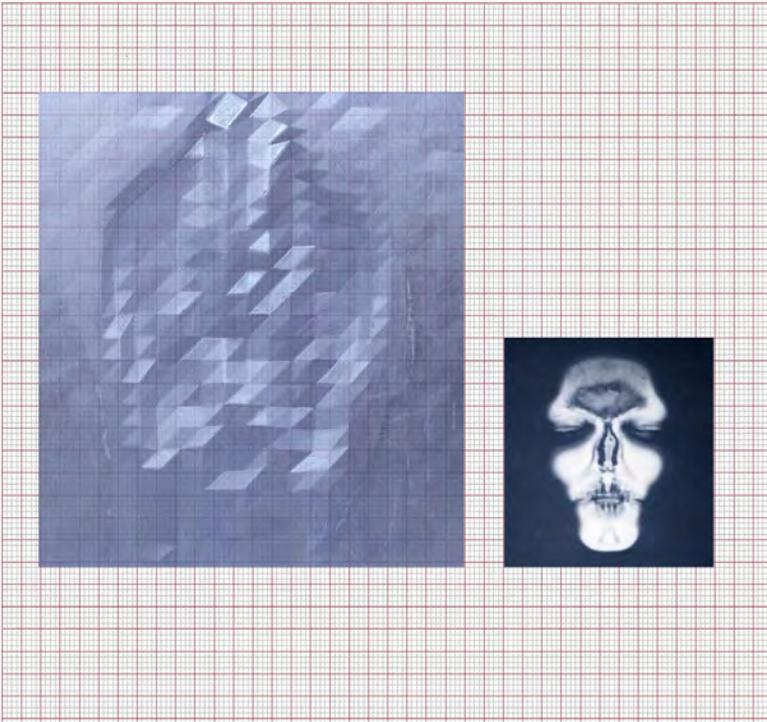
Keywords:

*Identity, Architecture, Anatomy, Physiognomy,
Digital Craft, Visual Representation, Biomedical
Data, Hybrid Design.*

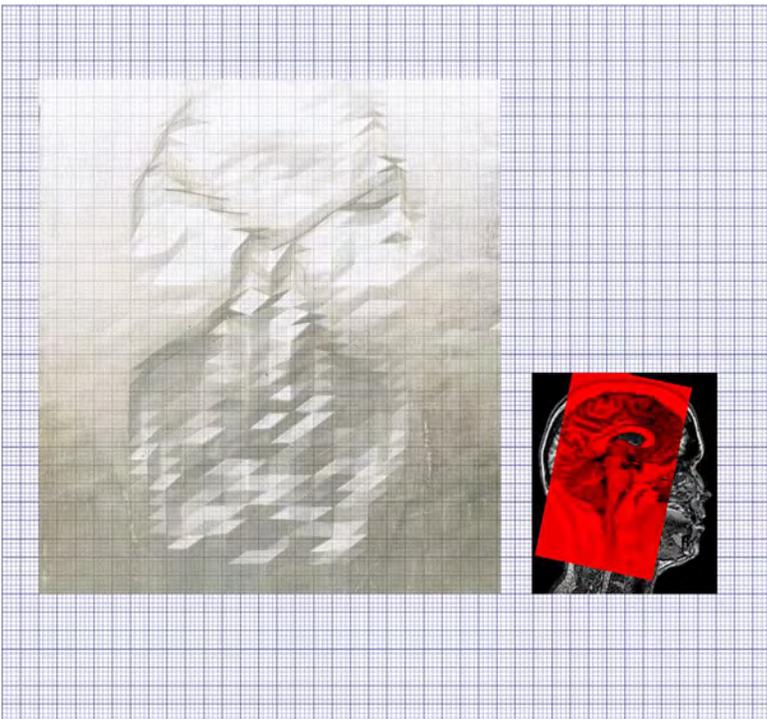


Exhibition

1. *Facescapes: 3D MRI Self-Portrait*, Karen Ingham, 2015



2. *Hybrid Anatomical-Architectural Blueprint 1*,
Karen Ingham, 2015



3. *Hybrid Anatomical-Architectural Blueprint 2*,
Karen Ingham, 2015

Contextualising Research

The seemingly exponential growth of digital technologies such as fMRI (functioning magnetic resonance imaging) and BREP (boundary representation defining geometric forms) challenges our conception of what it means to be human, a challenge that is intensified by the development of 3D additive printing processes. Facescapes (Fig.1) plays with these technologies and methods of representation, teasing the boundaries between physical and virtual representational languages.

In historical terms anatomy and architecture already share rich and complex entanglements, while in a contemporary context technologies like 3D printing and rapid prototyping have led to the creation of 'bespoke faces', or at least face parts, which can now be printed and surgically implanted. The internal measurement of every human being is different, so what role will these rapidly developing technologies have on our understanding of 'bespoke individuals' in an age of mass manufactured 'types'?

Collaborative research informing the project is the 'Brain Architectures Research Project' with architect Dr. Roberto Bottazzi at the Royal College of Art and Dr. Richard Wingate, Head of Anatomy at Guy's/Kings College London. Facescapes also builds on collaboration with Dr. Jeremy Tree, a cognitive psychologist and face recognition specialist at Swansea University. I am a test subject for Tree's research on prosopagnosia (face blindness) as one of a small percentage of the population who are 'super face recognisers'. I use the fMRI data that results from my brain scans to form the basic hybrid anatomical-architectural templates from which the digital prints and 3D maquettes are then made, as illustrated in Figures 2 and 3.

When we think of notions of space, perspective and matter we think of the face, and by extension the body, in terms that are usually aesthetic (artistic methods of representation) or medical (clinical methods of representation/informatics). But what if we were to reverse engineer our knowledge and assumptions so that we considered the face and

body in less medical and artistic ways and more in terms of architectural design. Facescapes is a manifestation of my interest in the possibilities of a new generation of hybrid objects crafted from architectural CAD, medical MRI fusions, and rapid prototype printing technologies. Possibilities, which may eventually contribute to new ways of understanding space and perspective and which may help communicate complex notions like face blindness.

The project also represents my longstanding interest in the work of Francis Galton, cousin of Charles Darwin, whose proto-genetic and proto-psychological studies on inheritance and typology led to the discredited pseudo science of Eugenics. The artworks *Vanitas: Seed-Head* (2005) and *Variance* (2012), both of which are based on considerations of Mendelian and Galtonian studies of heritability and type, also explore concepts of facial type and hybrid forms of representation.

Galton is made reference to in the image *Physiognomic Landscape 1* (Fig. 4) and in the film that forms part of the Aarhus conference exhibition.

Type: Bethl.m 45 (Fig.5) uses archive images from Galton's typology studies of mental 'deviants' at the Bethlem asylum (commonly know as Bedlam), which are placed alongside film footage shot from within the disquieting structure of Daniel Libeskind's Holocaust Tower. The film uses the echo of the heavy metal door slamming shut - reverberating like the sound of a bullet - as the images of the Bethlem inmates dissolve into a series of quasi-typological morphs. Despite the occasional coincidental similarities between the subjects what emerges is not a typology of 'mental deviance' but the faces of frightened, disturbed, and frequently, wrongly incarcerated individuals: a reminder that biological determinism and reductive scientific methods should have no place in 21st century thinking.



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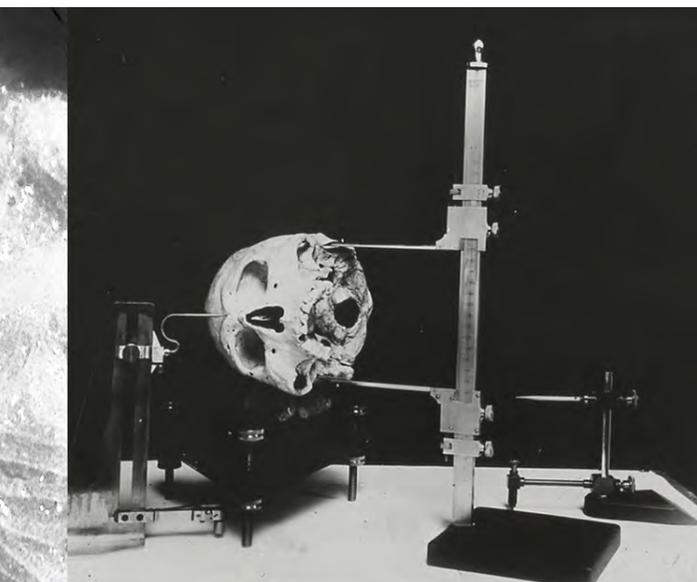
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Vanitas: Seed-Head, Ingham, K. (2005) <https://vimeo.com/28350091>

Variance, Ingham, K. (2012) <http://kareningham.org.uk/portfolio/theatres-of-the-mind/variance>

Acknowledgements

I would like to thank my collaborators Dr. Jeremy Tree, Dr. Richard Wingate and Roberto Bottazzi for their invaluable knowledge and insights.



*4. Physiognomic Landscape1,
Karen Ingham, 2015*

*5. TYPE: Bethl.m 45, film still,
Karen Ingham, 2015*

Affectual Artefacts

A Wearable Exploration of the Performative Garment

This wearable exhibition forms part of my on going research into the relative position of the garment and its wearing body within the contemporary urban landscape. Based on the theory that we are not a-part-from the landscape but rather we are a-part-of it, our bodies can be understood as a dynamic material substance of the world. If we consider this relation to the sheer quantity of bodies occupying this world then this 'body material' becomes one of abundance and significant spatial phenomenon. This scenario provokes the driving inquiry of my practice into how we might begin designing particular scenarios through this material substance of the living body and in particular, it's inherent garment cladding. The work and method exhibited here explores two key aspects of my current research. The first being the direct engagement with a material making process, provoking knowing in regard to the affect of material forms upon the body. The second works with and through the body-site, negotiating the conundrum of its inherent mobility and infinite possibility. Through interactive, wearable engagement the exhibition explores these two themes, intending to contribute embodied knowing regarding the relationality of the body and world through the garment.

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Keywords:

***Garment, Performative, Body-Site, Site,
Phenomenology, Affect, Embodied, Material,
Artefact.***

1. Material Making Process (Performative Garments)

My practice employs specifically made and worn garments as performative tools to investigate the subject of garment-body-world rationality through the object itself. Garments are regarded here to exist as parallel to the social body, in that the physical form of the garment also constitutes a spatial volume and we inherently clad ourselves within them when occupying the public realm (Entwistle, 2007). As such, they exist as extensions of the physical self; an aspect of the body that can be changed, enhanced and manipulated without lasting effect to the wearing body. This malleable component of the spatial body has become the tool through which my practice challenges, provokes and investigates the material implications of our dressed bodies in space as a method of spatial design.

Inquiries into body and space relations employing garments as performative research tools is a growing field within art and design. Conceptual artist Gabi Schillig refers to the method within her own work as being 'intrinsically motivated by the space of the human body...instrumentalizing textile materiality within open spatial systems' (Schillig, 2009, pp.9). Similar to my own practice, Schillig's work is executed predominantly through the making and performative testing (wearing) of garments that exist as tangible, responsive research tools examining spatial relations at a body scale, designed to react and mediate between the spatiality of the body and the place in which it exists at the time. Similar parallels can also be drawn between my practice and those of Lucy Orta, Oskar Schlemmer, Danielle Wilde, Lygia Pape and Lucy McRae among others within art, architecture and design. (Fig. 1).

The works exhibited here are the products of an on-going dialogue between material, form and the human body. Physical experimentation with the relationships existing between each resulted in the making and remaking of each garment, generating an understanding of the implications of each at the interface of the body and the world.

2. Body as Site

Within my work the body is the departure point and site for all investigations and the generation of knowing. For the garments used within the research tool to 'perform' they must be supported by or considered in relation to a human body. This performative method is embedded within the lineage of phenomenology, drawing on Heidegger's theory that for things to achieve their 'thinginess' they must be subjected to an embodied encountering; a knowing through direct experiencing (Heidegger, 1971). These experienced garments become repercussive extensions of the physical body, reacting to our movement and mediating our interaction with the external world. Though working with the body as a site produces a very complicated problem in that this site is inherently mobile; able to travel through space and time subject to its individual rationality within world and garment.

The Affectual Artefacts exhibition invites you all into direct, embodied contact with the issues caused by this inherent mobility of the body-site within my research. Through an invited wearing of the exhibited garments, a knowing and understanding of this quandary is offered through direct mobile engagement. While this also invites an interaction with the materiality and form of each work, the process of wearing also allows the site of the exhibition to shift from gallery space to body, transgressing the clearly defined boundaries of the exhibit room to include the dynamic, mobile and temporal site of the human body. The intention is that those bodies who dress themselves in the garments wear them outside of the defined exhibition space, provoking questions and insights of how we might approach 'site' and how we negotiate the ephemerality of the body-site within creative practice research.

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Acknowledgements

Thank you to Dr. Charles Anderson, Dr. Mick Douglas and Dr. Jessica Bugg for their generous contributions of time and conversation in regard to this work.

Inhabiting In Between

*Intimate relationships between the human
and non-human*

This project critically investigates the cultural and emotional rootedness (Verortung) of new materials and technologies, exploring in-between prosthetic relations between the body and the environment. InBetween focuses on prosthetic materials, as embodied, dynamic relationships between the human and non-human, organism and machine. For us, prosthetic materials are technologically activated, novel and advanced materials with self-actuating, inflating, adaptive, bendable, responsive and dynamic properties, such as silicon, natural granulates, electro-active and electroluminescent materials. We see in prosthetic materials the dynamic capacity to enact a way of belonging in the world (Barad, Foucault). We understand the prosthetic as a subset of apparatuses, where the idea of the prosthetic relates to wider environmental, social and cultural connections, and how we understand our relationships with other beings, our body and the environment.

Instead of seeing technology as dematerialization of relationships, or abstracting and detaching us from the environment, technological actions are seen as an accomplishment that opens up a revealing capacity of relationships with other beings and the social, cultural and natural environment. In a participatory, performative practice, the technological activation of materials and the intermixing of analogue and digital design processes and fabrication methods seeks to connect different ways of making to create prosthetic relations.

Keywords:

Material Performance, Technological Activation, Crafting Techniques, Collective Action, Activate and Enacting Relationships.

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1. Prosthetic relations

Technological activated, prosthetic relations propose to reveal a belonging to- and different encounter with the world, challenging our experience with other beings, situations and the environment. Material vectors visualize the invisible movement and forces that separate/join body and space. Wall extensions materialize the in-between space created by the proximity of wall and body.

The format we propose is a hybrid between exhibition and workshop, using the event as research. One of the key aspects of this format is to create a collective action of “co-creators” (Otto von Busch), where the participants are invited to collectively and active make, experiment and test prototypes, to explore and cohabit InBetween silicone and hand-3D printed spaces.

Within this format, our research focuses on two perspectives, one emanating from the body and one from space, to create prosthetic relations between humans and non-humans. The material focus emanating from the body will emphasize on silicone. We encourage the participants to pick different silicone prototypes, to wear, inflate, bend and inhabit them. The material focus, emanating from space will use hand 3D printers to actively construct individual, personal InBetween real time spaces of the participants- between space and body, but also to co-inhabit foreign InBetween prints.

We record in video - both image and voice - and will discuss our experiences in a short wrap up at the end of the collective action. The exhibition and video content will serve as research material, informing our oscillating research into performative, wearable structures and architectural spaces. **(Fig. 1).**

2. Prosthetics as physical memory

We will present two in-between prosthetics to inhabit: silicon and hand-3D printed.

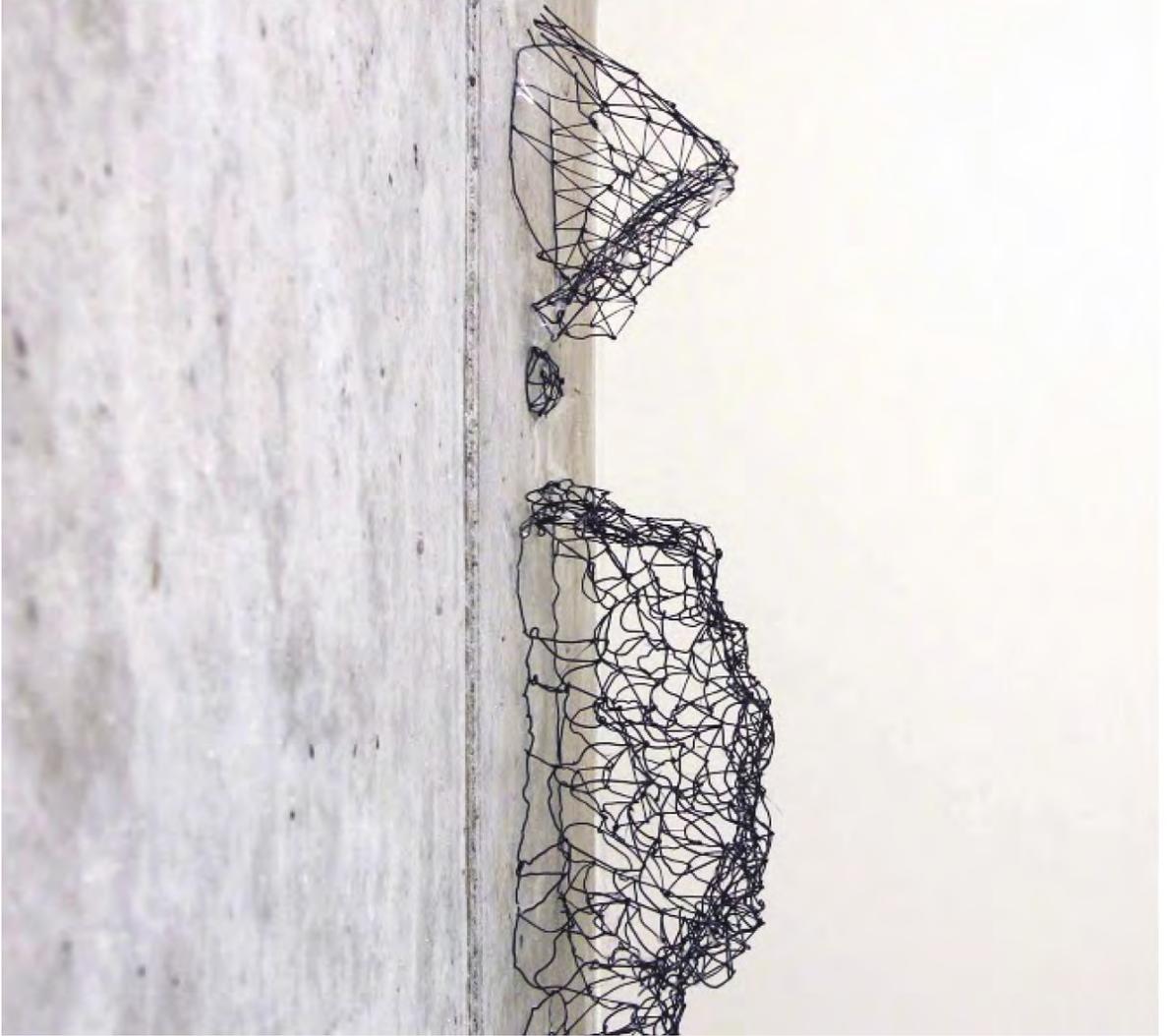
1. Silicon in-between. We make a dress as a prosthetic skin out of inflatable silicon balloons. Each balloon can be individually inflated and deflated.

During the workshop we invite the participants to personalize, wear and getting indirectly in touch with other participants through the material interaction. The dress is made in such a way that the wearer can inflate and deflate different parts, in order to get closer to the real skin of himself and the other participant, or rather to separate him/herself.

While the reflection guides the process, it is the material testing and prototype making that informs the design of these interfaces. During the workshop the personal engagement, bodies and openness or closeness of each participant will inform the material interaction. **(Fig. 2).**

2. Hand-3D printed in-between. We produce hand-3D printed prosthetics through a 3-step process: body-wall interaction performance, materializing the in-between using a soft material, and sketching the prosthetic's skin using a hand-3D printer.

As the workshop has a limited time frame, we will present these interfaces in the exhibition only. Visitors are invited to touch, place their bodies against and inhabit them. **(Fig. 3).**





Exhibition

1. Hand-3D printed *InBetween Space*.



2. Inflating Silicone prototypes

3. Hand-3D printing process

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Taking A Thread For A Walk

In my paper I discuss the influence of embodied knowledge on my doctoral research journey. I highlight the importance of the body as a site of knowledge generation, and the value of the rich data gathered during making sessions (visual, aural, practical, emotional), but point out the difficulties of documentation and dissemination of this usually silent and subjective tacit knowledge. Some of these making sessions included workshops devised in order to explore specific questions concerning people's perceptions of hand-stitching as both a functional and aesthetic craft, and to explore if and how aspects of this embodied knowledge might be articulated. This exhibition consists of stitched samples from two workshops undertaken during my doctoral studies accompanied by quotes extracted from the conversations held with and between participants during these workshops. Whereas interviews can put people on the spot, expecting immediate responses in language to topics that can be difficult to articulate (Gauntlett, 2007), I hoped that making together might generate discussion prompted by spontaneous and intuitive responses to physical involvement in the stitching tasks, and therefore provide a closer view of what making experiences and sensations look and feel like.

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Keywords:

***Research Process, Research Methods, Workshops,
Hand-Stitching Processes, Conversation.***

1. Introduction

My PhD examined the contemporary relevance of hand-stitching skills in social contexts, investigating in particular the nature of knowledge known in and through hand-stitching processes. An exploration of haptic qualities and sensations relative to hand-stitching processes underpins the investigation; one of the principle research questions asked how this skilled activity might articulate these dimensions of subjective experience. In order to address this I undertook various stitching activities examining and documenting what the experiences look and feel like focusing in particular on the dynamic relationship between practical skill, the body and its proximity to tools and materials: the repeated gestures, coordinated hand movements and the skilled precision of tool use and fingertip manipulation.

As a practice-led research project the design of the research process was guided by my responses to the practical activities undertaken (Gray & Malins, 2004). The variety of stitching activities that formed the basis of the research have allowed for different sorts of information to be observed, listened to and felt. Interviews capture personal anecdotes, recollections and descriptions providing a context for participants' stitching practices and motivations. Using video to observe practitioners at work goes a step further to capture visual connections between doing and thinking simultaneously that allow for the knowledge held in knowing hands to be observed in action. However, in order to explore participants' perspectives on certain themes in greater depth I devised a series of workshop activities around specific questions. Informal conversations emerging in direct response to these practical tasks draw out intuitive and spontaneous comments that provide rich information on personal experiences that I hoped would offer a closer view of making. The work discussed here and on display in the exhibition issues from two of these workshops.

2. Workshops: Taking A Thread For A Walk

The workshops required participants who were comfortable reflecting on experiences of creative tasks in group discussion and I turned to groups of students who I felt would be able to express a diverse set of experiences and opinions; some had stitching skills and experience, some did not.

The first, undertaken with five fellow research students at the Royal College of Art where I was studying, examined perceptions of the aesthetics and functionality of hand-stitching. This particular workshop requested that participants make value judgements of simple stitching tasks I had executed myself prior to the workshops, firstly by looking and secondly as a result of having done the tasks themselves. Making value judgements based on the visual appeal of the stitched exercises allowed participants to articulate their assumptions; asking them to re-assess their value judgements after having done the tasks themselves – following the same instructions I had used – led to changes in their evaluation demonstrating that knowledge gained from doing is a notably different experience from looking. As mentioned in my paper, the ensuing conversation also explored the visual differences evident in the samples as expressions of individuality, rather like signatures (see figure 1), and the potential conflict of interest between aesthetic expression and high performing functionality. **(Fig. 1).**

The second workshop was undertaken with a group of four undergraduates at the Arts University Bournemouth where I teach. All participants were skilled in hand-stitching. Tasks were devised specifically to explore questions concerning how to demonstrate the tacit knowledge of skilled hands, and visualize the articulation of subjective experience. For one of the tasks each participant was required to reproduce a piece of stitching originally made by another without prior discussion or explanation. They drew on their store of tacit knowledge to work out which methods were used by their partner stitcher, and then again to reproduce the techniques they recognized. The

exercise illuminated ways in which the careful coordination of hands that “appear to do it on their own, without referring to the head” (Pye, 1995 [1968], p. 124) can be applied to understand and interpret hand-stitching without recourse to verbal instruction. Figure 2 illustrates two of these pairings and shows the possible extent and variation of this kind of practical understanding from a tentative reproduction to a loose interpretation that bears little visual similarity to the original. (Fig. 2).

Initially, all participants found it difficult to describe in words how they had set about the task. The thinking hands performed the activity without recourse to language as described by Pallasmaa (2009, p. 36): “We touch things and grasp their essence before we are able to speak about them.” Further probing revealed that the eye, hand and mind were working simultaneously: looking closely to dissect what had been done in the original, thinking about how to interpret the intentions of their partner, and drawing on their store of practical knowledge to execute the task.

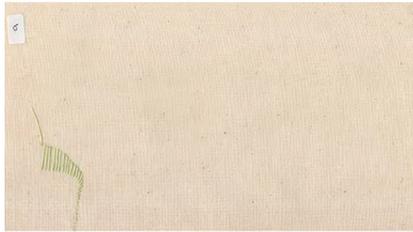
3. Workshop methods: new directions

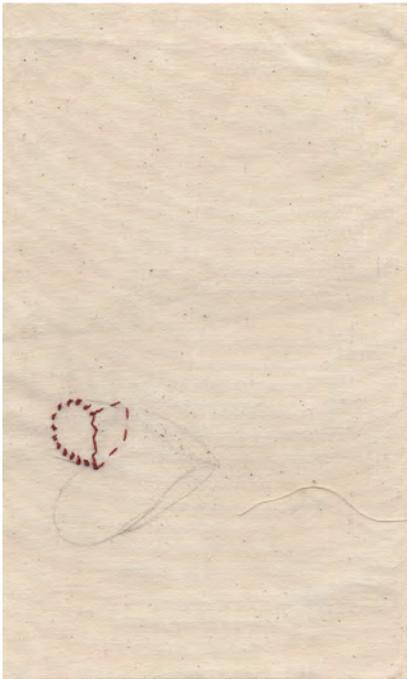
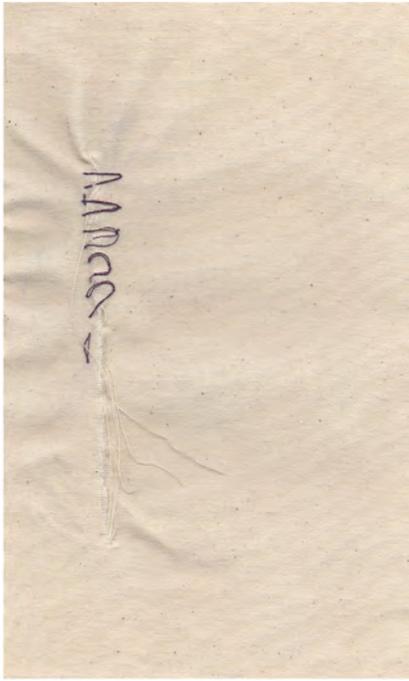
With these workshops I have found that conversation prompted by making and the sensations experienced has helped to articulate something of an experience that is otherwise silent and elusive. The spontaneous use of practical skills allows embodied knowledge to come to the fore, and because different types of information can be observed and gathered – for example visual, oral, experiential and emotional – connections between doing and thinking can then be explored in informal conversation with participants. As we search for words that struggle to reproduce these feelings I have come to appreciate the sometimes poetic – even outlandish – descriptions. As a result I believe there is scope in research for encouraging participants in creative interpretations of their experiences as a way to find clues to this silent, embodied knowledge.

The impact of this approach has opened possibilities of using hand-stitching workshops as a reflective method of enquiry to access

thoughts, expressions, opinions and memories of experiences that perhaps remain invisible or difficult to articulate through more conventional methods of data gathering. The slow pace and inherent self-reflexivity of stitching helps to articulate between the visible and the invisible, the said and non-said, leading to rich, and sometimes deeply personal, material. Undertaking this research has allowed me to define a new context for my stitching practice as a “person-oriented approach” (Freeman, 1997) that prioritizes processes of making as sites of knowledge generation. Post-doctoral research activity is allowing me to explore these workshop methods further, currently within an educational context examining the qualitative experience for students of using collective hand-stitching (and drawing) to create making experiences that engineer time and space for reflection, new encounters and opportunities to reconsider entrenched habits.

1. On the left, my example prepared prior to the workshop, followed by some of the participants' examples executed following the same instruction as I did. The variations highlight the now prized expression of individuality noticeable in handcrafted artefacts. Photographs © Emma Shercliff.





2. Samples on the left are the originals and samples on the right are the reproductions. Photographs © Emma Shercliff.

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E3

Informed by Materiality

Critical Making with Aluminium Sandcasting

Design Practice Into Practice-led Research

These experimental aluminium sand-cast bowls have arisen from an appraisal of my design practice as research, and how my own work has transformed into practice-led research. I have worked as an academic and designer-maker of furniture and related products for more than 25 years. While I have gained much in personal new knowledge and insights I had not framed my design work as research outputs until commencing a PhD by creative practice.

Cross-referencing my practice with key texts and the practice-led research of others, I have embarked on new work as a vehicle for the investigation of making as thinking through sand-casting with aluminium. Key stages of my making process – doing – have been captured in photographs and film, along with resulting casts. The first prototypes have revealed new insights along with challenges, which are also opportunities. This resonates with numerous sources on critical making (see bibliography) and I will share my personal demystification of this with others seeking to re-shape their creative practices as research.

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Keywords:

*Design, Making, Critical Making, Waste Streams,
Aluminium, Sand Casting, Craft, Product Design,
Practice-led Research.*

1. Design Practice into Practice-led Research

When considering the UK Research Excellence Framework's (REF) definition of research as "A process of investigation, leading to new knowledge or insights, effectively shared." (HEFCE, 2011, p24), it is possible to conclude that creative practitioners have always done this, but without necessarily calling it research.

In evaluating research methods in design as it continues to establish itself as an academic discipline it appears that research methods have not so much been invented or applied to validate academic integrity, but recognised and made visible. The practitioner can reposition themselves and change their perspective to frame premeditated research questions and objectives. This is where, as Swann (2002) states, design research is distinguished from commercial/consumer driven design processes. In practice-led/based research, the practitioner is generating data through the designed outcomes from the outset.

Working as a designer-maker of furniture and related products for more than 20 years has provided me with an understanding of what it entails to deliver a usable object to the home in the industrialised world. However, while I have gained much in personal new knowledge and insights I had not thought of my work as a method for research until contemplating a PhD by practice.

Creative practitioners have always followed an investigative process of one kind or another. However, by comparison to research methods in science and social science, with 300 and 150 years of precedents respectively, the epistemology of research methods and methodology in art and design is still in its infancy (Gray & Malins, 2007, p.18). PhDs in Art & Design have only existed for around 30 years (Ravelli et al, 2013, p396), and the reductive and positivist approaches used in science are not often appropriate in creative practice. In some cases, the attributes and terms of science research and particularly social science research have been transposed to creative

processes as reference points and counter points, but creative practice often relies on serendipity and intuition rather than the investigation of a hypothesis in controlled conditions. Indeed, many in science are dissatisfied with the dominance of a positivist/reductive approach (Barrett, 2007, p.1), and exploring creative and visual research methods as alternatives to empirical approaches (Wagner, 2006; Prosser & Loxley, 2008; Rose, 2013).

Donald Schön's 1983 work, *The Reflective Practitioner* has supported the recognition of the value of practice-led/based research methods in design and the visual and performing arts. Schön discusses the notion of knowing by doing, describing how practical and professional expertise is knowledge, (Schön, 1983)...

' – the view of professional knowledge which has most shaped both our thinking about the professions and the institutional relations of research, education and practice - professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique' (Schön 1983, p21).

Swann (2002) describes this repositioning of the practitioner, (via Schön as the reflective practitioner), to the practice-led/based action researcher. John Dunnigan's essay on *Thinking* (2013) describes practice-led/based research more clearly, referring to "critical making" as the "symbiotic relationship" between thinking and making, and describing to artists and designers as "form givers who bring ideas into the material world." (Dunnigan, 2013, p.95). Dunnigan refers to embodied knowledge through working with your hands...

'Critical making requires critical thinking and social consciousness along with embodied knowledge if it is to be distinguished from making in general. Critical making should also be understood as different from production where the thinking is complete before the fabrication begins. In critical making, the very process itself opens up new possibilities for deep expansive thinking and the serious enquiry that stimulates discovery.' (Dunnigan, 2013, p.98)

Dunnigan does not cite Schön, but their viewpoints are the same – there is knowledge held and to be revealed in doing. This is reinforced by Christopher Frayling, and Martina Margetts, both writing in the *Power of Making*, the book which accompanied the eponymous exhibition at the V&A London in 2011. In his essay *We Must All Turn to the Crafts*, Frayling writes...

'My introduction to the crafts as a form of knowledge, which differs from the usual modes of classroom teaching, came from reading Book III of Jean-Jacques Rousseau's educational treatise Émile (1762)... Émile is a strong polemic, cast in the form of a story about a boy and his tutor, against learning by rote and social conditioning ... [and instead is] concerned with the learning of a craft, in Émile's case carpentry: "if instead of making a child stick to his books, I employ him in a workshop, his hands work to the advantage of his intellect, he becomes a philosopher while he thinks he is simply becoming an artisan."' (Frayling, 2011, p31)...

Martina Margetts, opens her essay, *Actions Not Words*, with...

'This essay proposes that making is a revelation of the human impulse to explore and express forms of knowledge and range of emotions; an impulse towards knowing and feeling, which shapes human action and hence the world we create.' (Margetts, 2011, p.39)

And so she reiterates that making is thinking and knowledge for the remainder of her essay, concluding by paraphrasing Paul Valéry, "...the hand is a philosopher" (Margetts, 2011, p.43)

2. New Knowledge in the Work and Processes of Others

Of more critical interest to me, in honing my skills as a practice-led researcher in design, is determining the data revealed in making processes. Take, for example, Max Lamb's hexagonal pewter table, cast on a Cornish beach. The table has gained fame through an online video. Marcus Fairs, summarises this in online design magazine *Dezeen*: "the video is as much the cultural artefact as the stool itself." (Fairs, 2011)

"Despite being a comparatively simple object, the Pewter Stool is rich in narrative. Tin mining was once the main industry in Cornwall and sand from local beaches was used in the casting foundries. The mould can only be used once, making each piece unique, and the unpredictability of working on a beach means that imperfections become an inevitable part of each object's charm." (Fairs, 2011)

In the video of Lamb at work, using local materials the making of his stool becomes the delightful and inspiring element of what otherwise might be regarded as a crudely fabricated object. The making process is entertaining and easily understood by the audience.

In the recent exhibition *In the Making*, at London's Design Museum, objects were exhibited "interrupted mid-production" (Barber and Osgerby, 2014, p2). Even the exhibition catalogue was presented as unbound pages with bleed and crop information normally only visible to those who produce the print runs. Presenting everyday objects in the unfinished state reveals new insights for both designers and users.

'We have curated this exhibition to capture and reveal a moment in the manufacturing process, unveiling everyday objects in their unfinished state. Often the object is as beautiful, if not more so, than the finished product. We want to demystify how these objects are made, in order to convey our sense of fascination and value that this knowledge can bring to inspiring new design ideas.' (Barber and Osgerby, 2014, p2)

The 2011 *Power of Making* exhibition at the V&A, in collaboration in the Crafts Council, also celebrated tacit knowledge in how things are made. That this knowledge has been presented in two world class design museums highlights the importance of making. It helps us understand and value everyday objects and brings the audience closer to appreciating the resources required to assemble our manufactured world.

"...fewer and fewer people know how to make the things they use, need or want; or even how these things are made. This is one of the unfortunate legacies of the industrial revolution... The distance between user and maker is growing, and with it knowledge and understanding and appreciation are diminishing." (Charny 2011, p6)

3. My Own Practice

As previously mentioned, I have over 20 years of experience as a design practitioner, but only recently began to frame my work as practice-led research. To explore design practice as practice-led research I started afresh with a new design enquiry. With my interest in micro-manufacture, and inspired by Max Lamb my project investigates green sandcasting with local manufacturer Edinburgh Cast Metals.

Michael Scharge refers to prototyping as play, "... as much a medium of interpersonal interaction as a tool for discovery, insight and test." (Scharge, 2013, p.19), going on to state: "Play is a process that can give rise to new realities" (Scharge, 2013, p.25). The iterative modelling process used here may not appear playful, but it has allowed reflection that has led to new ideas.

My aim was to create aluminium artefacts by playing with discarded packing as waste moulds. I have previously used Polystyrene foam, a much-used waste mould material, with varying success. The latest iteration with this material uses packaging pellets arranged in a bowl in the sand. (see fig. 1).

The use of bubble-wrap was inspired by Czech designer Rony Ples's glass Bubbles Bowl (2011, made using an entirely different process) – the possibility of molten metal passing into the bubble spaces immediately came to my mind. (see fig. 2). The bubble-wrap has been formed over mdf patterns, which are removed before installing the other half of the sand mould.

In the first iterations of this process, the molten aluminium has not been able to flow all the way through the mould, but additional layers have been added, to create more space.

Key stages of the making process have been captured in photographs and video, the most exciting being the pouring of molten aluminium, and resulting cast, straight from the mould with

the gates still attached (fig. 3).

New ideas and questions have arisen from this

process: 'In critical making, the very process itself opens up new possibilities for deep expansive thinking and the serious enquiry that stimulates discovery.' (Dunnigan, 2013, p98). The project is now moving towards off-grid approaches with mini-foundries that utilise industrial waste for both the pouring material and the waste moulds. The process itself has raised new questions about sustainability and the use of new materials. I am now investigating ideas around the rationing of materials and, given that we are already mining landfill sites, whether or not we have already extracted all the virgin mineral resources we will ever need.

4. Conclusion

Arguably, all creative practice is a process of evaluated investigation. Creative endeavour can easily be transposed to the UK REF 2014 definition of research "A process of [rigorous] investigation, leading to new insights, effectively shared" (HEFCE 2011, p.24).

Wagner refers to material artefacts as "objects of social inquiry." (Wagner, 2006, p.57). With reference to this, the artefacts are research outcomes, and also medium for enquiry in that has led to the new avenues of investigation.

It is clear is that there is a prevailing academic view of knowledge in doing, and making as thinking in creative practice. For this, we owe much to Schön's work in the 1980s. However, the notion of research in creative practice is still struggling for acceptance as an equal to scientific epistemology, even though the two domains overlap. Scientific discovery can also rely on serendipity, hunches and accidental discovery in the same way as creative enquiry, and indeed one can influence the other. The difference is that the epistemology of scientific research methods has been established for three centuries (Gray & Malins 2004).

However, there is now an enormous amount of published material that refers to knowledge in doing and making as thinking in epistemological terms and framed within context...

"Thinking of creative practice in design as a dynamic relationship between the habitus and field empowers the researcher, because it locates design thinking in the context of a dialectical engagement between ideas and the material world..." (Crouch & Pearce 2012, p37)

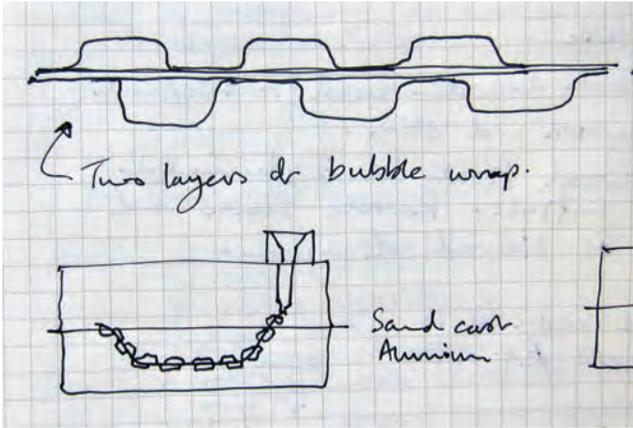
Terms like practice-led and practice-based research have been established, that help us to articulate creative endeavour with equal validity to more traditional forms of academic research...

"...it seemed important to claim part of the territory of research for the Creative and Performing Arts and Design, and to give identity to it by naming our research practice-led or practice-based research." (Gray & Malins 2004, p3)

Exhibition



1. Polystyrene packaging pellets as a waste mould (left) for a sand-cast aluminium bowl (right). (Author 2015)



2. Method for bubble as a waste mould (left) for a sand-cast bowl (right) (author 2015)



3. Left: Pouring molten aluminium into sandcasts. Right: Resulting casts with "pouring gates" still attached. (Author, 2014/2015)

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Taming the Erratic

Artefacts of Making

The exhibition **Taming the Erratic: Artefacts of Making** examines the artefact as locus for the design process. It gathers a diverse set of studies carried out for the installation Erratic, ranging from digitally simulated models to full-scale material assemblies. Together, these artefacts outline an approach to process where transfers back and forth between the Euclidian space of the simulation and the real space of the material assembly become productive opportunities.

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Keywords:

Design process, Euclidian space, Material Manipulation, Material Simulation, Real space.

1. Prosthetic relations

Architects typically have an ambivalent relation to exhibiting the process behind their designs. Step-by-step accounts of the process can be used to legitimize the design, or can alternatively be black-boxed to direct focus to the ‘effect’ of the design on the senses. These two common attitudes point to an issue with ‘the-making-of’-narratives. Making design decisions transparent may demystify the process, but it may also end up affecting the reading of the finished work as didactic – as an unavoidable consequence of, for example, program, context or the inner workings of architecture as a discipline. Intentionally concealing the process, on the other hand, may end up robbing architecture of an important register – the story of its transformations between mind and matter.

Stan Allen argues that the origins of today’s process driven architecture can be attributed to Peter Eisenman and specifically his first two houses, designed and constructed in the late 1960’s and early 1970’s. The best way of understanding these projects when they were first put on display, Allen writes, were not plans, sections or elevations, nor photographs of the built work, but instead a series of axonometric diagrams (Allen, 2006). These diagrams documented the entire design process as a linear progression of three-dimensional transformations. The last step in the diagram - the final design - balances formal complexity and legibility in such a way that all the previous transformations can be read by an attentive viewer. The work becomes a registration of a set of design procedures with an internal logic. And that logic lends its own kind of meaning to the resulting architectural object. Today, the idea that process can and should be on display is as popular as ever. It is implemented in a wide range of architectural genres, from urban massing diagrams to digital design research.

Effect driven architecture can be exemplified by the work included in the “Matters of Sensation” group exhibition, organized by Artists Space in

New York in 2008. The ethos of the exhibition, curated by Marcelo Spina and Georgina Huljich, was summarized as follows: “In the jump from a digital or virtual architecture to new modes of architectural fabrication usually described as research-oriented, productions must now be evaluated according to their success at evoking in the viewer material sensations and corporeal effects” (Matters of Sensation, 2008). The exhibition consisted solely of architectural ‘prototypes’ with a direct relation to the body of the visitor, as opposed to traditional models or drawings that represent the effect that the building might convey (Gannon, 2009). The process behind each piece was intentionally withheld in order to keep it from becoming a narrative that would interfere with the sensations.

To us, these examples of process and effect driven architecture have two issues in common, despite their obvious differences. Firstly, by limiting their scope to either Euclidian space (Eisenman’s diagrams), or real space (the prototypes in Matters of Sensation), they both disregard the process of going between the two as a productive opportunity. Eisenman’s houses were intentionally built to be exact, scaled up copies of the diagrams. Articulation like materiality and detailing was suppressed to retain the abstraction of the diagram, effectively making the building process invisible. The prototypes in “Matters of Sensation”, on the other hand, are all about articulation and fabrication, but any transfer between geometry and matter remains unimportant since the process is withheld. Secondly, both process and effect driven architecture reduce the object on display to merely a vehicle for process or effect. The houses and the sensate prototypes, respectively, are nothing more (and nothing less) than indexes of a process or emitters of sensorial stimuli. **(Fig. 1).**

The exhibition Taming the Erratic: Artefacts of Making looks for alternatives to these two established approaches to process by focusing on the nature of the artefacts behind Erratic (Figure

1), a recent installation carried out by our practice Norell/Rodhe. Erratic playfully explores the tension between precise design intent and erratic material behaviour. It consists of a thick polyurethane surface – essentially a sack – that has been constrained to an inner armature in hundreds of points. The design process included both digital simulation and analogue material manipulation. Simulation made it possible to work ‘live’ with digital geometry – as if one was manipulating a real chunk of material (Figure 2). However, each transfer between the Euclidian space of the simulation and the real space of the material, made clear that there was a gap between the two. This process is exhibited through artefacts exclusively and features 3d-prints, mock-ups, details, construction drawings, diagrams, animations of simulations, stop motion videos, and customized assembly tools (Figure 3). Together, these artefacts give selective insights into the making of the project, but they do not attempt to construct a linear narrative. As the design is cycled through a wide variety of mediums, each type of medium unlocks a different aspect of the project that is ‘other’ than the final installation. **(Fig. 2).**

In summary, the process and effect driven models of architectural practice discussed here, respectively, gain their momentum from a restriction to either Euclidian or real space. Our approach, in contrast, thrives by constantly stepping between the two. It suggests a flattening of the hierarchy between geometry and matter, where the precision of Euclidian space is continuously mixed with real-world tools and materials. **(Fig. 3).**

1. Erratic installation at the Aalto University Digital Design Laboratory, Helsinki, 2013.

2. Snapshots from digitally simulated constraining process: A spheroid mesh constrained in 200+ points..



Exhibition



3. Mock-up of the *Taming the Erratic* exhibition,
Stockholm, 2015.



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Erratic was exhibited at The Aalto University Digital Design Laboratory in Helsinki between September 19 and October 17, 2013. The project is supported by the research environment Architecture in the Making at Chalmers University of Technology in Gothenburg.

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Intermediate Fragment

*Explorative Materials and Machining
Driven Design*

This text and its connected exhibition are aiming to reflect both on the thoughts, the processes and the outcome of the design and production of the artefact 'Intermediate Fragment' and making as a contemporary architectural tool in general.

Intermediate Fragment was made for the exhibition 'Engaging Through Architecture' in 2015 by Aarhus School of Architecture as a part of the Ventura Lambrate Milan Design Week, where it was exhibited under the name Concrete. The fundamental pool of techniques and knowledge that set the agenda for the fragment was established before the intentions of realising an exhibition object was conceived, but expanded, refined and concretised through this process.

The context of the work shown here is an interest in a tighter, deeper connection between experimentally obtained material knowledge and architectural design.

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Keywords:

***Materials Driven Design, Digital Fabrication,
Experiments, Experiential Knowledge,
Iterative Workflow***

1. Connecting drawings and materials

The interest of the project takes off by the utilisation of the link between digital drawing and digital fabrication. The opportunity to use digital drawing as information for machine instructions, and the power of these machines to process different materials, creates a unique relations between tools mastered by architects and a range a materials used in building and construction. The potential of this transgression from drawing to making (Sheil, 2005) makes it possible to introduce material exploration in the earliest stages of design and abandon a deterministic design and realisation approach in return for a discovery of form through the materialisation (Kolarevic, 2008).

2. Materials and experiments

The encounter of material specificities and tool behaviours can be seen as the starting point for the series of material test and experiments that initiated this process. The materials wood, concrete and steel formed a strategic assortment. Varying from heterogeneous/anisotropic to homogenous/isotropic, from liquid to solid these materials provides a range of properties and states. Also they are all known classics in building realisation, where they are often used in different dedicated situations performing in often repeating, standardised and well-proven ways. Despite their controlled use and refined formats they all offer a number of inherent specific material properties and capacities. Material properties are defined as objective characteristics that can be listed. Capacities, on the other hand, are relational. A capacity to affect always goes with a capacity to be affected (Delanda, 2007). With this approach to the materials the drawing was seen as an instrument to embed information into the materials through digital fabrication, in that way altering the capacities of the materials on the basis of their properties. This led to a strategy where machining was followed by transformation,

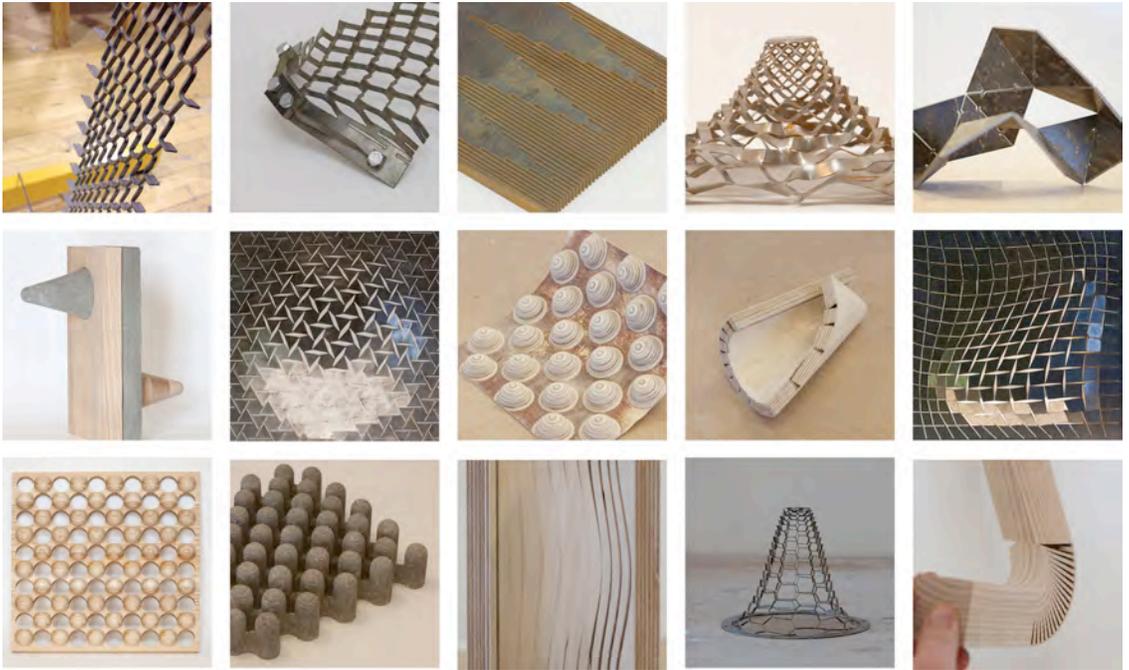
creating a workflow where the elements of drawing, machining and transformed result all have an individuality and actual existing, not being a representation of each other. Since this workflow is reliant on experiential knowledge gained through the surprise and uncertainty of the outcome, an iteration-based process here becomes a way of finding relations, defining parameters and a context from where form and construction can grow – opposed to a workflow where iteration is done solely for the sake of debugging or in attempt to achieve predetermined designs.

3. Unfolding techniques

Through experiments (Figure 1) many discoveries where made and special interests found. One of them was a variation of tradition kerf bending techniques, where a piece wood is cut in order to bend it in a direction normal to the kerf. Understandable this techniques is dependent on the remaining wood and the strength and orientation of the fibres in the actively bend length. This interest led to a series of investigation where a modified circular saw blade was mounted to a standard HSK tool holder on a 5-axis CNC machining centre. With this setup, precise control of cutting directions and orientations are possible. The drawing for these investigations started out as explorative arrangements of lines that defined the tool paths for the saw. These drawings had in their earliest stages no or very little experiential foundation, but instead served as probing instruments in the process of finding relations and defining parameters in the encounter of machine and materials (Figure 2). Through the repeating experiments the drawings however gradually build up knowledge around the investigated procedures. Every iteration gave a material feedback to the drawing loop.

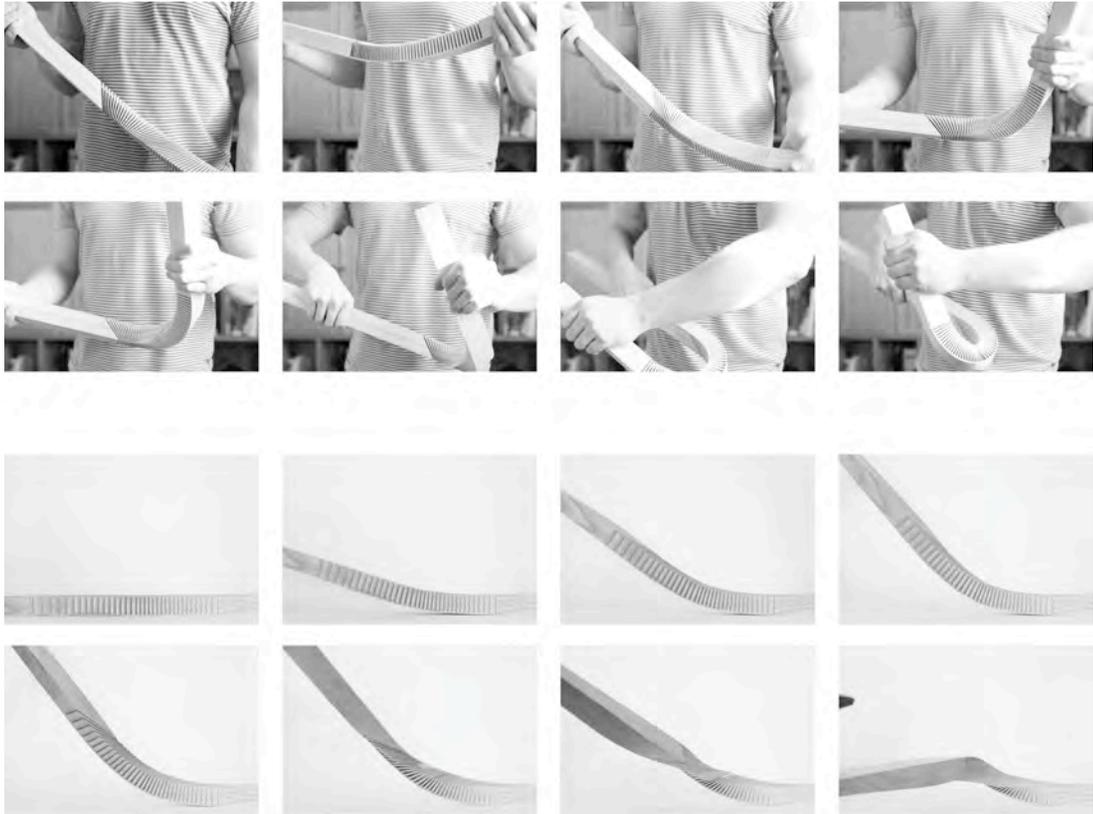
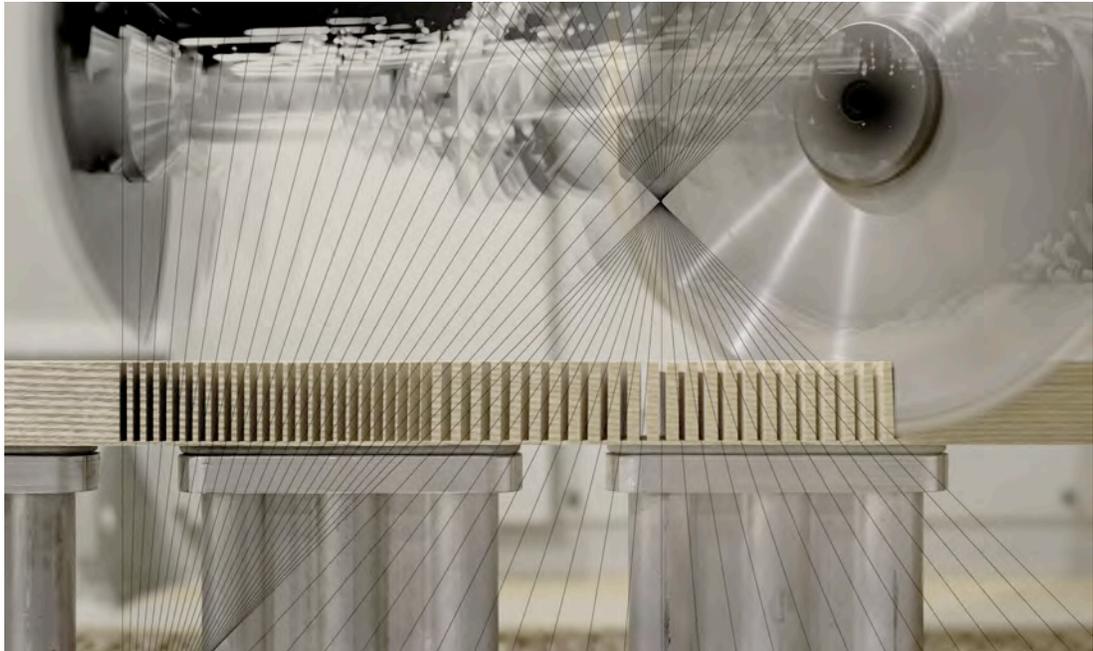
1. Examples of materials explorations and experiments

Exhibition



2 (left page). Relation between drawing, machining and material

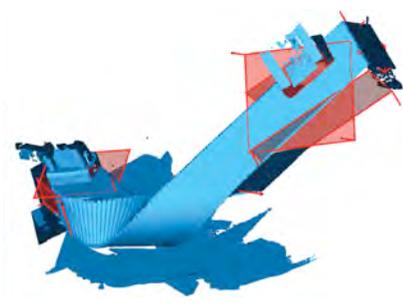
3 (left page). Exploration and systematisation



Exhibition

4. 3D scanning and analysis of the bend wood

Exhibition



4. Gaining knowledge

While defining a field of possibilities, iteration by iteration, the experiential gaining increased, taking the drawings from mainly being uncertain catalysts for surprise, to being vessels for obtained know-how. Increasingly systematic approaches to the fabrication were utilised, creating an overview of decisive parameters, the definition of those and their impact on the results (Figure 3). Kerf depths, cutting angles, kerf distribution and spacing, overall machining length as well as wood type and orientation all have definite impact on the bended shape that the machined piece eventually will be able to transform into. This knowledge, listed as parameters, in interplay with the machined result, was considered a combined design space and structural logic from which form and spatial compositions could be retrieved. This material and machining knowledge created foundation for creating several versions of kerf patterns that could facilitate the bending of wood into surprisingly agile shapes. These physical shapes were reclaimed into the digital domain using 3D scanning and contact probe metrology (Figure 4). This allowed for a geometrical analysis of the resulting shape in relations to its preceding machining, as well as a basis for digital compositions and drawings with the shapes combined. Eventually ash wood was chosen as the prime material because of its long, flexible and strong fibre structure (Figure 5).

5. Fragment realisation

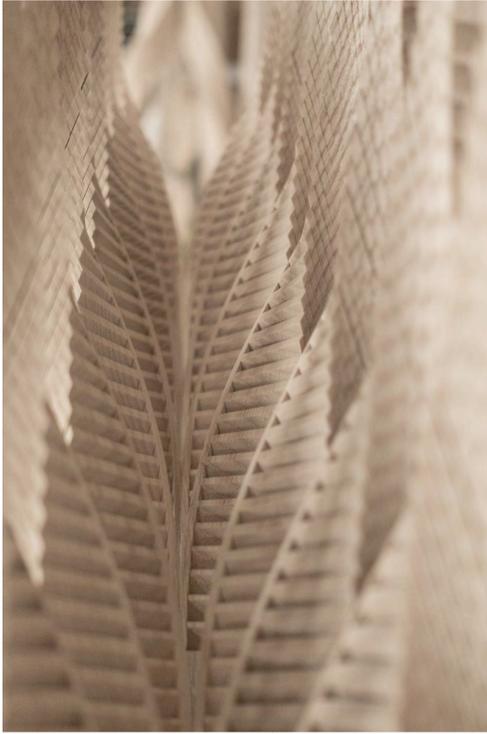
During the process of wooden investigations, similar, although less extensive, experiments with concrete and CNC milled formwork were carried out. This process gained speed by a time where the wooden experiments already were well developed; resulting in more focused and biased experiment and design strategy. The concrete investigations eventually acquired an interplaying strategy for the design developed through the wooden experiments. Opposite to the drawings for the wood, the formwork drawings were drawn as explicit solid geometries based on shapes passed on from the result of the wooden transformation. Formwork was routed in expanded polystyrene (EPS). EPS is easy to machine, but the result

is miserable for casting due to its open texture. Therefore surface treatment is needed. The EPS negative solids were looked upon as blank three-dimensional canvases for imposing surface features that could brace the design – and in that way extend the active process of designing into material reality. Different materials, including acrylics, treated wood, textiles, oils, solutions and more, were tested out (Figure 6). A partial lining with sheet latex cut by a digital cutter in combination with areas treated with an acid-based, retarding solution was chosen. This arrangement offered smooth surface texture where the latex was applied and a rough erosion of the surface where the solution was active. Playing on the capacities of the concrete, the formwork created an inside-out effect to the casting that followed and continued the ribbon-like effect achieved by the machined and transformed ash wood.

The result of the extensive testing and prototyping turned into a build bespoke, architectural fragment (Figure 7). The fragment exists as a component of coherent transition between ash wood construction and concrete base. The structure is an intermediate result based on the quantity of experimental results and the experiential knowledge gained from the research process of combining digital drawing and fabrication tools and an investigation in material capacities. While temporary acting as an exhibition piece, Intermediate Fragment is not to be considered a final result. It is to be considered an architectural fragment belonging to a process containing a quantity of informative, actual and representation elements. At the same time, because the machining is real and the output is actual, the process also starts to shape a production method and strategy around the design to be. Potentially this type of material and machining driven design (van Bezooeyen, 2014) will not only be able to suggest new spatial uses and shapings of materials in architecture, but also be able to suggest the process of manufacturing these in a later construction phase.

5. Machined and transformed ash wood

Exhibition



6. Concrete tests – form and texture



7 (left page). An intermediate result of material and machining driven design



Exhibition

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Form making

Three examples of form making from practice

With this paper I would like to present and discuss various forms of form-making processes and methods related to this, which I have identified looking back on my professional practice. Specifically, I wish to present three different ways of making form and contextualise these in relation to current models of practice-based research.

Over the past 20 years I have worked professionally with design. This work has evolved using various materials, methods and techniques; of these, it is methods that I will present, discuss and share here. Sharing appears to be one of the main objectives of this conference, reflecting on the matter of making research and researching making.

Common to the experiences that I wish to share is that they primarily relate to the question of researching making. Or to put it another way; what is it we do when we do it? How do we design?

With my paper I will refrain from making big Claims, but instead reflect upon questions relevant to my practice as seen in retrospect.

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In the unlikely event of a Claim occurring in the paper, it would probably point towards the existence of aspects within the process of form-making which elude the object of research, as it seems to be inaccessible to reflection and rationality. My personal position regarding this will be one of welcoming. Partly because I find it interesting to examine more closely, the objects of research within the field of architecture and partly because I equally find an interest in that, which exists beyond the limits of architectural research.

My experience with form making goes further back than the 20 years I have professionally been involved with design. Actually I do not recall a time in my life where form-making has not been present in one way or another. Growing up on a farm I remember how my fathers' workshop was the focal point of my early form-making experiences. All farmers must have a workshop to repair machinery, equipment and buildings that are always in a constant process of breaking down. Technology is therefore always present at a farm. Another important resource for form-making, that was richly present at my parent's farm was the wide-open fields with their distinct claylike soil. They were hard to plough but represented an indispensable resource of clay for the early design of objects and everyday utensils. In many ways, clay is the "first material" in form-making, as the material requires no other tools or technology than the hand when it is formed. Thus there are no tools interposed between the hand that is in control of the form making and the resulting form. Shaping the material and shape are integral with each other.

In my presentation and discussion of various form-making processes and methods related to this, I primarily will try to present three different examples, which I can identify when looking back on my professional practice. The three examples are in many ways coherent to three roles that I seem to have undertaken in my practice. As a sculptor, architect and researcher respectively. I

am a trained architect and have for many years been teaching as Associate Professor at the Aarhus School of Architecture. As a teacher one is constantly confronted with the discussion of form-making processes and methodologies. This is part of everyday life, which has to be challenged pedagogically as well as within a didactic context. How are students of architecture to be taught various strategies of form-making?

Also, in the role of an architect I have designed a number of smaller buildings, building components and artefacts in which the process of form-making has consciously been discussed and scrutinized. Finally, during my practice as an architect I am directly involved in the research of building materials. My research field is the aesthetic potential of building materials and their ability to influence spatial atmospheres. For my research work I have been awarded a Ph.D. degree. Many of my research results are based on practical experiments with materials using distinct methods of examinations.

Parallel to my profession as an architect, I am a sculptor and have for many years practiced and exhibited at various exhibitions.

With three examples from my professional practices derived from the roles of architect, teacher/ researcher and a sculptor, I will in the following try to identify and discuss three ways of form-making as well as their practical and theoretical implications.

The three form making processes can be categorized under the following headings:

- Form-making based on visual memories
- Form-making based on methodical interventions
- Form-making based on bodily experiences

Form making based on visual memories

As architects, we tend to travel a lot and make extensive use of vision as our primary sense of perception. This happens in relation to the perception of the physical environment surrounding us and in relation to the architecture in particular. Thus the visual sense seems to be dominant in the perception and awareness of the outside world. This bias is scrutinized and well described in recent literature and in relation to the field of architecture in particular by Architect and Professor Juhani Pallasmaa:

"In western culture, sight has historically been regarded as the nobles of the senses, and thinking itself thought of in terms of seeing" Juhani Pallasmaa, The Eyes of the Skin. Architecture and the Senses, 2005, p 15.

One persistent argument seems to be that the visual dominance has been further reinforced through the realm of modernism; especially with an emphasis on the abstract form and space and subsequently less attention towards materials and decoration, which activate our other senses.

Since we as architects are in a constant process of establishing an extensive archive of images, we hold an inner reservoir of images that we can tap into when we design spaces and objects. In the design process, we seem to a great extent to recreate our inner landscape of images, either as pure entities or as composition of imaginary fragments. It is my experience that in this recreation of our inner imagery landscape, we are not in the process of copying what we have visually experienced before, but are on the contrary in the process of interpreting this landscape while incorporating it to the new context we are set within.

The use of the visual memory in the design process does, therefore, not constitute a 1:1 situation, but involves reading, analysis and interpretation. We recognize this fact while educating architects as we often refer to the experience of students having to "learn to see". This phrase captures very precisely that the act of seeing involves a conscious process in different stages.

The key element in establishing a visual memory that can be of use in the design process, is therefore, a conscious awareness of the phenomena experienced. Without this awareness, the visual memory does not seem to be at disposition for the design process. The course of the process is characterized by oscillating from the phenomenon of experiencing to the abstraction of analysis and interpretation and back to re-establishing the design as a phenomenon.

It seems that in architectural education today, the establishment of strong visual memories and references still constitutes a great deal of foundation being taught in design programs while striving for new architectural expressions. It is, however, highly questionable if this should stand alone.

The means of building up an extensive visual memory is still to a large extent is taught through literature, lectures and study trips where students, while being confronted with existing architecture, urban structures, objects, and artefacts expand their visual memory. However, the visual impact of natural phenomena still seems to exceed any other manmade intervention.

This is also to be noticed as we examine the design process among central figures of classical modernism (Frank Lloyd Wright, Alvar Aalto, Jørn Utzon) whose works are created and may be explained by the use of metaphors in nature.

As an example from my own practice, the sculpture Untitled V (Fig. 1, Untitled V, Photo by Anders Gammelgaard Nielsen) can be seen as a juxtaposition of a series of visual fragments that are largely recognisable to the viewer. Thus, the image of the rocket-like object orbiting with high speed over the sky is obvious and recognisable. The same goes for the undercarriage with its wheels that clearly has references to an early industrial culture and celebrates the machine as a phenomenon. Finally the sculpture signifies with its material character an affinity to medieval atmospheres. The juxtaposition of these visual memories from different ages constitutes the sculpture's inner tension. Thus the sculpture is intended to create tension and provoke the viewer, consequently creating an uncanny situation and viewing experience.

The example can to a great extent be seen as practice-based investigation on form-making relating to the research conducted within the realm of the ADAPT-r program. Thus the initial mode of conduct is to place something in the world that leaves an impression and subsequently calls for reflection. On the grounds of this reflection conclusions can be drawn that can give direction for further experiments or artifact to be made. This dialectic process of making/reflecting/making seems to require a strong awareness towards the maker (the subject) who is deeply involved in the act of uncovering and establishing new knowledge. It is my experience that the latter vividly activates an ethic discussion on the conduct of research. This points towards a research practice with a full transparency on all processes and results.

Form making based on methodical interventions

Physical experimentation with building materials formed the basis from which aesthetic potential was exposed and examined within the research framework of my Ph.D. thesis. The reason for this methodological choice was to disclose new aesthetic potential of existing building materials. This seemed implausible within the tradition of empirical studies or case studies that predominately tend to refer to the past. I therefore took departure in a “classical” research format establishing a hypothesis to be confirmed or refuted.

My working hypothesis was that building materials hold aesthetic potential that can be exposed experimentally through the use of various technologies, as well as new methods for the application of these technologies.

Wood was chosen as an example of a building material that could be expected to accommodate new aesthetic potential. Similarly, a number of technologies was initially identified and precisely described. Some of these were well known from processing timber in the lumber industry, others were completely new and “exotic”. Finally, a number of methodical interventions were

described with respect to the application and use of the selected technologies. Overall, the starting points for the forthcoming experiments were that I knew all about how they were to be conducted, but nothing about their outcomes and results.

This situation is well known as a fundamental condition within the realm of research as it follows all researchers as a companion in his search for new knowledge and insight. If we know where we are going there is no need to go. If we do not know where we are going, there are all reasons to go.

Natural scientists are well acquainted with this fact while conducting experiments within experimental physics. Elementary particles are accelerated to the speed of light and subsequently collided with heavy atoms that split with the aim to confirm or refute the hypothesis of atomic nature. This basic research condition seems natural for a scientist who is used to working without visual memories and with objectivity as the key driver. Somewhat more unaccustomed for the artist and architect who largely make use of visual memories and where subjectivity always come into play as an integral part of the creative process.

With the previously described experimental setup as a starting point, the experimental studies were carried out and in this case, with a self-imposed restriction on subjective intervention. However, like the scientist, I was in the comforting situation that I knew that there would be an outcome of my experiments. When something is done, something happens. Whether this would confirm my hypothesis by revealing new aesthetic potential of building materials or not, was unpredictable. Not surprisingly, the hypothesis was confirmed and new aesthetic potential of the examined building material were exposed (Fig. 2, Untitled XIV, Photo by Anders Gammelgaard Nielsen).

However what really surprised and struck me was that the results that were achieved, to a great extent evolved by themselves, without being affected by my own subjectivity nor by a specific form-making. Thus, there was no need to muster an inner motivation in order to carry out the experiments - to a great extent they conducted themselves with an autonomy derived from the initial programming of methodical interventions.



In the creation of artworks, a certain creative power is often described. This creative power is essential to be possessed by the artist in order to create the artwork. The experience of such was noticeably absent during the execution of the experiments because the form making was based solely on methodological interventions.

Moreover, it was remarkably evident that forms arose, that were both surprising and decisively different from those that would occur on the basis of visual memories. Personally it was seminal to be confronted with a new typology of form-making that was revealed through a controlled methodical process. Thus, it appeared that, while we use our visual memories, we are in danger of reproducing the already seen - and hereby architecture can become a reproduction of itself - whilst by applying a methodical approach, we have the chance of reaching beyond our own imagination. Thus, this method offers a unique opportunity to capture the new and never yet seen. It therefore appears to be a very suitable method in terms of the architectural research that aims towards developing new aspects of form, space and structure.

The use of methodical strategies in creative processes has especially in recent years been widely acknowledged within various art forms. Thus, the Dogma concept of the film director Lars Von Trier is based on a number of methodological interventions that radically challenge the director and pushes him beyond his own imagination. This is evident in film like Breaking the Waves, 1996 and De fem benspænd (The five obstructions), 2003.

Similarly, the Icelandic singer and composer Björk is using methodological interventions in the development of her music. In the album Debut from 1993 she develops new and unexpected sound-scapes via techniques of sampling, mixing, distortion, replay, etc. Hereby she establishes at completely new genre.

In the architectural realm, Peter Eisenmann has to a particular degree been an exponent of an architectural formation based on methodological interventions. This is most strongly expressed in the publication House of cards, 1987, where Peter Eisenmann, based on a series of methodological operations, develops a range of unpredictable spatial compositions. A similar interest in the development of architecture through

methodological strategies is to be found within the concepts of de-constructivism, where architecture of a physical structural nature is conceived through a series of methodological interventions.

Form making based on bodily experiences

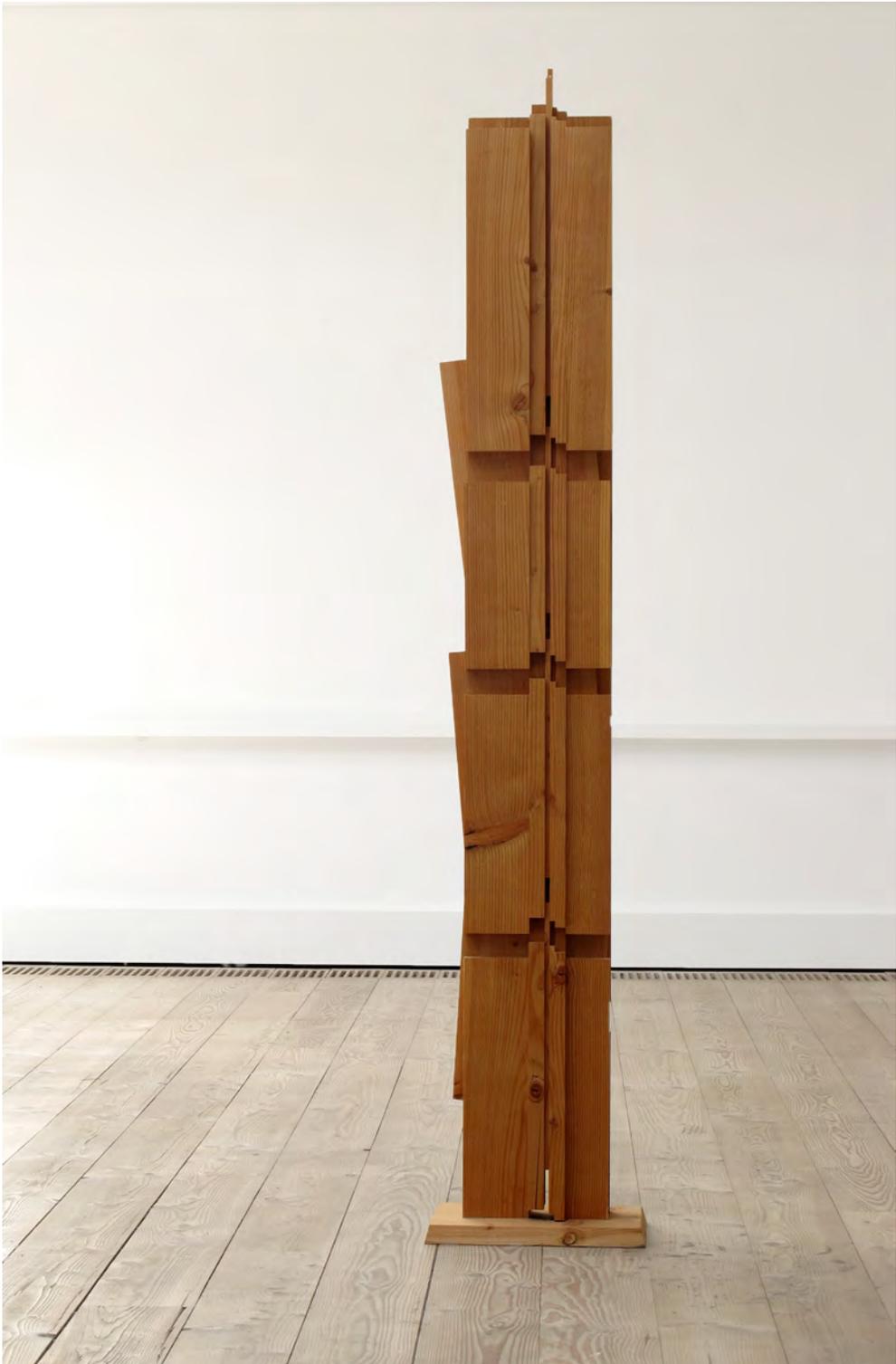
With our physical bodies we seem to establish a direct relationship with the natural world that surrounds us. We are made of substance, just as the world is made of substance.

In recent literature it is thoroughly described how bodily experiences are embedded in our body's encounter with the physical environment. This happens throughout life and within the transformation from child to adult; our interaction with the world is crucial to how we understand space and form making. As the body encounters with the surroundings, a recording is being registered and stored in the body. It is this recording that is being replayed while we interact with the world and design within this world.

The relation between body and environment can be described as dialectical. Our bodies give form to our surrounding environments, which in return shape us - or vice versa. We excavate and change the landscape, which in return makes an impression on us. We design our clothes that in return design us. We chip off the stone and create an expression, which leaves an impression in us. For the child, this dialectic process forms the basis for understanding the world and realising itself within this world.

Along with the recognition of our own existence through the encounter with the outside world it is embedded as a bodily experience. The body records the world in a seemingly infinite archive.

I have previously in the text discussed how we seem to establish a visual archive and how this archive through awareness can be activated in the form making-process. Similarly, it seems to be a possibility for body to re-create embedded experiences. These can be activated and "replayed" as we design the world around us.



However, there seems to be a crucial difference in the use of our visual memories and bodily experiences. The visual memories require awareness and thus an intellectual process, whereas the bodily experience can be activated directly and intuitively without awareness. This diversity is clearly expressed while practicing to become a craftsman. It is inevitable that one can only become a master craftsman through practice and not through seeing or reading. This explains why so many ancient crafts are gradually disappearing; they are based on bodily experience and therefore often rarely documented.

While looking back on the sculptures that I have formed over a number of years, it strikes me as obvious that many of these to a great extent have been formed on the basis of bodily experiences. In this connection I can immediately and with ease describe the environments that have influenced me and resulted in the bodily-embedded experiences, which form the basis of my works. Contrary to this, it is very difficult for me to explain and account for the processes by which the bodily-embedded experiences result in the specific forms. There seems in this relation, to be no immediate rationality that can be subject for any intellectual consideration. The form-making has happened intuitively and in a diverse and complex dialogue between body and sculpture while forming it. Thus, it is only at a general level possible to describe the experience of the process that has taken place and not decisively how the process occurred. It has been my experience, that based on bodily experiences I have been able to leave traces in the substance (sculpture). This has in reverse responded with an expression that has left a sensory impression. The experience of the dialogue has sometimes been intense, as if the boundary between the body and form, between subject and object has been challenged. Likewise, there has been an experience of a flow, which has led to a solution of time and place.

While looking at the form making that has taken place in relation to the sculpture *Untitled III* (Fig. 3, *Untitled III*, Photo by Anders Gammelgaard Nielsen), the above observations and experiences has been present. Thus, I have experienced a complex and diverse dialogue with the sculpture, while it has been given its form. Whatever else

has taken place remains uncertain and beyond communicative range. That is all I can say. It evades conscious reflection and falls within the realm of the artistic process. In many respects, a feeling arises that a boundary has been surpassed. At this boundary rationality ceases to exist and it is no longer possible to engage in a research context. The condition is challenging because it questions the research sphere. It is as if something is going on, that cannot be articulated orally or written – nor should be articulated. At the same time, it seems that we with this mute form, the core of art and architecture that so much evades reflection, arrives at the epic centre of artistic experimentation. We are left with the experience of the work of art and nothing else.



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obstructions)

E4

**Interferences and
Obstructions as
Creative Drivers**

Erosion and disruption

Disruptive design tactics and models for conceptualising architecture that counteract experiential erosion

As an architect, I am interested in how our perception and experience of the environment is formed. How do we make sense of our surroundings and which conceptions lie at the base of this understanding? In my investigation, I am looking at the relation between the cognitive models we use to conceptualise reality and the formal models we use to conceptualise architecture. My concern is that these models are often the same. As designers we frequently mimic these models when conceptualising architecture. But by translating these abstract models into formal prototypes and typologies, we dismiss a considerable amount of qualitative differences in experiences. I believe that this might lead to an “experiential erosion” or a diminution of experiential qualities. This concern forms the motivation to look for models for conceptualising architecture that go beyond the known and accepted models we spontaneously rely on and to focus on the intense and experiential aspects of architecture. By implementing design tactics that disrupt the internal logic of these models in the design project, experiential erosion can be counteracted. These design tactics are in line with for instance Victor Shklovsky’s (1991) principle of retardation and estrangement, Anthony Dunne’s (2005) notion of para-functionality and the critical artifacts of Simon Bowen (2009). The research wants to contribute to this type of design approaches by developing a glossary of disruptive design tactics for conceptualising architecture that counteracts experiential erosion.

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Keywords:

*design tactics; disruption; models for
conceptualising architecture; experiential erosion.*

The design-based research investigates how the cognitive models we use to conceptualise reality influence the formal models we use to conceptualise architecture. The models of reality are partly based on cognitive schemes, constructions of the brain that help us to easily recognise and understand the situations and things we encounter. It is a cognitive process that deletes irrelevant information in order to easily recognise and determine a situation or thing. For conceptualising architecture we often use the same models. We design a table according to our understanding of a table: a horizontal surface with four legs. When we translate these abstract models into formal prototypes and typologies, a considerable amount of experiential differences is lost through generalisation, as for example the different ‘tabling’ activities a table might enact (coffee drinking, playing cards, having dinner, chatting...) This might lead to what I call “experiential erosion”. Erosion is a destruction nourished by a frequent contact between two matters by which the one matter hollows the other. The frequent rubbing results in a diminution of the textural inequalities of the superficial layer of the thing. Because of this textural smoothing the thing loses its distinctive features in relation to other things and is in fact neutralised, resulting in a loss of experiential differences. The issue of experiential erosion motivates me to look for models for conceptualising architecture that go beyond the logic of the abstract cognitive models and to focus on the intense and experiential aspects our environment entails.

The study takes on the form of a project-based exploration in which creating and investigating are intrinsically interconnected. The framework of the research is set by the making of specific design projects that are characterised by a critical reconsideration of familiar architectural models. The projects constitute the main body of the research. Within these projects specific themes are explored, research (sub-)questions are posed and the pathways of the research are defined.

They interact with an audience and are used to evaluate the audience’s response, the material manifestations, expectation patterns, et cetera.

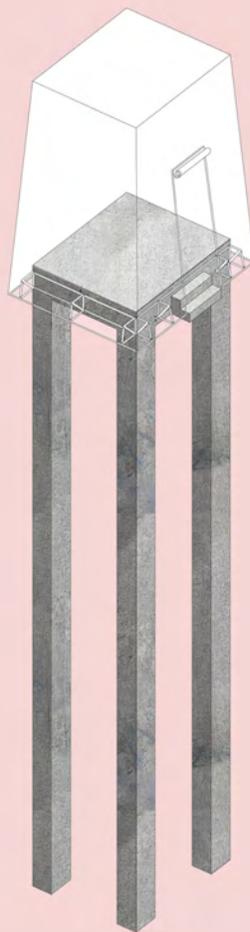
From these (context-)specific projects design tactics are extracted that reveal the mechanisms that are at play in the conception of the projects. These are more general and transposable design operations such as deleting, isolating, reversing, exchanging... that can be applied in different situations and can be tested in systematic investigations. The design tactics investigate how disruptions in familiar surroundings influence sense making processes. How does our state of mind towards a thing changes when the familiar state of the thing changes?

The exhibited work reveals some of the methods and media I use in my work as for example visual thinking, confronting backdrops and alternative representation techniques.

Visual thinking is a thought pattern that is stimulated by imaginative mental pictures that develop through “what-if” scenarios. By visualising the mental pictures they extend the mind and come to have an existence near reality. Narrowing the gap between imagination and reality, it excludes the impossible as a determinant design factor. Visual thinking is implemented in the design process as a trigger to temporarily forget the learned conventions for conceptualising architecture and to imagine other possibilities. Confronting backdrops refers to the (dis)placement of architectural designs or elements into specific, highly sensorial landscapes that are not the most common surroundings for architecture (lunar scapes, deserts, oceans...) The power of these contexts is that they evoke a direct dialogue with the architecture placed in it because they are not neutral. The sensorial qualities of the environment influence the internal logic of the architecture and force a critical reconsideration of some ‘evident’ and ‘logical’ aspects of architecture. At the same time, the new constellation triggers interesting

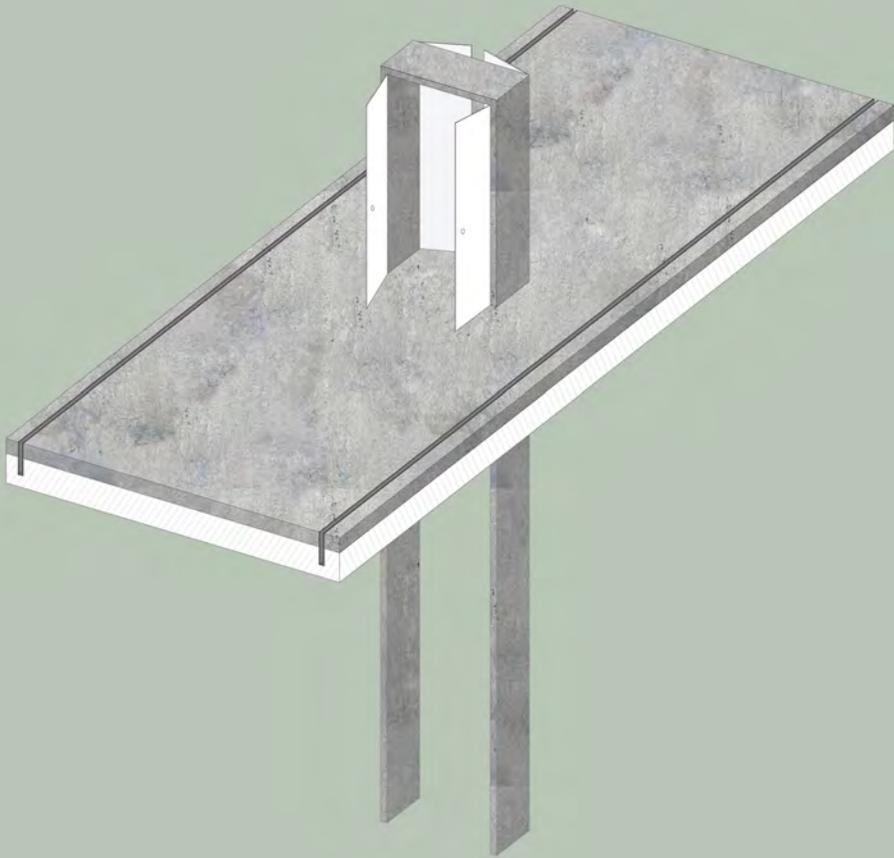
ideas or possibilities that otherwise would be left unnoticed. So displacing the object of focus, i.e. architecture, into different worlds, is a very effective method to instigate creativity and critical thinking.

The research project pays important attention to architectural representation techniques. I believe that besides being a translation or copy of reality, representation can also be employed as a conception device to create parallel versions of realities. In that case it can become more than just an affirmation of the status quo. The tactic of enriching by means of exhausting for example, aims at enriching the use of a conventional architectural drawing program by exhausting its functions and possibilities. Twisting the laws of the program enables the designer to strategically deliver the information that is desired. In the case of my research project, the drawings, collages, plans and sections strategically prioritise the relative and qualitative information over the absolute measurements.



1.

Exhibition



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Douglas's Day in Cambridge

*The development of an accordion book
for children*

The development of an accordion picturebook, 'Douglas's Day in Cambridge', is described. The various stages are discussed, including the origin of the line appearance, the production of a series of observational drawings, and the development of these simple sketches into a picturebook. The cycle of making, evaluating, and allowing the conclusions to inform subsequent making that is one of the characteristics of practice-based research played a key role in this work, and this exhibit traces how this technique was used in the development of my picturebook.

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Keywords:

***Accordion Picturebook, Observation Drawing,
Cambridge, Practice-Based Research.***

1. Introduction

'Douglas's Day in Cambridge' is an accordion picture book that flowed out of some observational drawing that I did as part of my PhD research. The style of drawing in turn arose from a chance event some years earlier where an injury to my right wrist forced me to do drawing with my left hand even though I am right handed. In this exhibit I explore how the picturebook 'Douglas's Day in Cambridge' developed from the initial simple drawings and how the development was driven by the cycle of using making and evaluating to inform subsequent direction that is one of the characterizing features of practice-based research. I will trace the development of this book through each of the key events and stages that were to influence it.

2. Surprise drawing style

The story begins nine years ago with a wrist injury that meant I had to complete my student drawing homework with my weaker left hand. This was difficult and slow, but it forced me to spend longer on the drawing, to focus on detail, and to draw lines that were less straight and rigid. This gave a more natural feeling than my previous drawings, and from that time onwards I did all of my drawing with my left hand.

Figure 1 shows a drawing of my room done with my left hand. The lines are more wavy, but more natural. Figure 2 shows a similar drawing done with my right hand. The lines are straighter but look more technical and less fun. The wavy lines of the left hand drawing could be seen as being less 'perfect' and accurate. However, children's drawings are not always perfect but they can still be charming and fun. For example, tea-towels are often produced based on children's drawings, and they are very popular.

I usually drew directly onto the paper using Pilot G-Tec pen (0.4 or 0.25 mm) without making a

pencil sketch first. This was because I found that I tended to make more careful observations and draw more carefully because I knew I couldn't change my lines if they were made with pen. With pencil I was less careful because I knew I could erase and redraw the lines if they were wrong. I also made my drawings on separate pieces of paper rather than using a bound sketchbook. Besides being easier to carry around I found that it helped to motivate me to make more drawings and use different styles of line if I couldn't see the sketches I had already made.

3. The second element: Observational drawing

The next stage in the story was some location and observation drawing that I did as part of my PhD research. Careful observation was the main focus of my sketches, following the comments of the Victorian artist John Ruskin when he commented that "I believe that the sight is more important than the drawing" (Ruskin, quoted in Salisbury, 2004, p.21) and as Salisbury adds "A real commitment to looking will be invaluable in your artistic development." (Salisbury, 2004, p.21). The observational skills I gained through making these sketches was graphically illustrated by a drawing that I made later of King's College entrance (Figure 9). I had noticed while making the drawing that there was a red post box in front of the entrance just to the right of the main door, and I included this in my drawing. While I was drawing, a tour guide asked to see my drawing. After comparing it to the building in front of us, he asked me why I had drawn a post box in front of the building when there wasn't a post box there. I pointed out that there was! At first he didn't believe me - he said that he had worked in front of King's college every day and had never seen a post box there - until he had been over to have a closer examination. He had been looking, but not seeing. Remarkably,



1. Left hand drawing



2. Right hand drawing

I had another independent experience with a different person and exactly the same picture. A local resident who had lived in Cambridge for many years said that she liked my picture but didn't want to buy it because she didn't like the red post box that I had "added into the picture". I had to explain that the post box really was there. As with the tour guide, she had never properly looked and had never registered the existence of the post box. Through this experience I realised that the artistic ability of observation (as well as just drawing ability) could be used to deliver my message to others.

These drawings were later to 'dictate the direction of the narrative' (Salisbury, 2004, p.62). At the time I did not have an idea in mind for a story, rather, this developed later from the images.

At first, I only drew buildings or cafés in Mill Road where I live in Cambridge (Figure 3-Figure 4). According to Salisbury (2004, p.31) "there is one big drawback to working on location in busy urban areas: you will be constantly bothered by people standing behind you, watching you draw or asking you, 'Are you an artist?'. This will be irritating to some artist and can make it impossible to concentrate." In addition to this questioning, I found that people were not always happy when they thought I was drawing them. This atmosphere made me feel timid and shy. Thus, I preferred to draw the building rather than to draw people, as is reflected in the above images. I liked to draw near my house rather than to go into town. Through this experience I learnt that an important drawing skill is the ability to be "brave". I also heard similar comments from other art students who said that they also found it hard to draw outside because of shyness. It doesn't matter if one just wants to draw their room or objects in it. However, in my opinion if one wants to draw outside, especially in public places, being brave is an essential skill.

But later, I realized that without people, just drawing a building makes the picture look less alive. For example, when commenting on some sketches I made at London Zoo, my supervisor explained how the sketch of people looking at the penguins (Figure 6) was more interesting and had more of a story than simply the penguins themselves (Figure 5).

Even for life-drawing, I realised it was often more interesting not just to draw the model but also other people such as the other artists drawing the model.

I applied these ideas to my observation drawing. I began to observe and draw people interacting with the building, even if only walking past or looking through the window (Figure 7-Figure 8; cf Figure 3-Figure 4).

So I explored adding some people as well as to go into town and draw larger buildings such as the iconic King's College Chapel (Figure 9) and Fitzwilliam museum (Figure 10).

4. Evaluating and refining

I wanted to do something a little bit different to just including people, so I thought about drawing an animal instead. While I was thinking about what animal would be suitable, I remembered a BBC news article (BBC, 2012) that I had read about hedgehogs and how many of these animals were being killed on roads around my home in Cambridge. I realised that my artwork could help bring about an awakening of my readers to the situation of these animals, by showing how they could become our friends or how we need to care about the lives of small wild animals. I felt that while hedgehogs are not harmful to people in the way that some small animals may be poisonous or act as pests, the hedgehogs still get harm from us.

I also read competition articles for students of other subjects about they could incorporate sustainability into their work. For example, how an interior design student could design an eco-friendly office, or how a manufacturer could develop processes that are less harmful to our environment. I wondered about how, as an artist, I could make my own contribution towards a sustainable way of life, and realised that I could do this through my artwork by incorporating animals such as hedgehogs. I experimented with drawing hedgehogs (Figure 11) and with incorporating a hedgehog into my location drawings (Figure 12-Figure 13, c.f. Figure 9-Figure 10)

4. Cafe de Paris, Mill Road



5. Penguins at London Zoo



7. Black Cat Cafe, Mill Road, with people



3. Black Cat Cafe, Mill Road



6. People watching the penguins



8. Cafe de Paris, with people



I added animal figures using Photoshop so that I could re-use the pictures for other things besides for children. Also of note is that, while I used my left hand for drawing buildings as explained earlier, I used my right hand for the hedgehog figures. This was because I needed to draw accurately - if I used my left hand the imprecise nature of the drawing made it less clear that the figure was a hedgehog rather than some other animal.

At first I tried to make a calendar (Figure 14) from my art work as I was interested in how I could use my work to make a consumable product. For making a calendar, I needed to draw at least 12 drawings (one for each month). and this lead me to draw a series of illustrations. I remembered a comment from my Korean professor during MA Illustration course, who said that making many images of the same consistent style was what distinguished an artist's work from children's natural art work. This further inspired me to make a series of drawings.

However, I realised that a calendar has a time limitation (one year only) and also a limited audience (typically adults) in terms of who will see it on a desk. I therefore decided to make an accordion book instead.

5. The final result

Progressing from a calendar to a picturebook obviously required a story. I had lots of images from the calendar of buildings in Cambridge with a hedgehog character in them, and this naturally lent itself to a story about a hedgehog going on a tour of Cambridge. I named my hedgehog character 'Douglas' and added text for each image to tell the story of some of the things that Douglas saw and did on his tour. I also added a cover page with a map of Cambridge.

My final accordion book is shown in Figure 15.

In addition to the calendar and accordion book, I also used my images to make a series of products such as badges, magnets, postcards, greeting cards, bags and tea towels and wallets that I could sell in Cambridge Market Square (Figure 16).



9. King's College
front entrance

10. Fitzwilliam Museum,
Cambridge



Exhibition

11. *Experimenting with drawing hedgehogs*

12. *Kings College, with hedgehog added*

13. *Fitzwilliam Museum, with hedgehog*



Cambridge 2015 Calendar



M	T	W	T	F	S	S
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

January 2015



M	T	W	T	F	S	S
29	30	31	1	2	3	4
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

February 2015



M	T	W	T	F	S	S
29	30	31	1	2	3	4
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

March 2015



M	T	W	T	F	S	S
29	30	31	1	2	3	4
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

April 2015



M	T	W	T	F	S	S
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

May 2015



M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

June 2015



M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

July 2015



M	T	W	T	F	S	S
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

August 2015



M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

September 2015



M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

October 2015



M	T	W	T	F	S	S
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

November 2015



M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

December 2015

by Jemma Kang www.jemmakang.com

Exhibition

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15.



16.



Interference

The violence in making Painting

Based on the epistemology informing the theory of atmospheres (Böhme, 2010) - which sees relations preceding the things -, my practice-led PhD research investigates interference as the ground of Painting and violence as its methodology. Interference, meant as the relation between elements whose identity is mutually dependent but nevertheless insolubly separated (Heidegger, 1969), structures the Painting as an Event (Heidegger, 2002). Violence - understood as a disruption seen from its positive potential (Derrida, 1987, 174) - is the discontinuous/poetic logic that informs the making of a Painting as a 'leaping step' or a sequence of 'leaping steps'. Such a deliberate act of violence is a leap in the sense that it is alien enough to the system so that it acts as game-changer. However, it is also a step, as it is linked in some way to some specific aspects of the given system, so that it can liaise with them and give relevance to them instead of to others.

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Keywords:

Interference, Painting, Violence, Leaping step, Atmosphere, Event, Listening-oriented Attention.

Condotta Building Echoes



Exhibition

1. The Event: Painting and painting

Although often critical with Heidegger on a literal level, the theoretical framework of my research largely draws from the profound meaning of his reflections on art, which see the artwork as an Event (Heidegger 2002; Mitchell, 2010). Indeed, - apart from the concept of Event, which is directly adopted - some other concepts are strictly related: 'interference' can be associated to both 'strife' and 'spacing', 'atmosphere' to 'world' and 'listening-oriented attention' to 'dwelling' (Böhme, 2010; Barthes & Havas, 1985; Grimstone, 1977; Heidegger, 1971; Heidegger, 2002, pp. 26, 30, 55; Mitchell, 2010, 44; Shakespeare, 1890; Zuckerkandl, 1969). However, the fundamental divergence with Heidegger is that here the relations ontologically precede and ground the things (Böhme, 2010). With such premises, one can set a discourse on the artwork as an Event without falling into Heidegger's ontological prejudice: "'thing' applies to anything that is not simply nothing" (2002, 4)", which leads to the recurring contradictions of thinking in terms of appearance (2002, pp. 16, 35; Mitchell, 2010, pp. 39, 60). In accordance to the theory of atmosphere, an Event actually is its appearance (Böhme, 2010; Griffero, 2014; Schmitz, 2011). Therefore, the ground of the artwork is only its endless emergence within the non-chronological time (the Event) (Blanchot, 1982, 106; Blanchot, 1993, pp. 356, 418; Deleuze, 1990; Heidegger, 2002, 16; Lyotard, 2012, 377; Merleau-Ponty, 1993, 129).

In order to stress the difference between a painting that does embody the potential to set itself to work as an Event and one that does not, I will use "Painting" for the first and "painting" for the second (what is traditionally considered as such but is not an artwork). Given that the Event depends on the interference between an artwork's structure and a viewer's sensibility/expectations, one might even conclude - as a general rule - that Painting is always the edge of what is considered painting.¹

2. Interference

This section aims to present the Painting as an Event, i.e. as an interfering structure.²

Listening-oriented attention is the perceptive attitude constituted by the non-distinction between matter and form (Heidegger, 2002, 9), which is the condition for the setting into work of the Painting as an Event (Barthes & Havas, 1985; Heidegger, 1971, 149, Lyotard, 1993, pp. 244-5). The Event is the manifestation of Being, whose ground is interference.

Interference is the relation between elements whose identity is mutually dependent but nevertheless insolubly separated (Heidegger, 1969); it is the non-dialectical relation; it is the unsolvable discontinuity within proximity. Interference is the groundless ground of colour (Braver, 2014).³ However, this doesn't allow one to conclude that colour is the ground of Painting, because this would reiterate the form/matter distinction. The ground of Painting is in the non-distinction between composition and the carnality of colour, which is what makes an artwork an Event and not a device for representation: a Painting is presence, not presence in absence (Lyotard, 2012, 359; Merleau-Ponty, 1993, 140).⁴ A Painting calls for attention, but its Event is ineffable because its call is silent (Blanchot, 1982, 254, Merleau-Ponty, 1992, 125).⁵ Therefore, the effect a Painting's atmosphere/field of intensity has on a viewer can't be described in linear terms, but only paradoxically as a communion with an absolute other (Böhme, 2010; Blanchot, 1982, 113; Golding, 2012, 115; Lyotard, 1993).

The concept of interference can help the discourse on painting to become a discourse on Painting.⁶ In order to do so, it should reject the language based on being - which automatically betrays the ground of Painting - in favour of a poetic language that speaks of interferences, i.e. that evokes and narrates how a Painting operates as a singular multiplicity (Lyotard, 1993, pp. 244-5; Merleau-Ponty, 1992, pp. 101-2).⁷ Only such a language can speak of a Painting as an absolute discrete entity inhabited by a concert of tensions running over its parts, and/or as the atmosphere/

field of intensity generated by the friction among a physical painting, its environment and the viewer. The function of such a discourse on Painting is not only descriptive but intrinsically educative: it would promote listening-oriented attention towards the visual, which means a gaze that - instead of perceiving the parts of a Painting as self-standing details, i.e. as they are - it witnesses how they operate.⁸

3. Violence

Painting as an Event is the “[...] participation in the open violence which is the work [...]” (Blanchot, 1982, 254). Interference etymologically means ‘to strike against’ or ‘to strike each other’. Interference is the violence that constitutes the Being, while violence is a disruption seen from its positive potential (Derrida, 1987, 174).

First of all, violence must be discerned between its ontological and its methodological use. The first means to set a logical beginning that is a groundless ground, i.e. set up a game.⁹ When a Painting is based mainly on ontological rather than methodological violence, it mostly interferes with its setting, rather than internally. In that case, the body and the physical boundary of the Painting interferes with a much more expanded space, which - although being outside its frame - is filled by its presence, i.e. atmosphere/field of intensity. The second means to set up a discontinuous methodology: in this regard the violence is in the leap, i.e. the action that is a game-changer. Therefore, each step that is a positive disruption is a step forward in making a painting a Painting; each step that is not leaping is an opacity/burden for the artwork: it is either too much matter or too much form. In other terms, a Painting as work of art is a work of violence: to produce an immersive Painting is to construct a game that resonates internally; whereas an irradiating painting resonates externally.¹⁰ Discontinuity is the space of such a resonance; it is the space of interference.

4. An account on my practice

Since the beginning of my PhD (October 2014), my painting practice has been nourished by the interference with the boundaries of painting. In fact, during this period my painting practice explored only techniques that are not traditionally associated with painting.¹¹ One technical lowest common denominator has been the use of printed photographic material. With exception of Building Echoes, such material constituted the figurative component of my Paintings, which all revolve around the interference between the figurative and the non-figurative dimension. My production can be divided in interwoven and unwoven Paintings.

In the case of the interwoven paintings, a photograph is taken and digitally manipulated into two versions. Then the two images are printed and shredded in order to weave them together. Two sorts of interferences structure these interwoven Paintings: the one embodied in the fabric and that of the relation between the woven and unwoven parts. The interference embodied in the woven areas turn them into deep surfaces and transubstantiates the shallow/decorative photographic material of the original prints into Painting. Here the pattern of the fabric and the interference between the printed patterns of the shredded photos work as colour, as matter. This series investigates visual rustle and visual noise in their attuning potential (Barthes, 1989; Golding, 2010; Humboldt, 1799; Kierkegaard, 2008; Ramachandran & Hirstein, 1999; Serres, 1998).

The unwoven Paintings let aside the fascination for the grain of the fabric to investigate other ways to orchestrate discontinuity. Indeed, each of them revolves on a different main interference: that between 2D and 3D in Building Echoes; the pierced pattern and the represented architecture in Station (Figure 1); the rips and both the represented image of the photograph and the wall were it is hung in Between; the centre of the represented ripped photograph and the hub of the actual photograph in Painting (Figure 2). These artworks are constructed through disruptive acts that are deliberate but not gratuitous. In fact, they must be alien enough to the system - so that their

introduction changes the very logic of the pre-existing system - but also linked in some way to some specific aspects of that system, so that they can liaise with these and give relevance to these instead of to others. As my Paintings are dense, interference is generated and directed by the discontinuities within their structure.¹² When well calibrated, these discontinuities don't hinder the flow of interferences. Conversely they allow such a flow of tensions to manifest itself by leaping over the limits marked by them. For such an ambivalent role they are leaping steps.

1. Station (2015, 29x42cm, Alberto Condotta on a photograph by Laura Girasole)



2. Painting (2015, 24x30cm, Alberto Condotta)



Footnotes

¹ *An artwork that is a photograph or a 3D object that does not require a kinetic interaction (i.e. it is meant to be seen from only one side) is a Painting. On the other hand, a great part of the paintings are not Paintings.*

² *Any form of art has the potential to facilitate the Event of Being, however this paper will only focus on Painting.*

³ *As the Gestalt theory and the painting practice demonstrates: no coloured field is independent from what is around it.*

⁴ *“Ultimately the painting relates to nothing at all [...]. It is a spectacle of something only by being a “spectacle of nothing,” by breaking the “skin of things” to show how the things become things, how the world becomes world (Merleau-Ponty, 1993, 140).”*

⁵ *“[The philosopher] wrote in order to state his contact with Being, he did not state it, and could not state it, since it is silence. (Merleau-Ponty, 1992, 125).”*

⁶ *If the discourse on painting - instead of indulging on contingences such as the paintings' contents or the painters' lives - would introduce people to the ground of Painting, the more and more viewers would address a Painting less as an object of study (a more or less realistic/bizarre illustration representing more or less pleasant/interesting/intriguing facts/people/things) and more as an Event.*

⁷ *This implies a move away from Socrates and the logic of Literacy and a return to Homer and the logic of Orality (Havelock, 1986).*

⁸ *Listening-oriented attention towards Painting can redeem sight (the most synchronic of senses) from its historical reduction/identification into ‘visualism’, i.e. that specific cognitive style that reifies both perceived and perceiver and has been indissolubly linked to modernity and science (Fabian, 1983, pp. 106–7; Ingold, 2000, pp. 286–7; Jay, 1994, 195; Lyotard, 2012, 375; Merleau-Ponty, 1993, 121).*

⁹ *When an action is seen as arbitrary, it is seen as*

discontinuous. Therefore, that action is at the same time a disruption - because something needs to disrupt a set system in order to take place by itself (Lyotard, 1988, 5) – and a new beginning, a new groundless ground (Braver, 2014).

¹⁰ *Generally speaking, the denser of interferences a Painting is, the more immersive its Event is; the barer of interferences it is, the more and the further it projects its atmosphere/field of intensity. In the first case, one is sucked into the Painting; in the second, one is exposed to the Painting.*

¹¹ *Only in Building Echoes I used what is traditionally considered as colour. However, its application affected the work on a sculptural level as much as on a painterly one.*

¹² *The density of my Paintings is bond to my preference in constructing deep surfaces that induce an immersive perception.*

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improbable architectures

A self-quest in Distracted Creativity

This research focuses on a paradoxical attempt in designing. It is about a practical inference on distraction through experiments. It aims to emerge architectures of 'un-thought' by obscuring the boundaries of architectural task. Here, distraction, disguised as text, meets the architect as the sole input of the design. This is an unbounded, non-structured text that leads to the imaginary. The text triggers hidden connections of non-conscious and 'un-thought'. Throughout the process, the architect becomes the distracted-being. Distracted creativity therefore re-constructs the architect and the architectural space that they create, together.

The main product of the various experiments in this research is a booklet. It summarises and describes my adventurous pursuit of a role for the architect as a distracted being, and in doing so it also seeks to expose the limitations of the metamorphosis of written text into architectural space. Traces of these non-conscious elements – various sketches, drawings and writings – are embedded in the booklet. Then the final outputs of the experiment are the self-portraits, which are the depictions of the wild realms of Improbable Architectures.

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Keywords:

*Architecture, Distraction, Being, Consciousness,
Unconsciousness, Paradox, Self-Portrait.*

There are of course many un-thought¹ fields² of architecture; these can be understood as the untamed spatial potentials that architectural space discards, or what I classify as 'wild fields'. Improbable Architectures experiment is about the discovery of these relentless 'wild fields' in architecture. In order to trespass on these wild realms of architecture, the manoeuvres of designing need to be inverted. The initial act is to place oneself, as an architect, into a hostile ground that lies outside the familiar. It has to be a place where you do not know how to design; in other words, every design act is unexpected and every architectural space is unknown to you. Here, the important question is about the alienation of oneself. How is it possible to think the un-thought and to see the alien within the familiar?

To study this question requires a particular portal – that of the state of distraction – which is already embedded within architectural practices, but which I argue here also possesses the ability to snatch architects away, more productively, into the 'wild realms' at crucial points.

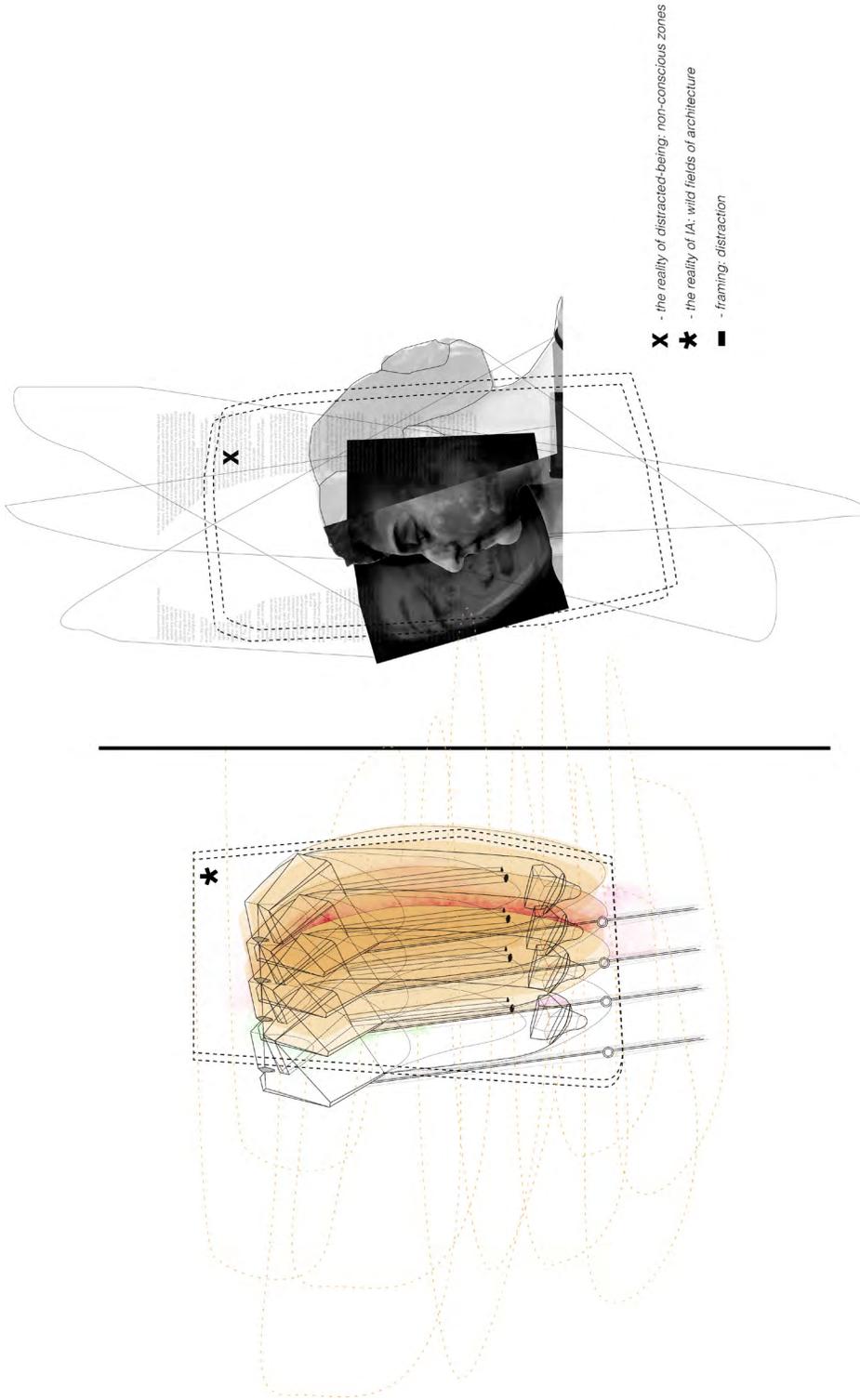
1. The Experiment

Designing distractedly is an essentially undefinable condition; it is a state of being and doing without knowing or thinking. It is also related to non-conscious realities of being. Any attempt to practice distraction creates obvious paradoxes, as you cannot be distracted deliberately. Nonetheless, this experiment focuses upon this paradoxical attempt; as such, it is a limited but also necessary self-quest of myself as an architect on their journey towards non-conscious designing. It aims to create architectures of un-thought by obscuring the boundaries of normative architectural tasks. Here, the practice of distraction, disguised in the form of collaged texts, meets the architect as the sole other input in the design process. The result is an unbounded, non-structured text

project that leads to what Lacan and others have referred to as the imaginary (Lacan, 2006). My project involving the collaged text triggers hidden connections with the non-conscious and the un-thought. Throughout the design process, my aim is for the architect to become what can be defined as a distracted-being, even if I acknowledge that ultimately this state can never be achieved. Designing distractedly therefore re-constructs the architect and the architectural space that they create, together.

2. Two Self-portraits

Every act we perform inevitably creates our self-images (Riebel, 1982). This is to say that when we design, we also establish an image of ourselves. Designing is an embodied experience, a performance in the everyday (Manolopoulou, 2013). Throughout the performance, positions of architect and architecture constantly shift to be materialised in their own nature. Then, within this duality, architecture defines the architect as long as they design. It is important to discuss both as simultaneous formations, constructed by each other. This relation emphasises a comparable position of architect to their objects of design, identifying both as subjects and objects at the same time. I claim that this performance is dependent on the habitat, in which creativity takes place. But this aspect is utterly disregarded in the normative, conscious, attentive design processes in which the architect designs an acceptable architecture as part of their established self. In a sense, this is simply a reiteration of the known. Distracted creativity, however, is an act in which architects can question their fundamental ways of designing, and abandon the comfortable aspects. This is because distraction is related to the non-consciousness and oscillates between conscious and unconscious self; within the condition of distracted creativity, the architect and their architecture sit in a hostile ground. (Fig. 2).



1. Diagram Two Self-Portraits (Bihter Almac).

2. The Booklet of Self-quest: Improbable Architectures (Bihter Almaç).



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Theoretically, the structure of this relationship can be defined as two self-portraits that are facing each other. One of them is the self-portrait of the architect, and the other is the self-portrait of their architecture. Distracted creativity positions the two self-portraits in a somewhat vague manner. This is similar to the 'mirror phase' of Lacan, where both beings encounter their primordial form, a prior phase to the identification of self through

Every act we perform inevitably creates our self-images (Riebel, 1982). This is to say that when we design, we also establish an image of ourselves. Designing is an embodied experience, a performance in the everyday (Manolopoulou, 2013). Throughout the performance, positions of architect and architecture constantly shift to be materialised in their own nature. Then, within this duality, architecture defines the architect as long as they design. It is important to discuss both as simultaneous formations, constructed by each other. This relation emphasises a comparable position of architect to their objects of design, identifying both as subjects and objects at the same time. I claim that this performance is dependent on the habitat, in which creativity takes place. But this aspect is utterly disregarded in the normative, conscious, attentive design processes in which the architect designs an acceptable architecture as part of their established self. In a sense, this is simply a reiteration of the known. Distracted creativity, however, is an act in which architects can question their fundamental ways of designing, and abandon the comfortable aspects. This is because distraction is related to the non-consciousness and oscillates between conscious and unconscious self; within the condition of distracted creativity, the architect and their architecture sit in a hostile ground. **(Fig. 2).**

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prior phase to the identification of self through the others (2006, pp. 93-100). In this phase within the distracted creativity of architects, the reflections are unexpected, as distraction triggers non-conscious creativity. Each reflection emerges unidentified and without any urge to be defined. This is a kind of hallucinatory state, where the edges of self and of others become ambiguous, and encountering your unrecognisable self as a mere coincidence is pleasurable (Ende, 1992, p.81). I believe that this is also a rewarding phase because nothing is clear and stable; how to design and what to design are constantly take on new meanings.

If we need to analyse the two self-portraits, that of the architect depicts a whimsical being in its dispersal and struggle. Despite the ambiguity of their condition, and the generally dreamy atmosphere, the architect is intensely observant (Laing, 1990, p.78). The architect is alarmed and ludic in the pursuit of a secure ground for their creativity. I call this depiction 'the reality of the distracted-being'. The self-portrait of the architecture is doubly dispersed and unknown. Common architectural notions cannot explain the existence of it because it is not necessary, urgent or vital. It is against the instinctive nature of architecture. I call this reality as the 'wild fields' of architecture. By distracted creativity, the architect and their architecture purely co-exist and reflect upon each other. Distraction frames them in their schizoid conditions.

Footnotes

¹ Heidegger introduces 'un-thought'; this defines the thoughts that are not thought, where thought is finite un-thought transcends it. Paul North, *The Problem of Distraction* (California: Stanford Press, 2012), pp. 125- 127.

² Sanford Kwinter defines field; '[it] describes a space of propagation, of effects. It contains no matter or material points, rather functions, vectors and speeds. It describes local relations of difference within fields of celerity, transmission or of careering points, in a word, what Minkowski called the world. Einstein himself offered as an example of a field phenomenon nothing other than the description of the motion of a liquid. 'La Citta Nuova: Modernity and Continuity', in *Architecture Theory since 1968*, eds. Michael K. Hays (London: MIT Press, 1998), p. 591.

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E5

**Technological Mediation
of Making**

Matter, Material and Making:

*Creative Research Practice in Architecture
and Design*

My research/creative projects and teaching provide me with a 'laboratory of ideas' for dealing with current challenges as well as imagining the future of built environments within the context of climate change. As Richard Florida (2002) describes in his book 'The Rise of the Creative Class', we are in 'an age of pervasive creativity that permeates all sectors of the economy and society' (p.56)). I believe that within this context where boundaries between art, science and design dissolve, as artists/ researchers/ academics/ designers/ and makers we can transform the stuff of our imagination to works that matter within larger cultural/ social/ economic/ and environmental contexts.

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Future of Built Environments, Climate Change.

1. Wind-quills prototype



Exhibition

1. Research in Making

Matter and Material Innovations:

The relationship between architecture/interior design disciplines and how they are researched, taught and practiced are interdependent. While researchers, academics, artists and students learn from the practitioners and built examples, they also project into issues around how we may be building in the near and distant future. Centuries old debate between the relationship of practice and education continues in many forms, however, Nancy Solomon, in the book entitled 'Architecture: Celebrating the past, designing the future' (2008), calls for strengthening the relationship between the two as well as reconsidering modernist ideals. Architecture and interior design pedagogy are evolving with the challenges of our times and aim to provide new frameworks for creative practice in built environments. Renewed exploration of architecture with integrated material strategies; proliferation of the debate on the effect of the digital processes on design thinking and production; as well as the re-emergence of building and material performance as a focus, all offer an expanded discourse sustainable built environments and climate change in academia that in turn benefit practice.

Material teaching/learning strategies set forth within the architecture/interior design education context have been mainly dominated by the modernist ideals of 20th century and favor an unornamented and white-walled spatial aesthetic. At the beginning of the 19th century, Adolf Loos (1908 & 1998), in his book *Ornament and Crime*, claims that ornament is 'a waste of labor and abuse of material'. Following this inherited language of 'minimal or no decoration', 'empty' and 'ultra-modern' spatial concepts that still prevail design pedagogy, student projects display material concepts mainly emphasizing the inherent visual qualities; shape, mass, color, finish and grain to name a few. Justified with case studies from the built environments, these material concepts form the background of project renderings, leading the decision making process of 'dressing up or down' of spaces and forms in renderings and models. Reference to well-known practicing architects

and designers validate this approach, especially those with an international portfolio of public and private buildings, residential, commercial and retail interiors, exhibitions, furniture and design products. For example, Eva Jiricna, while influencing many generations of designers in particular with her glass staircases, emphasizes that materials dictate her firm's project concept. While elaborating on her design expertise, she says that she tries 'to limit the amount of materials on each scheme....In terms of space it depends on whether you clad with say aluminum panels, or fibrous plaster or just paint the walls.' (Lawson & Dorst, 2009, p.179). Claiming to be at the forefront of innovation and technology, she draws the attention to her firms' classic use of glass, steel and stone.

Throughout most of 19th century, designers worked with the materials that aligned with the local resources, processes and the craftspeople' expertise. The disassociation from the ornament in modern architecture and design eventually led to a more abstract and universal language of materiality derived mainly from the visual properties of matter in the 20th century. Although advancements in functional qualities of materials such as tensile or compressive strength, elasticity and density have given rise to many meaningful experiments in form making over time, in particular by mid-20th century, overall building and material concepts as 'static matter' still dominate the process of making. This is inherited by many student projects where space program and form making still drive the creative process. Concepts of materiality may be added on as a last step 'material board' or not even be emphasized or taught in every project. Although the material strategies of modernism and the convenient climactic packaging of buildings has long been challenged in architecture and design practice since the early 90's and particularly intensified in recent 'adaptive' 'parametric' strategies, the perception of materiality as merely visual/passive surface addition subservient to the form-making exercise still prevails in educational context.

Increasingly, the wealth of knowledge gained through the internet in material extraction, transportation and factory production processes, is informing students to embrace the 'cradle to

cradle' or the endlessly looping 'take, make, regenerate' concepts of material sustainability. Coined by William McDonough and Michael Braungart (2002) in their book 'Cradle to cradle: Remaking the way we make things', this approach to materiality has gained popularity over the last few decades in academia. A shortcoming that stems from not developing or implementing substantial ecological design pedagogy however, many schools suffice to keep sustainable design investigations under the limited umbrella of 'recycled materials'. Despite many benefits of this system in design education, the students' or future designers' connection to the materials or manufacturing processes continue their segregation from the process of making. Using the umbrella of 'recyclable' matter, typically students pick samples from material libraries available online or physically in educational facilities. The fact that a chosen material is derived or regenerated from previous objects, aluminum cans, paper, carpet or clothing in their second or third life is comforting to many; but it does not direct students to the understanding of the specific environmental requirements and dynamic forces to which all matter are subject to in the built environment. A material's environmental performance depends on its physical and chemical properties. Optimizing or molding a material's physical properties into new materials is an important way to enhance sustainability and reduce architecture's environmental impact but still does not shift the designers' focus away from the visual language of form making and 'cladding'.

New fabrication and construction technologies continue to expand our methods of production, while offering endless design variations and increasing building assembly options with micrometer precision. However, many of these new technologies, especially the 3D printing, add further separation between material properties and architectural application, making students and practitioners alike believe that anything they can visualize on a computer screen can be built and assembled, manually or robotically, or printable with ABS or PLA plastic filaments. Although the design and economic hype to build the largest 3D printer or the world's first 3D printed dwelling continue the industry is very much in its infancy. This new tool is changing the design/making

process, especially with its precise modeling outcome out of any material that will last millions of years as opposed to the rough cardboard models that are recycled after each step of design iteration. The novel experimentations with these new technologies beg to address the future of built environments in a meaningful way beyond infatuation with the technology itself.

The link between materials' performance and properties are leading the new methods of rationalization and resulting in a different expression in architecture as 'performance-oriented design' (Hensel, 2013). This approach, leading the 21st century architectural discourse, is situated towards finding a new formal and material expression while improving the energy and climate responsiveness of buildings. Many experiments in energy generating building skins provide more articulated building systems enabled by use of advanced technologies and shift the centuries old perception of materials serving form towards 'materials leading formal expression'. In the book entitled 'Smart materials and technologies for architecture and design professions', Michelle Addington and Daniel Schodek (2005) stress for a shift in materiality, the architectural boundary between exterior and interior, to be recognized as an active zone.

"For physicists... the boundary is not a thing, but an action. Environments are understood as energy fields, and the boundary operates as a transitional zone between different states of an energy field. As such it is a place of change as an environment's energy field transitions from a high-energy to low-energy state or from one form of energy to another. Boundaries are therefore, by definition, active zones of mediation rather than of delineation" (p. 7).

In performance-oriented design, the spatial and material requirements of a building are organized as a 'complex and interdependent' system that receives and modulates environmental stimuli for creation of a specific architectural program. This view of architecture and interiors advocates efficiency in space planning and material use towards a mediation between exterior climate and the microclimate of a building (Hensel, p.57). A recent example in energy generating architecture, the bio-reactive 'solar leaf' housing prototype ("SolarLeaf – bioreactor façade"), built during the

International Building Exhibition in Hamburg by Arup & Splitterwerk Architects, creates an active architectural boundary, an articulated architectural envelope, by use of algae filled window louvers. This experimental bio-reactive façade system, while generating renewable energy from algal biomass and solar thermal heat, allows for a heterogeneous interior environment as opposed to a typical sealed and climate controlled house. Through this active assembly the architectural boundary 'as a material partition – a floor, wall or ceiling that separates adjacent spaces or interior from exterior' (Hensel, 67) as typically practiced or taught is made obsolete. This emerging notion of active material boundaries in architecture is revolutionary when we think of the prevailing and widely used method of climate control, provided with fossil-fuel dependent HVAC technologies all around the world. This approach also differs from 'low-' or 'zero-' energy buildings as the latter advocate a movement towards the less energy-consuming technologies. It indicates a shift, all be it not a complete change away from energy-based technologies like in the 'energy generating' buildings that look for alternative concepts.

Another area of major interest in design education is nanotechnology; the implications and developments of which continue to evolve and introduce new potentials for materials research and concepts in building industry. Applications in building surfaces, both interior and exterior, in less need of repair, cleaning, with inherent antibacterial agents, and responsive to a more personalized spatial experience for the occupants are gaining popularity in academia and practice. Nanotechnology is especially gaining momentum where providing new solutions to existing problems or improving the performance of traditional building materials are essential. Advancements in stronger, lighter and fast drying concrete; tougher steel; self-cleaning glass; self-healing polymers; light reflective and phase-change fabrics are setting new standards in how we construct and maintain buildings. Increased performance of materials' through enhanced physical, mechanical and chemical properties with nanoparticles, are believed to decrease the environmental footprint of buildings while increasing the material longevity over time. For example, 3M™ Scotchlite™ (Figure 1) Reflective Fabrics, mainly used for traffic

lights, safety garments and in athletic/ casual wear, enhance night-time and low-light visibility of objects and people. The wide angle, exposed retro-reflective lenses ("How 3M™ Scotchlite™ Reflective Material Works") at nano-scale can also be used on building surfaces and be bonded to a variety of building products to help people perceive built environments when needed.

Over the past decade, my research umbrella and experimental prototypes evolved from integrating material innovations in built environments in a meaningful way (Klassen, 2006) towards materiality as 'responsive matter' in architecture and interiors. The notion of active building materiality and the diverse creative outputs it is leading me to will continue to be my long-term laboratory for 'weathering architecture' prototypes that beg for further research on making. I continue to challenge the widely accepted perception of material physicality as simply 'add-on' or 'ornamental', in an effort to open the debate on lessening the impact of architecture and interiors on climate change. I am expanding on mediation of climate and building research through dynamic/ static/active solar screening; integration of biotic and a-biotic materials; atmospheric elements as well as energy generating skins. This discussion provides further insights on my research (Matter and Material Innovations) along with my creative work (Material responsiveness), and teaching (Material pedagogy). The entrepreneurial projects that are undertaken by members at the Design Fabrication Zone (that I founded and currently co-direct) provide a further fertile premise for 'making' integrating architecture, design and allied fields.

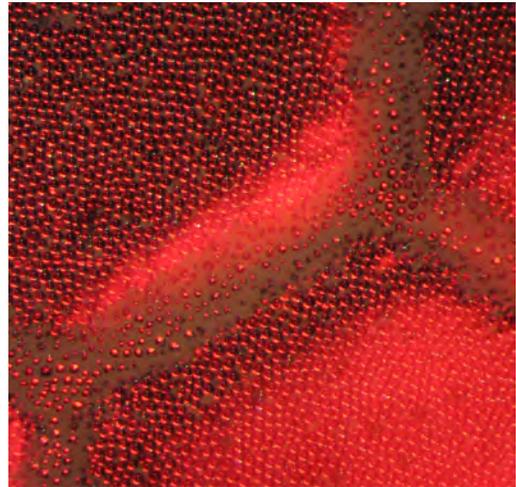
2. Making in Research

Material Responsiveness and Creative work:

My own conceptual building facade prototypes developed for the 'Snow, Rain, Light, Wind: Weathering Architecture' Exhibition (funded by a Social Sciences and Humanities Research Council Canada, Research/Creation Grant, 2005-2010) show the outcome of dedicated research that explore how material innovations and integrated technologies in particular, might transform rigid architectural boundaries into responsive, ornate

and energy generating weather laboratories in our future practices. Developed under the general research umbrella of ‘Malleable Matter: Material Innovations in Architecture’, the series of prototypes unravel the effects of variations in atmospheric conditions on the building envelope as a “creative potential” for design intervention (Klassen, 2008). In the form of unique fibre-based coverings, skins and cladding for buildings, the prototypes attempt to reveal the material’s capacity to harness the four elements of snow, rain, light and wind. The documentation of the findings in video and methodical framework of an architectural installation allowed me the opportunity to present and disseminate the work through exhibitions and performances. The prototypes, emphasizing materials’ research and climate data from nano to mega-scale of a building, are conceived as building canvases that respond to weather elements, wash away, appear, disappear, reveal, scatter, accumulate and transform over time. Rather than mere visual constructions, to be judged solely and superficially as big/small or beautiful/ugly structures, buildings then can be perceived as “living” entities that can read, measure, or convert weather into energy fields to recover their environmental impact. An example is the Temperature Net prototype (Figure 2), that sense temperature differences and displays the state of the building as ‘hot’ (Klassen, 2009) by integrating high intensity RGB LED modules and microcontrollers. Thus it is intended that the visceral connection to built environments and microclimate of a building can be revived through multi-sensory and ephemeral experiences, such as hot/cold, wet/dry, luminous/dark, and still/moving, tactile experience provided by the building surfaces.

Currently, I am part of a multidisciplinary Responsive Ecologies Lab (RE/Lab) (Funded by Canada Foundation Innovation, 2015, PI Dr. Ali Mazelek) that will contribute to Ryerson University’s research emphasis in the fields of digital media, computing, human-computer interaction (HCI) and the responsive built environment. The CFI infrastructure funding, expanding the existing imaging technologies, electronics, fabrication equipment, computing resources, software, and multisensory lab at Ryerson, will enable the researchers from diverse departments



2. Microscopic Image, 3M™ Reflective Fabric

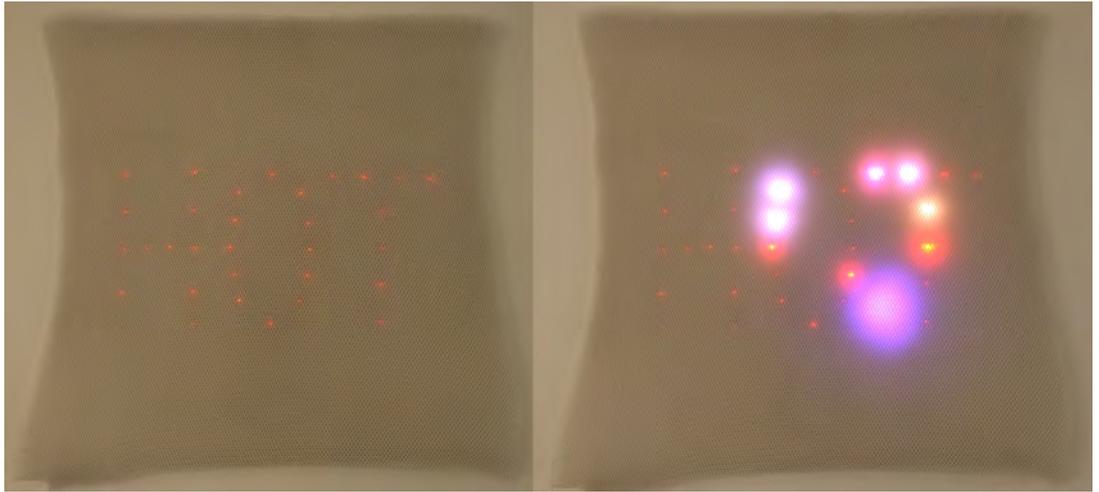
from engineering, interiors/architecture, media, social science, computer science, design, and education to envision, design, and implement novel interactive and multisensory technologies and applications varying in context from object to building scales. In the RE/Lab context, I will expand upon my existing prototypes using imaging technology, climate data visualization, sensors and advanced prototyping methods, and integrate them with the media of film and installation art to demonstrate energy generating building components. I am also looking into other industry and government funding sources to expand on my prototypes in climate-responsive buildings towards the concepts of energy generation and active building boundaries.

3. Material Pedagogy

Teaching:

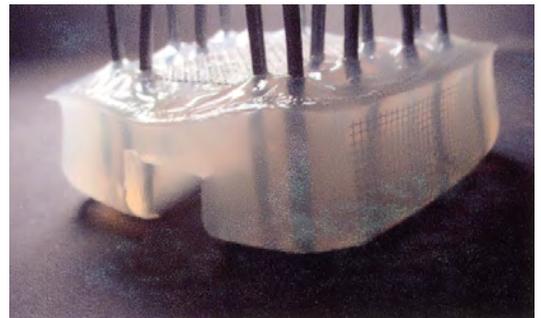
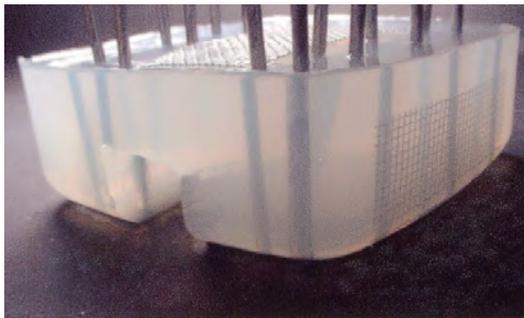
The basis of my teaching pedagogy comes from a desire to contribute and share the complex realm of critical thought that is necessary to our contemporary tasks of making new built environments. I continually bring my research to the design studio and the classroom to stimulate young minds and provide future designers with a broader environmental context of built environments, its future through integration of material innovations. I encourage students to engage in a critical debate about the interaction of design disciplines and science as a direction for the future of built environments and embellish on these ideas through lectures, studio design process and projects as well as competition entries. This expanded outlook on design broadens students' imagination and helps them see the activity of building/making as a cultural construct that extends far beyond the perception of built spaces as merely the product of physical and commercial activity.

Within my general research umbrella, I am also able to develop various spin-off design/research investigations that I can share with students in the undergraduate design studios and lectures at Ryerson University School of Interior Design. The learning requires a learner, and these research/creation projects allow me to share design learning



3. Temperature net prototype

4. Agar gel wall model, Ala Roushan



as a social, ecological as well as a technical process to my students. As a graduation project supervisor in 4th year Interior Design studio, I work with students and mentor them to develop their own interpretations of weather responsive interior spaces by integrating material innovations in built environments. The body of work students develop over the term include a selected research topic presentation, drawings for conceptual spaces, and models representing their material explorations against the elements. Buildings in general are conceived, designed and built to be timeless and un-weathered. Negative effects of weather elements on buildings' performance and material longevity are undesired and costly to repair. Students learn about responsive materials and weather responsive interiors and develop hypothetical design projects in an effort to reduce the buildings' carbon footprint while celebrating weather as the last vestige of nature in built environments.

In order to change students' perceptions of climate change as distant and abstract phenomena, the 4th year 'Weather and Interiors' studio course is framed upon various questions that investigate buildings' mediation with climate. As a graduating group of design students, they are encouraged to formulate their own focus of research and propose interior environments with an appropriate program for a large urban city, Toronto. Throughout the semester, we maintain the visceral connection with the exterior climate while indoors and be proactive about lessening the built environments' impact on climate change. Many students aspire to build forms and spaces that question the status quo in interiors and examine the 'interior to exterior' passage as an active zone. While some of the studio examples concentrate on the programmatic elements and amplify the interior/ exterior transition as a habitable space, others concentrate on materiality and their transition over time. For example, the conceptual walls developed by Ala Roushan (Figure 3) examine the 'material' capacity to disappear over time. Agar gel is made by with 'agarose' (a polysaccharide polymer typically extracted from seaweed) in powder form, at concentrations as small as 0.50%, and dissolving it in hot water. The mixture then sets into a firm gel while it cools. Although agarose is used mostly in industrial applications,

pharmaceuticals and cooking, it's capability to stand as architectural walls by cooling the mixture on site and demolishing it by thawing are explored in this project.

I am currently developing a Professional Masters Diploma in Material Innovations in Design that focuses on material innovations, research, application, and sustainable practices in built environments at graduate level. While providing a relevant and comprehensive discussion of the ever-changing and significant role of material innovations, the program proposes to engage physically as well as digitally with old, new, smart and emerging building materials and systems at variety of scales to explore interiors as a critical and evolving practice. The curriculum offers multidisciplinary educational opportunities in the field of interiors and design, encompassing topics such as Material Innovations, Smart Materials, Responsive Design, Biomimicry and Nanotechnology. Through this program, students will acquire both the technical skills as well as the theoretical and conceptual foundations to rethink and challenge the limits of current material design processes and practices. While initiating independent project concepts for the next generation of interior environments, fabrication and construction processes, students may further study/research climate change, energy performance, material resources, and emerging and digital technologies in relation to interior spaces while contributing to the debate about making buildings for the coming decades.

4. Material Production

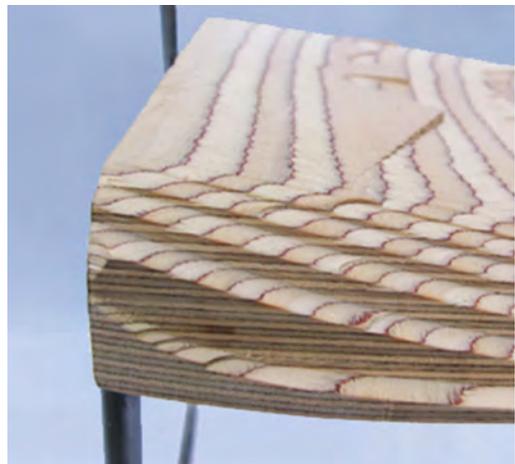
Design/Fabrication Incubator:

I have established and currently co-direct the Design Fabrication Zone (DFZ), a cross-disciplinary hub for design/fabrication innovation and student entrepreneurship at Ryerson University. A joint venture between the School of Interior Design and the Department of Architectural Science, DFZ facilitates incubation and acceleration of creative ideas and strategically propels design learning, 3D production and material experimentation. It has attracted over 200 members since its inception in 2013, including students, alumni,

designers, engineers and business professionals not affiliated with RU. The DFZ provides students and members networking and mentorship opportunities to pursue their creative ideas, projects and entrepreneurial initiatives related to the built environments. With access to meeting spaces, workshops and fabrication technologies (both traditional and digital) for prototyping, this university-wide incubator model fosters collaboration across many allied as well as perceived to be unrelated disciplines. Whether it is a start-up, exhibition installation, fundraising or research project, members have real life circumstances; clients, curators, specific site, budget and project parameters to respond to as they develop their work. With open access learning modules, a rich network of mentors and industry partners, members, individually or in teams, accelerate ideas through prototyping and 3D material experimentation, leading to business and/or design innovation, service or product while creating a cross-disciplinary maker culture. An example is the Momento chair by Harry Dieu and Sarah Dagovic (Figure 4), alumni of interior design program, proposed to examine trees damaged in 'ice storms' and designed a chair that celebrates and works with the deformation, by using CNC milling technique.

I continue to be inspired by the conceptual framework between Matter, Material and Making as the premise for my research, creative practice, and teaching/mentorship. Further, my creative practice draws upon a range of evidence and critical reflection from my own as well as student projects developed over time while incorporating evolution of ideas in architecture, design and materiality.

5. *Momento Chair, Harry Dieu and Sarah Dagovic*



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Figure 1. Cover: Wind-quills prototype. © Filiz Klassen

Figure 2. Microscopic Image, 3M™ Reflective Fabric. © Filiz Klassen

Figure 3. Temperature net prototype, © Filiz Klassen

Figure 4. Agar gel wall model, © Ala Roushan

Figure 5. Momento Chair prototype. © Harry Dieu and Sarah Dagovic

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Fabricating material intensities

Designing and Making Mediated by Computation

“Colours present themselves in a continuous flux, constantly related to changing neighbours and changing conditions”.¹

In practices of design and architecture, making and materiality are increasingly mediated by computation. Through advances in digital fabrication, computation is extending beyond the confines of the computer and manifesting itself in material artefacts. At the same time computational models have become more informed about material world, and incorporate material behaviours, fabrication constraints and anticipate making. This convergence of material and computational worlds provides designers and architects with possibilities to explore making and materiality at a resolution and precision unseen before. Digital fabrication technology however is not a transparent or neutral means of going from design intent to material artefact, how information is encoded into files for fabrication, the working of the machines and the material it works with all influence the materiality of the fabricated artefact. In my creative practice, actively engaging materials through making models, prototypes and drawings plays an important role. Prompted by the convergence outlined above, I have extended my practice into coding my own design software as a principal means of exploring making and materiality through digital fabrication. While computational models used in digital fabrication generally describe only extensive qualities of material artefacts, this case explores the added value of colour in additive fabrication as an

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intensive material property². It looks at this specific fabrication technology not as means of realising already completed design ideas, but as trigger for design ideas, where visible traces of how information was encoded in files, the processes of fabrication, material properties are explored as material qualities.

Introduction

The file-to-factory paradigm suggests a direct, transparent and one-directional translation of design intent into matter, but the reality of working with digital fabrication is not as transparent, linear or direct: Designing for digital fabrication requires digital files made for the specific fabrication process, the resulting material artefacts have properties not anticipated in the file and design will often only be successful after iterative prototyping. This paper looks closely at the process of translation from digital file into a material artefact. The aim of this design exploration was to look into the experiential material qualities of artefacts produced with a specific printing technology that allows for colour to be added during the printing process.

Files prepared for 3D printing generally describe only the outer geometry of an artefact – in most cases, approximated by a triangular mesh. Colour printing was chosen because it extends the extensive geometric description of an object with colour, which as the quote by Albers above indicates, is an intensive material property. This case explores how this intensive information is stored in a digital file and manifests itself in a material artefact. The case builds on previous work looking into changing appearances of objects under different lighting conditions and explores how colour can be used to strengthen those experiential differences.

The design exploration described in this case

resulted in the development of the Dazzle Lamp series, which consists of a number of prototypes and custom-design software. The series got its name from dazzle camouflage, or razzle dazzle, a technique used to camouflage ships during World War I.³ Contrary to other forms of camouflage, razzle dazzle makes the object highly visible, but hard to identify its type, speed and orientation by applying contrasting colour patterns that are inconsistent with the shape of the object they are drawn upon.

Colour 3D printing

The first 3D printing technology that could print in multiple colours was developed by Z-Corporation in 2000.⁴ The printing process works as follows: A print head ejects coloured resin onto a horizontal layer of gypsum-like powder; after hardening, a new layer of powder is added on top. The process is repeated and gradually a 3D artefact is formed. During the printing process the unhardened powder supports the layers above, so overhangs, cavities and objects within objects can be printed. After the printing process, the fragile printed artefact is removed from the powder, excess powder is removed and the model is submerged in glue-like liquid, to strengthen the model, and make its surface less porous.

In terms of software, the technology builds on earlier 3D printing technologies, such as stereolithography and laser sintering⁵: it requires a watertight triangulated mesh, which is sliced into horizontal layers; each layer is translated into the movement of the print-head. The colour information is added to the triangulated mesh and can be provided to the 3D printer in different ways: one colour per vertex, where the resulting colour of the face is a gradient of each of these colours; one colour per face or an image can be mapped over the mesh as a 2D texture. In all cases the colour information is limited to the

surface of the mesh and has no thickness. This modelling technique is borrowed from animation software and virtual environments that require only the outside of a shape to be rendered as an image on screen. ⁶

Colour 3D printing is marketed towards architects with imagery ⁷ showing scale models of houses, complete with textures, coloured furniture and foliage. The technology is presented as a final presentation tool to lure in potential clients, as 3D version of a slick presentation rendering. The fragile gypsum powder technique has its limits: the surface is rough and porous, and the minimum wall thickness is about 1mm with a maximum building envelope of 300 x 200 x 200 mm. On the scale of a typical presentation model, the combination of the added realism of colour with the plumpness of its features leaves the uncanny impression of a doll-house like world.

Light intensity and translucency

The interest in objects with different experiential states based on varying light intensities builds on a previous design project called Low-Poly Lamp (Figs. 1-4). This project combined the capacities and limits of both subtractive and additive digital fabrication in a bespoke design tool, scripted in Processing. The script generated a low-polygon mesh, the faces of which were laser-cut from translucent acrylic sheets and the corner-pieces were 3D printed in black ABS plastic. The script incorporated fabrication parameters and material thickness and tolerances and exported the files for both fabrication processes. The panels and corner-pieces could be joined into a convex lampshade without glue.

After fabricating and assembling the series of prototypes and final lamps, some unanticipated features emerged: On the outside the connecting principle is quite visible, as the tabs stick through the acrylic panels, whereas on the inside the corner-pieces hide the connecting tabs, which shows a much more abstract figure. The irregular low-polygon shape gives the lamp a different contour when viewing it from different angles.

When the lamp is not lit, the different angles of the faces give each a different light intensity. When the lamp is lit, the light coming through translucent white acrylic flattens out these different intensities; this reduces the appearance of the lampshade to an irregular white planar polygon contrasting with the black corner pieces (Fig. 3).

Colours for screen and print

Our perception of the colour of an object depends on the material properties of the object as much as on the light conditions and other colours that surround it. Colouring objects through ink and paint works by absorbing certain spectra of light while reflecting others. Mixing colours through paint and ink is known as subtractive colour mixing – mixing two paints will adsorb light frequencies absorbed by both and look darker. On the other hand, mixing different coloured light, as in a projector or on a screen, is known as additive colour mixing – mixing two coloured light beams will add frequencies of both and look brighter.

This is also reflected in how colour is described and stored digitally: Screen colours are described by their respective red, green and blue values (rgb); mixing all of them leads to white. Colours for print are described by their cyan, magenta, yellow and black values (cmyk); in principle black could be achieved by mixing the first three, but in reality this is hard to achieve due to impurities, and black is added separately. ⁸ Colour 3D printing uses a file format called vrml, the origins of which lie in on-screen and online virtual worlds, not in the materialised world of 3D printing. Somewhere in the process of sending a file to and a material artefact emerging from the 3D printer, a conversion happens from one colour-space to another.

A play on the different ways of representing colour digitally can be found in a previous work called CrMgYbK (Figs. 5-7), which reflects on material manifestations of digital phenomena and combined elementary screen and print colours. For the end of year exhibition of the Sint-Lucas School of Architecture in 2010, we collected the work produced by the mixed media department in a magazine. Each of the eight-hundred magazines had a unique cover through the use

of the three elementary screen colours and four print colours combined with a custom cut-out that revealed black and white typography (Fig. 6). The magazines were positioned using a script producing a seemingly repeating pattern, which sometimes skips colours based on the rounding of integer numbers (Fig. 7). The magazines were displayed on a large table, and the cut-outs were used as giant, blob-like confetti during the exhibition opening (Fig. 5).

Becoming material

The Dazzle Lamp project (Figs. 8-18) started out of an interest in the transformations that occur in the translations from a digital file to a material artefact, and what traces of the file and the fabrication process would be readable in the materiality of the fabricated artefacts. In other words, I was interested in colour 3D printing not as a representational medium, but as means of making in its own right. The technology was not explored as a presentation technique, for which it was designed and marketed, but for its peculiar materiality and for the potential adding colour offered for design.

Building on the previous work – the two projects outlined above – I was particularly interested in what the addition of colour to 3D printing could deliver in terms of intensive material qualities, light colour and translucency, and in its ability to embed different experiential states into the materiality of an object. I was interested in how the two dimensional, screen-based encoding of the colour information would manifest itself in material print and thus become three dimensional.

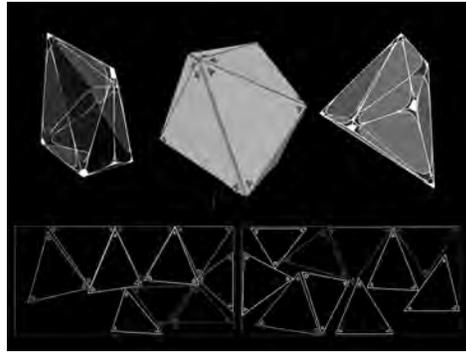
Initial prints were made to test the different colouring modes and evaluate the material qualities (Figs. 11-12). The prints showed that the colours were sensitive to light, dust and moisture: the colours on the surface of the objects became pallid quite fast without an extra coating. I decided to apply the colour on the inside of a lampshade, thus protecting the colour from external light and dust. Building on the effect of translucency flattening out the reading of an external form, as discovered in the Low-Poly Lamp project, the idea was to design an object which was pristine white

when lit from outside becoming colourful when lit from inside (Fig. 09).

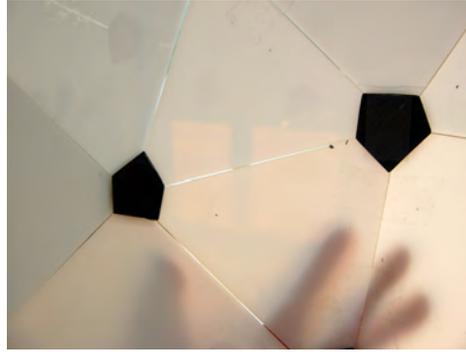
A number of iterations had to be printed, testing variations in colour, different sizes and different starting forms and degrees of deformation. The wall thickness proved to be especially tricky: balancing the need to be thin and translucent enough for light to shine through but thick enough for the colours not to bleed through and become visible on the outside. On cutting the shell of a prototype, the ink can be seen bleeding into the material somewhat more than a millimetre, although it apparently varies depending on the angle of the respective face with regards to the direction of the layers (Fig. 12).

Using the colour on the inside can be seen as exploiting a discrepancy between the information in the file and the fabrication technology and as a design feature rather than a coincidence or even a problem. By using the colour to design a translucent shell, the light passes through the whole volume of coloured material and is not just reflected on the surface. This volume of coloured material is absent from the information contained in the file, where it is described as a surface without thickness, let alone grain and bleed.

Next to difference in colours, I wanted each lamp to be formally different but clearly belonging to the same design family (Figs. 11 & 16). The overall form is determined by deforming a basic mesh; I wanted to go beyond the purely convex hull of the Low-Poly Lamp and also allow concave deformation. In the end, I decided on starting from a geodesic dome deformed by scaling each vertex towards the centre of the dome, resulting in straight planes cutting through the deformed mesh. The deformations happen in such a way that the centre of mass remains under the triangular hole used for hanging or standing. The inside of the mesh is subdivided into smaller triangles, and each of the smaller triangles is given a different colour. So, turning on the light will provide a colourful image, which distorts the perception of the external shape.



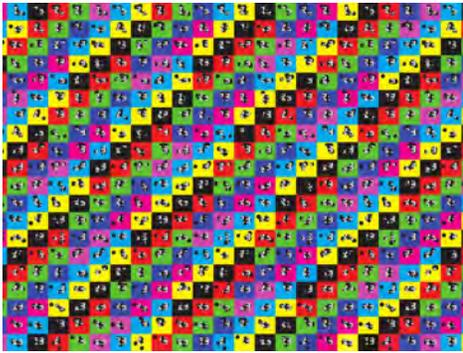
1. 2.



3. 4.



5. 6.

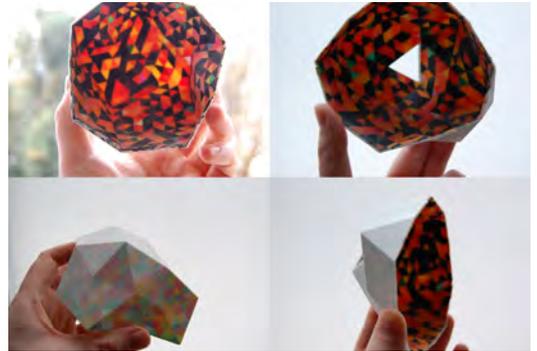
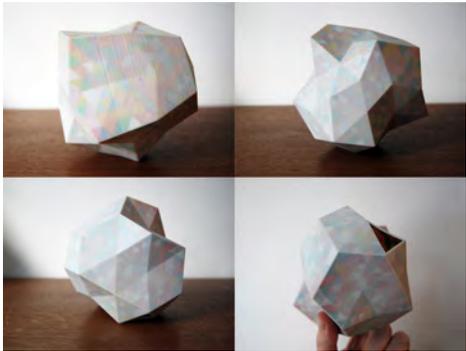


7. 8.

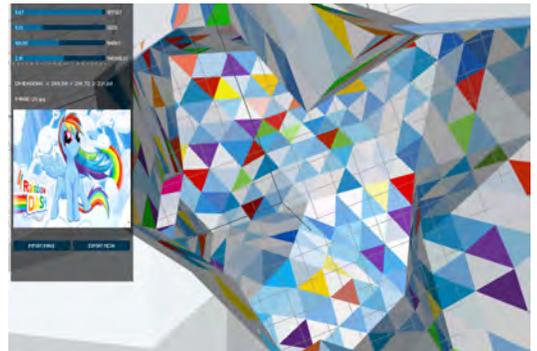
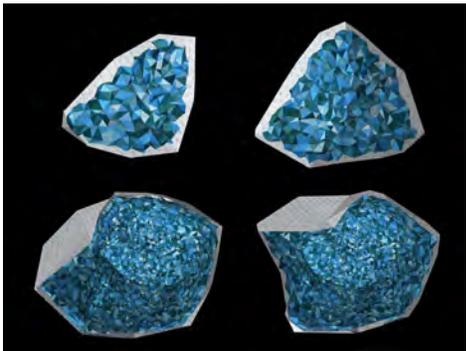
9. 10.



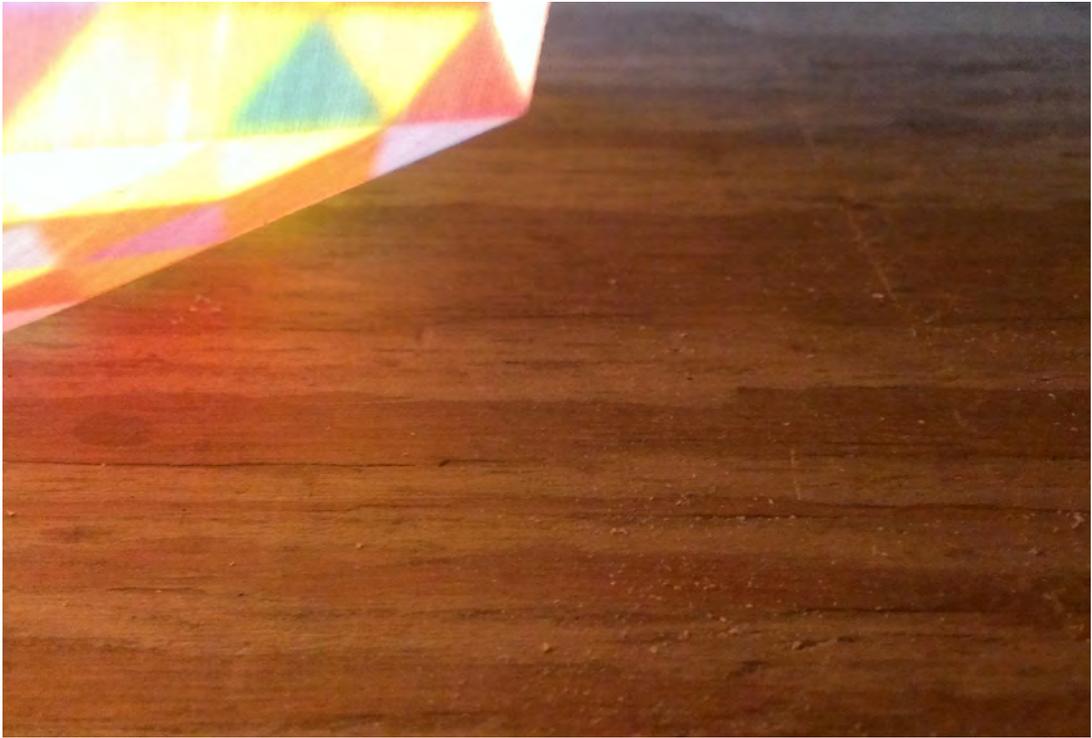
11. 12.



13. 14.



Paper



Paper



From prototyping to design tool

Several software sketches (Figs. 13-14) were made during the development of the design of the Dazzle Lamp series, overcoming technical difficulties, testing a formal language and pushing material properties. I ended up coding a custom exporter for the vrmf file directly from Processing. This resulted in a design tool that anticipates fabrication, incorporates limits of the technology and materiality and takes into account use either as a hanging or standing lampshade. The final software can be seen as an encoded understanding of a specific fabrication technology, similar to the design tool developed for the Encoded Matter project, described later in this chapter. The technology used for this design exploration is closed and propitiatory in terms of its software, internal workings and exact material composition. As I had no access to an actual machine, the process of prototyping went through different online services. The time between uploading a file and the print arriving would be around ten working days – that is, if the file passed all the algorithmic and human checks in between. With a print that pushes the material limits of the technology, I would often get a message that files were not printable; only after taking upon myself the risk of a failed print would they be printed.⁹ With the Dazzle Lamp I wanted to take the development of the prototyping tool a step further and open it up for other people to design their own custom versions of the lamp. Through a graphical user interface, a number of parameters can be controlled: the deformation of the overall shape, its size and the colours. The colours are picked from an image which can be opened or dragged into the application. The application also generates an armature for a standing and a pendant light fixture. .

Conclusion

The transformation from a digital file into a material artefact like one of the Dazzle Lamp prototypes is far from as smooth and direct a process as the technology is being promoted to architects and designers. The distant and closed nature

of the fabrication technology, which was both subject and means of exploration, considerably slowed down the iterative and prototypical design process.

Looking closely at the printed prototypes, it is clear that they contain traces of the file types – the triangulation of the meshes, the colours defined per face – the materials, – the grain and rough surface of the gypsum print – and the process of fabrication – visible layers. In other words, the digital model, the material and the fabrication process have an influence on the design outcome; to design with digital fabrication, we need to understand file, material and machine as having agency.

Looking back on one of the Dazzle Lamp prototypes, which has found a place on a cupboard in my living room, as an object it belongs to both the digital world of meshes, surfaces, pixels and rgb values as it does to the material world of gypsum and its grain, bleeding ink, dust and moisture. When lit, the dazzling triangulated pattern makes it hard to make out its exact form: the two dimensional drawing on the shape confirms some external triangles while it hides others. Although it does not use the exact same strategy as the dazzle camouflage that inspired it, the lampshade also hinders the reading of an object in plain sight by applying two-dimensional patterns over its form (Figs. 17-18).

However, the design is governed by a number of oppositions – light on or off, coloured or white, interior or exterior experience – and was designed with these two extreme states in mind: either pristine white or full of colour. Because of the intensive nature of the light and colour, an infinite amount of moments exist between these two extremes, where colour start to shine through in certain parts while still being hidden in others. While I anticipated this, and colour 3D printing was selected exactly for this reason, the material artefacts display qualities that could not be displayed on screen and were not fully anticipated in the files used for fabrication. Through iterative prototyping it was exactly the material properties lacking from the file – thickness, bleed of colour – that were pushed in the design process to achieve this.



Footnotes

¹ Josef Albers, *Interaction of Color*, rev. and expanded pbk. ed. (2006). p.17.

² If you take an amount of material and divide it in half, extensive material properties such as length and weight are also halved, whereas intensive material properties such as temperature, density and colour, remain the same. For a detailed discussion this understanding of materials see Delanda, Manuel, "Material Complexity" in Leach, Neil, David Turnbull, and Chris Williams, eds., *Digital Tectonics* (Chichester, West Sussex, U.K. ; Hoboken, NJ: Wiley-Academy, 2004) for a discussion on its architectural implications, see. Reiser, Jesse and Umemoto, Nanako. *Atlas of Novel Tectonics* (New York, Princeton Architectural Press, 2006), pp. 72-78

³ 1971) but could be ascribed to zoologist John Graham Kerr (1869-1957). See http://en.wikipedia.org/wiki/Dazzle_camouflage (consulted on 20/10/2014).

⁴ See <http://www.3dsystems.com/press-releases/z-corporation-introduces-the-fir> (consulted on 20/10/2014).

⁵ For an overview of techniques, see Claire Warnier and others, *Printing Things: Visions and Essentials for 3d Printing* (2014). Pp. 9-18.

⁶ The Z-Corp printer requires a vrmf file, a file format stemming from the 90s that was aimed at creating online virtual worlds. See <http://nl.wikipedia.org/wiki/VRML> (consulted on 17/10/2014).

⁷ The images can be consulted on the flickr account of *i.materialise*, a printing service I used for this exploration. <https://www.flickr.com/photos/imaterialise/sets/72157624653006736/> (consulted on 17/10/2014).

⁸ See <http://graphics.stanford.edu/courses/cs178/applets/colormixing.html> (consulted on 17/10/2014).

⁹ I used both *shapeways.com* and *i.materialise.com*; *shapeways* has since strengthened its policies on minimum wall thicknesses, so the first prototypes, painfully tweaked for their machines, can no longer be printed.

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Reiser, Jesse and Umemoto, Nanako. *Atlas of Novel Tectonics* (New York, Princeton Architectural Press, 2006).

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The Sphere

The Sphere is a cast-bronze lantern fabricated using 3D printed molds. It was designed by students from Studio MAD at the Aarhus School of Architecture, and fabricated at the School during a 2-week workshop. The course explored making processes informed by a broad range of techniques bridging the gap between advanced digital design and fabrication technologies and traditional craft methodologies.

The project discusses a hybrid making process where students are exposed to making as a discursive and iterative process that studies and challenges material behavior and limitations in each successive phase, from the translation of precise geometry to gooey plastic in FDM printing processes, to the cracks in ceramic investments and the rapid transmutation of bronze from fluid to solid in the moments of its pouring into a cold mold. As much as the project relies on digital production process for a level of geometric specificity in the final piece, it joyfully leaps into a material domain where each process leaves its mark on the artifact, from the meshing algorithm used in the software, to the stratified layers of the 3D printer, to the delicate imperfections of the ceramic mold as it warms and cools. Students are exposed to the felicitous conversation with material behavior in the realization of an artifact.

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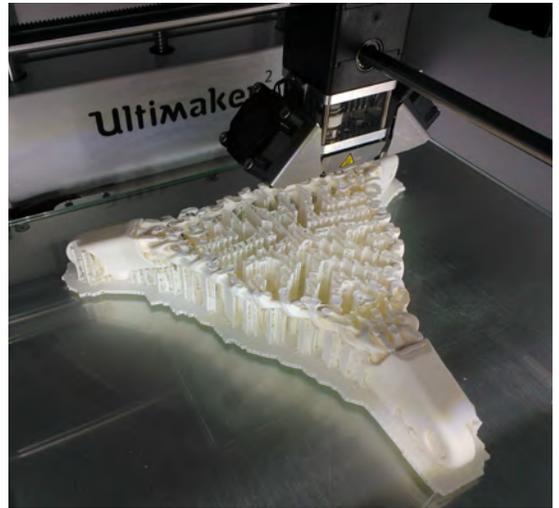
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The Sphere was designed in 20 individual portions by students from Studio MAD (Making Architectural Design), taking full advantage of many workshop facilities at the Aarhus School of Architecture, including the 3D printing lab, metal shop, kiln, and foundry. The project was produced in a 2-week workshop that synthesized a number of different methods of representation and production, serving as an introduction to complex 3D modeling, 3D printing, and investment casting with bronze. Each participant designed one equal portion of a sphere in an icosahedral subdivision, with each piece joined to 3 others on its edge. The students were not given instructions about the aesthetic quality of the piece, they were only asked to consider how to develop patterns or geometry that would influence how their individual piece would modulate light.

Participants used Rhino software to model 3D printed their parts out of PLA bio-plastic before being cast inside plaster molds. A digital process such as 3D printing ensured that even though each piece was individually formed, it would retain the geometric specificity required to fit together in the end. Afterwards the existing bio-plastic was burned out in an investment-casting process, and participants cast each piece in bronze before patinating, polishing, and waxing the piece to prevent oxidation, and assembling the whole into the lantern.

The pedagogical intent of the project included a variety of skill development, including complex modeling in Rhino, 3D printing, and metal casting, but more importantly, the project was formulated in order to discuss the relation of the abstraction of digital representations of geometry to the physical object in a process of many stages. Similarly, the project was intended to discuss the role of craft as a desirable, necessary, and constant part of the process both in relation to fabrication using digital tools, as well as in traditional techniques.



Exhibition

Timber Curtain

Designing with material capabilities

Timber Curtain explores relations between digital precision and material indeterminacy. It is an installation engaging spatially through its presence as a 1:1 architectural component as well as it is exploring novel technologies in the architectural design process from the very beginning of the generative phase to fabrication of the artefact. Brought together by various conceptual and structural elements the Timber Curtain forms a 4.5 x 2.5 x 0.5 m construct of assembled wood components, digitally crafted through advanced production techniques. Concerned with materiality and processing of the wood an associative digital model that could gather and compute in put from material behaviour and out put manufacturing data was scripted. This method enables material capacity to be pushed to the limit of its performance allowing novel sensuous and structural qualities to emerge. The method is developed with use of pinewood, processed with a 5-axis CNC router. The digital process generation and simulation is implemented with Rhinoceros 3D, Grasshopper and GHPython, and AlphaCAM was used for preparing the CNC-milling.

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Keywords:

Digital Fabrication, Mass Customisation, Parametric Design, Digital Simulation, Robotic Fabrication, Material Capability, Augmented Material.

Drawing with Material Capabilities and Augmented Components

In the wake of the term digital materiality¹ (Gramazio 2008), architectural research within the field of computational design thinking² (Menges 2011) has blossomed savagely, resulting in a worldwide range of architectural projects taking advantage of the newest digital fabrication technologies. From the conceptualisation of tools to the architectural aggregation itself, digital design processes are being thoroughly explored and rationalised to make proof of concept or to compute an optimized workflow almost effortlessly applicable to the building industry.

In this wealth of opportunities digital technologies has given rise to a coupling of traditional craftsmanship and computational processes which has proved itself valuable as an augmentation of well-known design processes. (Kolarevic 2008) The hybridization of digital and analogue methods opens a range of possible ways into which architecture can be developed and discussed. But, shadowed by the logic of optimisation and an entrepreneurial approach to industrial applicability, is the much less investigated scope for an architectural reflection. Through the streams of data evoked by the digital paradigm is an opportunity to invigorate connections between immaterial and physical conditions, between the architects thinking and the digital tools stimulating relations between thought and action in manners not possible before.

If we look beyond the favourable equations put forward by arguments of acceleration and applicability then what are the prospects of architectural reflection in the realm of the digital? What does it mean for architecture that the drawing has become a digital file and tools can be articulated to any situation and adapted to any material process? What can we discover through these rapidly evolving technologies and how are they beneficial for the evolution of architectural design methods? (Fig. 1).

Augmented Timber Curtain [system]

In order to explore these new potentials, a method integrating CNC-milling, parametric design and augmentation of material properties was developed by the authors in spring 2015. The method relates on a technical level to a body of research, where digital technologies allow new design and construction solutions. In the Parametric Wood project, carried out at CITA, Copenhagen in 2007, digitally controlled production technology was engaged in order to customize the components of a complex timber structure (Tamke 2009). In the later project Dermoid, digital form-generation and simulation of the bending properties of thin plywood enabled realization of a light form-optimized wood structure. (Tamke 2011) Simulation of bending properties also plays an important role in the realization of the ICD/ITKE pavilion in Stuttgart in 2010. Here, the bending and joining of strips of plywood forms the tectonic principle. (Menges 2011)

Augmented Timber Curtain is a research project conducted at the Aarhus School of Architecture; which is brought forward in a perpetual oscillation between written reflectivity and material practice. Inspired by the words of Swedish artist Hilma af Klint (1862-1944) "I describe the way and meanwhile I am proceeding along it"³ (Linden 1999), our research question is not statically defined but gets tailored as the projects boundaries get clearer. Timber Curtain occurs as an artifactual result in this process; as well as it is clarifying and conclusive in some aspects it is also suggestive and serendipitous.

Case study: Timber Curtain, Ventura Lambrate, Milan 2015.

In relation to the annual design festival in the Ventura Lambrate area in Milan, Aarhus School of Architecture exhibited research and teaching in the Undai Gallery. The Timber Curtain was tested in the form of an installation, spanning a 4.5m wide and 2.5m high window in the gallery, thereby becoming a light-filtering spatial element. (Fig. 2).

The structure was fixated inside the window frame in order to maintain the bending of the components. The structure itself is identical to the exhibited artifact in Aarhus for the Making Research / Researching Making conference but the change of context allows further unfolding of structural and spatial potentials. (Fig. 3).

Each component is unique and processed with the accuracy of a 5-axis CNC router. The tectonic principle is based on parametric processing and digital manufacturing, which is used to augment the material properties of the timber components. In order to bend and twist the components, material is removed on each side to increase flexibility in specific directions. The components are further processed and assembled to form an open structure. Based on a set of drawings that operates with a condensing and thinning of lines as spatial phenomena the machining concept cut between to lines (figure x) and pinewood half timber (2" by 4") was chosen. (Fig. 4).

Instead of having a determined overall geometry defining the final spatial construct we set out to sketch directly in the wood with the CMS Antares 5 axis cnc router programmed through the software AlphaCAM. Rather than forcing or encapsulating the wood in a specific geometry – we examined the material itself, grain direction and knots, and investigated material behaviour with specific machining processes.

Footnotes

¹ Coined by the Swiss architects Gramazio & Kohler: "Digital materiality leads to a new expression and - surprisingly enough, given the technical associations of the term "digital" - to a new sensuality in architecture. Digital and material orders enter into a dialogue, in the course of which each is enriched by the other. Digital materiality is thereby able to address different levels of our perception."

² "A computer-aided approach assumes an object-based strategy for encapsulating information into symbolic representations – methods of organising information. In contrast, a computational approach enables specific data to be realised out of initial abstraction – in the form of codes, which encapsulate values and actions. These distinctions are reflected back in the philosophical perspectives by which architecture, born of computer-based processes, is perceived."

³ "Allteftersom jag beskriver vägen går jag vägen framåt".

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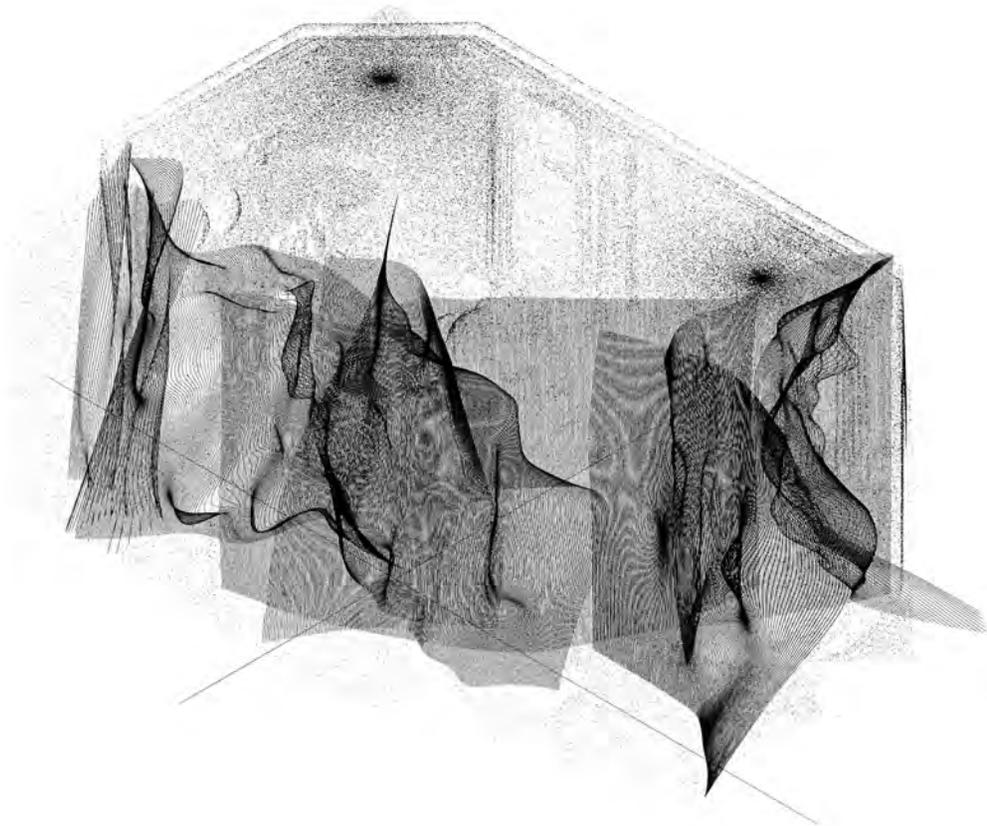
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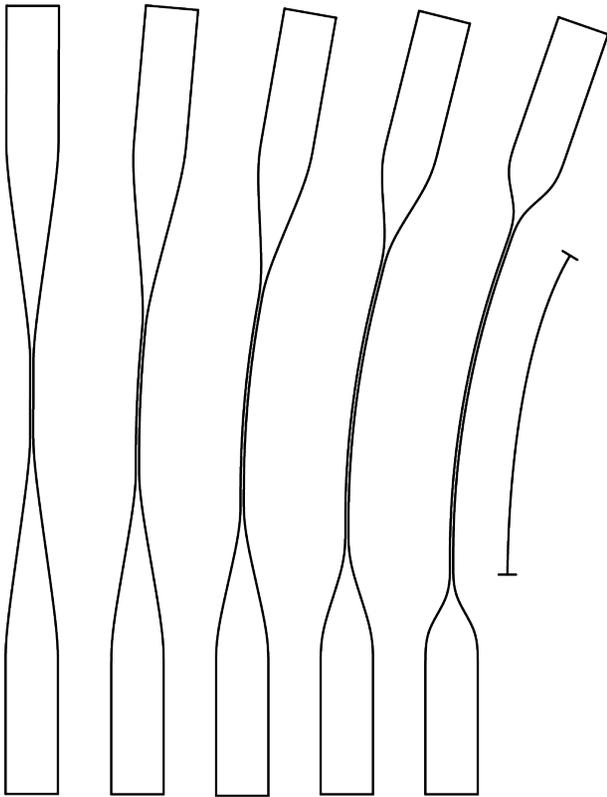
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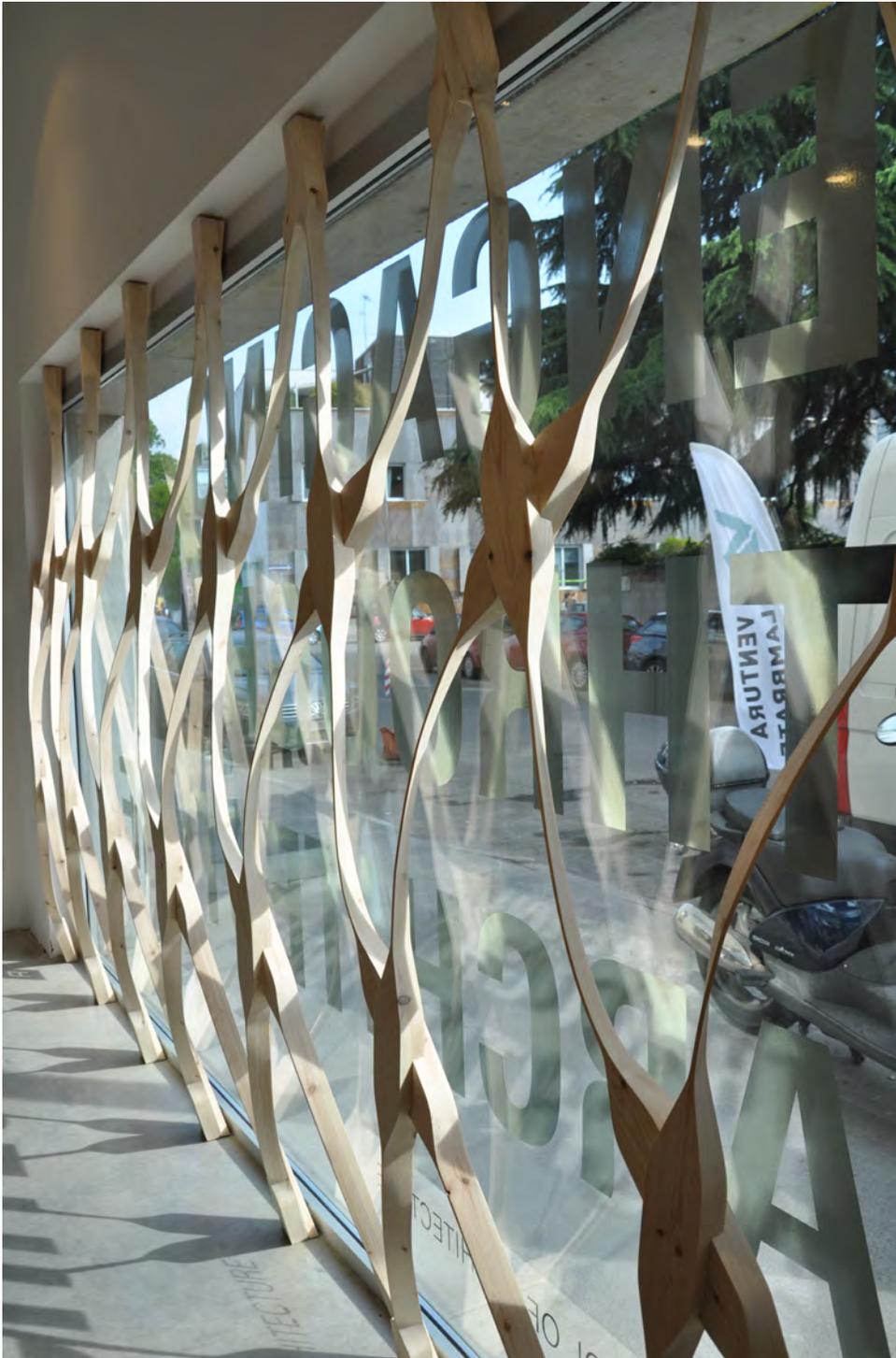
We would like to thank the Aarhus School of Architecture for supporting this project and generally growing a strong platform for architectural education and research in the field of digital fabrication. Additionally we would like to thank Mathias Ørum Nørgaard for his assistance in detailing indispensable parts of the structure with great dexterity.



1. Left: Drawings of digitized movement through an existing space. 3D scanned information processed in Rhino. Lines inherited from this set of drawings informed both the overall concept of the architectural installation as well as the digital processing the wood. Middle: The proportions of the thin part is linked to each component's need to bend. Right: Physical testing was used for extracting the parameters for the digital simulation

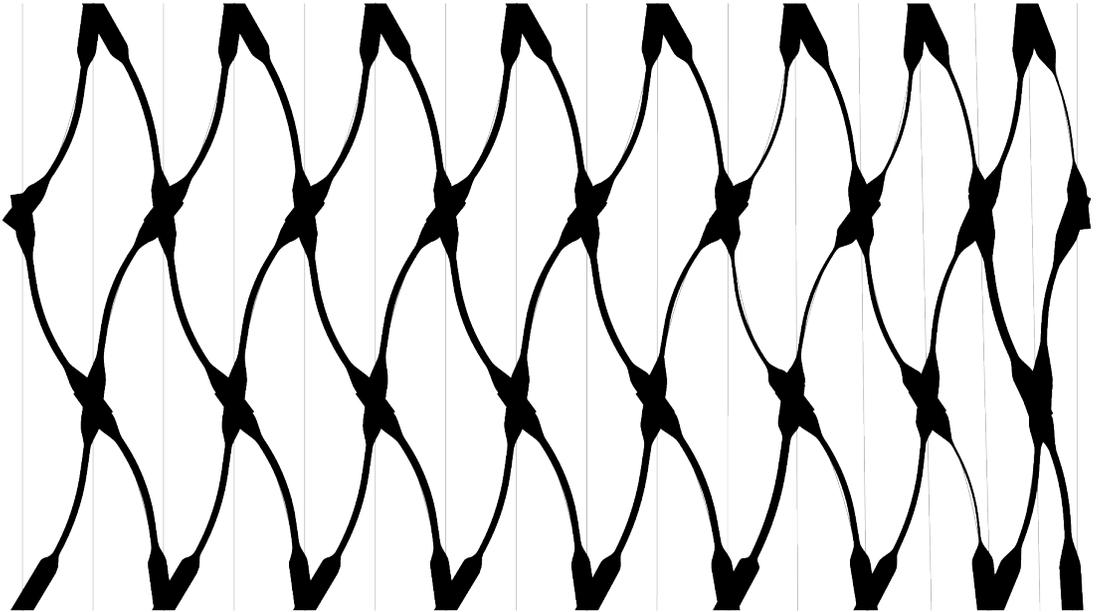


Exhibition



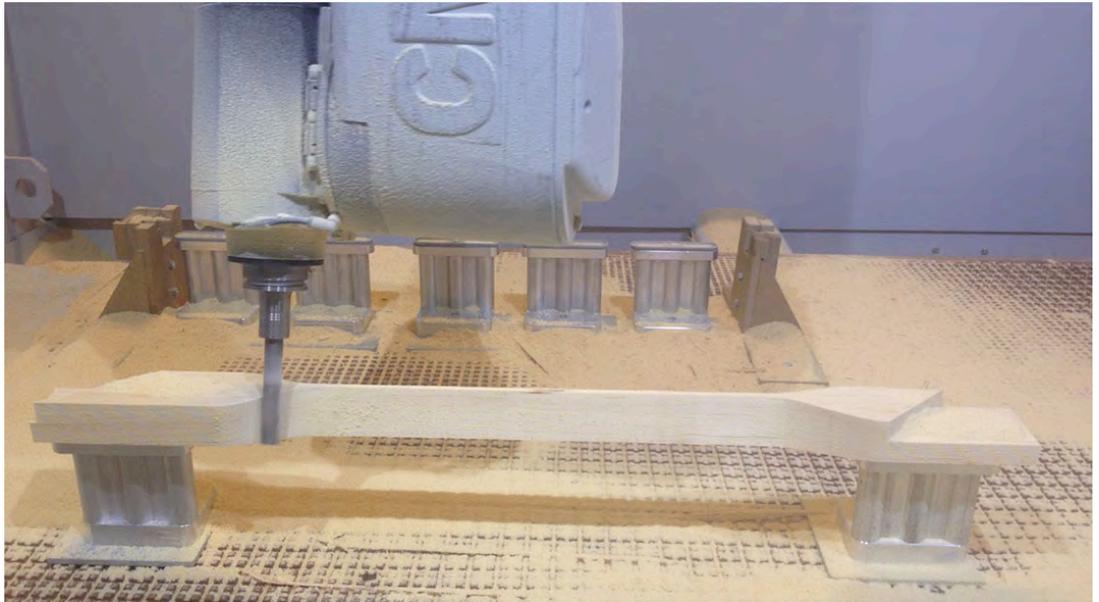
2. Timber Curtain and detail as exhibited in Undai Gallery, Milan 2015



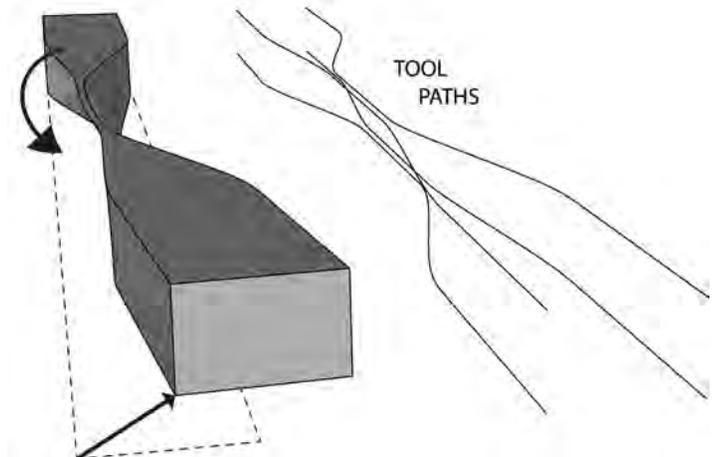


3. Elevation of the structure, designed for the Milan exhibition. The realised structure was simplified, due to limited production time.

4. Top: 5-axis CNC milling of a component.
Bottom: The components can bend away from the plane through changing the angle of the thin bending part. The tool paths for CNC milling are generated in parallel to the volumetric geometry.



Exhibition



P1

**Change and
Change in Making**

Fashioning Evolution

Making fashion practitioner research by analogy

In my research, metamorphosis is used as a conceptual analogy to explore how change occurs in the process of making fashion garments. This research forms part of my PhD by project, *Metamorphic Fashion: A Transformative Practice*, undertaken at RMIT University. Metamorphosis is understood as a process of change through which something undergoes a complete trans-form-ation. Change is acknowledged to be a defining characteristic of fashion, yet is rarely theorized from the perspective of the practitioner engaged with processes of materialization. Within the context of fashion and design studies, fashion practitioner research is under-represented, and the understanding of what fashion practitioner knowledge is, lacks solidarity. For emerging fashion practitioner researchers this is complex, however, represents unique opportunities for individual contributions to be made to the development of creative research practice within the discipline and more broadly; to consider what is shared and what is different within creative practice research. To make research through fashion practice, I have used metamorphosis as an analogic structure as a strategy to develop criticality; in order to be able to develop reflection, identification and articulation of the experience of making fashion. In this paper I propose the concept of fashioning evolution to describe how change is experienced as an ongoing generative condition within fashion making practices, which are actively shaped in the process of making garments.

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1. Fashion practice in the field of research

*Perhaps it is no accident that the word used in Greek antiquity to describe the skill of the practitioner, *tekhne*, is derived from the Sanskrit words for axe, *tasha*, and the carpenter, *taksan*. The carpenter is 'one who fashions' (Sanskrit, *taksati*), a shaper or maker (Ingold 2010, p. 92).*

The recent thesis publication by Finn (2014) analyses key issues for fashion practitioner research in the university. This work evidences under-representation within fashion and design studies, linked to a "lack of consensus around what constitutes practitioner knowledge in fashion" and how this relates to the practice of design (Finn, 2014, pp. 21-22). Finn argues that advancing fashion practitioner research involves exploring issues of tacit knowledge, and developing specific language and communication. Alongside this academic context, secrecy within fashion design industry practice, has meant that designers largely avoid disseminating their design processes and problems (McQuillan, Rissanen & Roberts 2013, p. 39). For a fashion designer experienced within an industry context, it is not easy to initially identify how to make research through practice. This is a complex issue for emerging researchers, when consensus around the peculiarities of practitioner knowledge is an issue for the field, methods for sharing fashion designer knowledge are limited in the case of research, and potentially actively avoided in the case of industry. Significantly, this affords the fashion practitioner researcher a unique opportunity to contribute to development of the field. This paper introduces key issues for my research, and experimental methods, which have assisted to develop a critical approach towards my fashion practice, as it transitions from industry practice towards research practice.

2. Some definitions involving fashion

In this paper, I am using the words fashion practitioner research to refer to creative practice research, undertaken by a fashion designer/researcher, which involves practice-led research methods. These methods implicate issues of ambiguity, the emergence of research problems over time (Haseman & Mafe 2009, p. 214) and "integration of artistic practice into the research process" (Mäkelä, Nimkulrat, Dash & Nsenga, 2011, p. 3), alongside methods of reflection-in-action (Schön, 1983). Fashion designer refers to a person who undertakes activities and processes relating to the design, development and production of garments within an industry context, for the purpose of commercial trade. Fashion practitioner is a fashion designer who undertakes critical research activities within a university context – "practitioners think, read and write as well as look, listen and make" (Haseman & Mafe, 2009, p. 214). In this paper, fashion design is distinguished from fashion practice, by the inclusion of research-focused activities related to the university. Fashion studies is "a broadly defined, constantly evolving and incredibly versatile multidisciplinary field . . . in search of an identity and a distinct character" (Tseëlon, 2010, p. 12). Fashion in its broad definition, "is a system that consists not only of designers, but also manufacturers and other cultural mediators such as buyers and marketers, and it is this system that collectively transforms clothing into fashion" (Entwistle, as cited in Braithwaite, 2014, p. 55).

3. Fashion and change

Notions of change and ephemerality are consistent qualities of fashion. How change is experienced within fashion design is what interested me to work within such a competitive industry, and prompted the direction for this research. Lynch and Strauss (2007) identify that fashion change has been theorized from the perspectives of many disciplines, each with a different focus, sometimes

overlapping. Meanwhile, the fashion practitioner perspective evidencing how fashion change occurs through processes of materialisation, is underdeveloped. While creative practice research exists in connected fields, including for example, art, craft, design, textiles and architecture, fashion practitioner research is under-represented. Bye (2010) argues that by taking a broader view of similarities within design disciplines, “the future of the clothing and textile design discipline is linked to the larger design domain” (Bye, 2010, p. 211). Contributing disciplinary-specific knowledge is the fashion practitioner researcher’s unique opportunity; and already fashion designers and researchers are familiar with the various ways that fashion design, theory and practice can interpret, borrow, adapt and transform knowledge from other domains, sometimes contemporizing, popularizing, hybridizing, aestheticizing or even scandalising. This makes fashion a lively, richly layered and textured discipline, which is highly responsive to adaptation and continual creative development; affording specific opportunities to the fashion practitioner researcher.

4. Materializing Fashion

Focus on the represented garment (Sykas, 2013, p. 235) and the designer, has often overshadowed the materialized garment and the maker. Research involving ethical issues within the fashion industry, evidences marginalisation of makers (McQuillan, 2012) and inconsistent, or lacking, corporate social responsibility towards those who make garments. Many fashion designers are not involved in processes of materialization; “design is too often staged, managed and made remote from manufacture: cutting and sewing is delegated or kept at arms length . . .” (Romano, 2011) The development of globalised systems for fashion production, such as pattern cutting, aim to develop accuracy and efficiency, (Chunman Lo, 2011) however, such systems also legitimate the establishment of distance between designers and manufacturers; the designer can easily be based in a different location to garment production. Perhaps a representation of Pye’s notion of the “workmanship of certainty,” processes of quantity production, which are key material processes in the fashion industry, ensure that “the result is

exactly predetermined before a single saleable thing is made.” (Pye, 2007, p. 20)

Within this broader context, fashion practitioners have an opportunity to operate ethically, to avoid perpetuating socially compromised practice. Designing through making practices, is a way for fashion practitioners to engage directly with material and technical skills as a method to innovate practice. This type of practice can occur when the designer is also the maker, for example, in a practice such as my own, where I explore pattern cutting and textile processes as a means to develop garment forms. This can also occur when the maker is creatively skilled and works closely with the designer, such as the case in high-end designer and haute couture contexts, where advanced skills such as creative pattern cutting differentiate the market level, and their higher cost (Almond, 2011, p. 15). This practice is not new; there are many examples of leading designers who combine design and making, however, the way that these practices are articulated and disseminated requires development. In the context of larger issues for the industry, research that contributes to knowledge within this area of fashion practice, is critical to develop.

This research questions the disassociation of design from making, and explores how processes of materialization are intimately connected with processes of conceptualization. Research by Naomi Braithwaite suggests that within a designer’s creative process there are steps, which demonstrate “the emergence of fashion through the transformation of ideas and materials” (Braithwaite 2014, p. 63); the study of processes of materialization can evidence how fashion change occurs. Exploring ways to articulate processes of materialization, can contribute to understanding how “complex processes of change and transformation that characterize fashion” (Woodward & Fisher, 2014, p. 16) operate at a material level. There are certainly barriers to influencing fashion design practice in industry, as the experimental approach required when designing through making implicates a “workmanship of risk” as Pye distinguishes, where there may be failures, as “the quality of the result is continually at risk during the process of making,” (Pye, 2007, p. 20) and in this context of designing

through making, the fashion industry could be considered as “traditionally risk averse” (McQuillan et al. 2013, p. 40).

5. Making quickly

The question of how to access embedded knowledge which is based in disciplinary-specific skills and tacit understanding, is an issue for fashion practitioner researchers engaged in making. Particular to fashion design is a convention of producing garment ranges quickly and efficiently, a result of working within a fast-paced industry where time is costed, and making processes are systematised. For example, time costing is included for key production components such as “laying, cutting, fusing, sewing, pressing, and packing garments” (Jeffrey & Evans, 2011, p. 39). My fashion industry experience evidences that within small-scale practice, alongside planning forward (sometimes a year in advance), fashion designers also think on their feet, and respond to ongoing issues arising from the immediate concerns of garment production, which may not always go to plan. The pace of the industry only seems to be getting faster (Allwood, 2015). Working quickly is necessary to keep up with industry cycles, including for example, production, sales and show cycles. I have found this speed of working to be habit-forming and initially a stumbling block in terms of making research, as thinking and practice happens at speed, while continuing activities.

6. Metamorphosis as a research concept

Metamorphosis is the key concept I use within my research in order to explore transformation in fashion practice. Metamorphosis is understood as a process of change through which something undergoes a complete trans-form-ation. As such, it involves a change in form, appearance or identity. As a concept, metamorphosis is found in many disciplines, and its study is nuanced and multi-faceted; as a natural phenomenon it is expressive of evolutionary dynamics (Truman & Riddiford, 1999; Ryan, 2011); as a cultural

concept it emphasizes transformation of identity (Warner, 2002). As a concept for creative practice, it enables the evolving nature of creative production to be emphasized and explored specifically. While I have studied metamorphosis by directly observing, and creatively responding to the butterfly lifecycle, I have also adapted theories of metamorphosis, and literary methods, to develop my understanding of this concept throughout the research process, and to generate material explorations. One of the earliest and most well-known texts on metamorphosis is Ovid’s *Metamorphoses*, in which shape shifting of all kinds of physical beings, animate and inanimate, occurs (Galinsky, 1975; Warner, 2002). Through a particular literary technique, Ovid “refashioned, transformed and [. . .] reconfigured ancient myths as well as inventing new ones,” (Warner, 2002, p. 3) demonstrating the creative potential of metamorphosis as a concept and a meta-concept; not only does the *Metamorphoses* describe the many transformations of the physical beings; but the method transforms the mythical stories themselves.

7. Creative analogy in fashion practice

Often fashion design conceptual processes develop by researching a particular topic or theme outside of the discipline. Potentially this could be anything, for example, a particular artist’s work, a film, a building, a story, an experience, a collection of imagery. This type of process is used to then derive ideas for shapes, fabric types, colours, a narrative, and many other elements that a fashion design process might need to consider, or be individually based around. But why does this process work and what is happening exactly? How does this type of conceptual research and thinking become materialized? By using metamorphosis as a concept, and reflecting further on how this can operate, within the research practice, I am using this concept to transform my practice towards research, as well as facilitate processes of materialization. But this is not one way; it is a back and forth movement of correspondence that is created. What I discover in one context I apply to another. In design thinking, Tschimmel

(2011) refers to this as “creative perception” or “the conscious search for new perspectives and fields of knowledge, which can provide facts and information that can be transposed to the context of the problem in hand.” (Tschimmel, 2011, p. 288) In the context of fashion practice, this is a method I am not unfamiliar with, however, being able to describe it as an analogous process, is something previously I may not have been able to articulate, although the use of a variety of source material is not uncommon within fashion design teaching and practice. Developing this approach within the context of the research, I have been able to adapt methods of abstraction and correspondence, which are ordinarily used in such approaches, to move across and back iteratively between fashion design and metamorphosis. This has enabled a critical perspective shift, which assists me to both identify and articulate how material change operates within the practice, by exploring the concept of metamorphosis.

8. Articulating fashion making

Practitioner knowledge is sometimes experienced as tacit knowledge, and there can be difficulties with articulating this knowledge through language; tacit knowledge is “implicit in our patterns of action and in our feel for the stuff with which we are dealing” (Schön, 1983, p. 49); knowledge that we can know but not say in words (Polyani, 2009). This is an issue for fashion practitioner research, when fashion designers are not equipped, practiced or potentially inclined, to communicate outside of their workrooms what exactly is happening when designing. For example, when discussing his design process, the fashion designer Rick Owens says, “Sketches are pretty, but they’re too unrealistic. I don’t think I ever really sketched” (The Talks, 2014) preferring instead to “just do it,” indicating that the design happens in other ways. However, when trying to articulate how the design process occurs, he indicates he has no idea. “I can tell you all these things about how I do it, but I just don’t know.” Despite this, season after season, Owens continues to innovate his practice, work with his team and collaborators to communicate his

vision. The designer, Gareth Pugh was filmed over 3 days, by SHOWstudio, while he constructed a garment, revealing a process guided by material engagement. He says following, “I like to see things happen in front of me, concerning how a fabric reacts, or moves, and then make a decision - I don’t really like dedicating an idea to a sketch - things always change so much in the process” (Knight, 2010).

9. Fashioning Evolution

These materials think in us, as we think through them. Here, every work is an experiment: not in the natural scientific sense of testing a preconceived hypothesis, or of engineering a confrontation between ideas ‘in the head’ and facts ‘on the ground’, but in the sense of prising an opening and following where it leads. You try things out and see what happens (Ingold, 2013).

The experience of change that occurs when engaged with materialization of garments, is unpredictable but can often lead to developing new ideas, methods, techniques or questions. Exploring conditions for change, by focusing on metamorphosis as a creative analogy, enables new types of questions to be posed through the practice, and an evolving critical practice to develop. A method was experimented with by focusing on garments more abstractly. Considering garments as forms, rather than particular styles (e.g. skirt, top) the fluidity of organic form, which was observed in the phenomenon of butterfly metamorphosis, could be used to critically reflect on garment making practices. A question such as - Why does the garment/body need to be stable? - initiates an exploration of methods which reconsider traditional garment blocks previously used in my practice. Blocks are templates for garment patterns, which code a defined body size and shape, and are used as an efficient way to continually develop new garment patterns by applying standard manipulation techniques. With this question in mind, alternate methods of garment making, initiated by an exploration of contemporary flat garment methods (Tsui, 2008) was undertaken. This led to a different understanding of space between the garment and the body to develop, as the garments no longer followed the body

contours, but responded to the qualities of the fabric, which interacted with its own agency, by sitting away from the body, and falling to drape in ways that could not be anticipated by the initial shape of the flat garment. This question about the unstable or ambiguous garment form continued to resonate, and focused attention on the form of the garment itself as a graphic textile expression, which could appear differently depending upon whether it was flat or embodied. Working with a textile print design collaborator during this process enabled these transitional qualities to be explored in both graphic and material dimensions. Expanding collaboration with a spatial designer, with an aim to exhibit this range of garments, evolved a line of questioning - What if the spatial representation of the garment did not include a body or a mannequin? How else could the garment be represented, would it still make sense as a garment? How could it be experienced in the context of installation? Through the collaborative experience of installation, the garment evolved further, as with the aim to explore representation without a mannequin, the garment pattern was adapted to become a sculptural object. The line of questioning continued to evolve in such a way, with direct experiences adapted from explorations of alternate garment making practices, assisting to develop the practice in evolving and largely unanticipated ways. Throughout I have often returning to the metamorphosis research, for fresh insights involving qualities of change and transformation.

The development of the research practice has proceeded along such lines of enquiry, and becomes what I can identify as an evolutionary movement; a forward movement; a (sometimes risky) productive movement, a differentiating movement; a movement that brings a “durational unfolding” (Grosz 2004, p. 24) of the past into the present. In this moment my embodied knowledge developed through practice anticipates what is not yet existing but knows will arise, as a future potential; by engaging with materialization in a purposeful, experimental way. Fashioning evolution aims to describe how change is experienced as an ongoing generative condition within fashion making practices, which can be utilised, directed and responded to in multiple ways. Woodward and Fisher use “fashioning” (Woodward & Fisher, 2014)

to describe thinking about fashion as a process of materialization, suggest, following Ingold (2007), that a consideration for their “trajectories and transformations” (Woodward & Fisher 2014, p. 6) can reveal how material properties play a role in developing fashion. Rather than focus on fashion outcomes or objects, “fashioning” involves the dynamic processes of shaping, making and creating expressions of concepts-materialised or materialised-concepts, through correspondence actively and iteratively forming. Ingold’s research on making, linked to philosophies of becoming, assists me to make sense of this movement, as transformation is experienced as flow (Ingold, 2010, p. 92). It is relational. Linking experiences, materials, techniques and practices, with an active critical questioning of what they might become and how they might become. Describing practitioners as “wanderers, wayfarers, whose skills lie in their ability to find the grain of the world’s becoming and to follow its course while bending it to their evolving purpose” (Ingold, 2010, p. 92), this seems to provide an useful analogy for how the experience of change within the fashion making process is experienced.

10. Ongoing work

As a result of this research process, new techniques for designing garment forms have developed, and a method for continued engagement with critical fashion practice as a means for research, is forming. An inversion has occurred where the material and technical engagement leads the development of garment designs, destabilising the design and making hierarchy. However, this is not at the expense of design or conceptualization. The garments which have resulted, are key materializations of a process of change; revealing the influence of movement, activity and flow, they embody complex relationships of the actions of drawing, stitching, cutting, planning, drafting, responding, thinking and reflecting on fashion, fashioning and change. While this research is still in development, this paper has presented a timely opportunity to explore articulation of what I feel are significant factors, in the undertaking of fashion practitioner research, and the potential for fashion practitioners to contribute not only

to the development of their discipline, but for contributing to creative practice research more broadly, with unique insights.

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Open Ends: On Chance and Attachment in Clothing Design

This paper analyses two open-ended design-projects in clothing where chance was taken as the main processual motivation and posed a relevant role in the creation of new objects. With these cases, the authors aim to illustrate the potential of chance applied in methodologies for designing more meaningful p-p (product-person) attachments. The authors research through design by developing different methodologies inviting designers and users to create unique garments. The aim is to gain a better understanding of taking artistic practices in design as a form of knowledge production to contribute to the discussion towards creative practices in research.

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1. Introduction

This study is motivated by an urge in providing alternative methodologies for clothing design and production, in order to tackle sustainability challenges faced by the fashion industry today. Driven by fast cycles of mass-production and overconsumption, manufacturers are providing low quality products that lead to fast disposal with low value to the user.

With two different design explorations, namely “Generator” and “Make{able}” the challenges and opportunities in using open ended designs to allow for stronger valued p-p attachment are elaborated. P-p attachment describes the emotional bonding experienced between a product and its owner (Schifferstein & Zwartkruis-Pelgrim 2008). Involving the wearer through open-ended design objects allows for unique, personalized products, and is a strong argument to enable a valued bond between a person and an object (Mugge et al. 2005). One of the questions we ask through these experiments is whether chance applied to open-ended and collaborative methodology in designing wearable pieces can lead to stronger bonds between users and products? And if so, can they lead to the development of theoretical grounds to alternative design methodologies in similar contexts?

The first project analysed, Generator (2009), consists of a clothes’ pattern ‘generator’ software. It takes error and chance as its main creative tools and has as outputs non-replicable pieces of clothing. Instead of optimizing large scale production, the role the machine plays here is one of allowing users to produce unique non-replicated pieces. The second project: Make{able} (2012) is a workshop concept using open-ended (half-way) designs to allow for unknown outcomes through user involvement in the design process. Thereby the project aims to en{able} people in designing and making unique garments, fostering a stronger p-p attachment. A survey-analysis contributes to a better understanding regarding the project’s impact. The methods created are believed to add

to the field of design when appropriated by other designers. By embedding these methodologies in the production of more meaningful artifacts, thus enabling longevity in their products, clothing designers would be able to build alternatives to the current fashion system.

2. Accelerating Cycles in Fashion

Striving for greater profits, fashion as we know today has become a constant rush against time. All the speed associated to the contemporary economy, and especially in the last two decades, to fashion, seems to be directing us towards a strictly commercial field focused exclusively on greater profits. It alters the basic operation rhythm of the ready-to-wear clothing transforming it into the now widely spread fast-fashion. Fast-fashion brands, such as H&M and Zara, encourage disposability by strictly following trends in a quick-response system (Fletcher, 2008); what is shown in catwalks in September will be massively available to the public in no later than two months time. Charming to some, frustrating to others, this modus operandi and the need to fit a tight calendar produces various implications and demands. Implications those that reflect in economic, natural, human and political spheres not only towards design, but holistically reaching the entire commercial system.

While companies and designers overlap the creation of four to eight seasonal collections a year, feeding stores as often as a weekly basis, clothes consumers have growingly realised that over-consumption and unethical production delivers more than something visually pretty on the shelves (Kozinets and Handelman, 2004). To both buyers and creators, it also appears that something on creativity seems to be lost among the constant shift of recurring trends. Choosing what to consume today has become a much

more complex activity than selectively reaching out to the best price/appearance ratio.

Wearing a piece of garment takes more than a mere selection stage. It involves countless layers of taste, social understanding or critique, intentions, desires, negotiations, amongst others (Kaiser, 1990). The wide and quick acceptance of trends questions these layers and seems to be able to break connections between users and objects (De Kerckhove, 2005). By simply taking what they are presented with from the shops, in a fast flat visual and economical selection, users may cease to communicate with and through what they wear on their bodies, suppressing more intimate and personal bonds.

3. Valued person-product attachment

The fast fashion system as described above, is based on the idea of planned and aesthetic obsolescence, which encourages a fast disposal of cheap and low quality products (Burns, 2010). These products are designed and manufactured not to support long-lasting product cycles, but fast replacement. In order to slow down the need for replacement, the products have to support a stronger bonding with the user.

Fashion does not only satisfy physical needs for protection, but also offers the potential to project an image to society with which we want to be identified (Kaiser, 1990; Fletcher and Grose, 2012). This implies that fashion is able to satisfy also psychological needs (Fletcher and Grose, 2012). However, these psychological needs such as social status and individuality can drive us towards a constant need to consume more. One possible approach to decreasing our desire for the new is fulfilling the objects owned with an emotional value. With intelligent design approaches we can enable stronger bonds between product and user and thus potentially reduce the fast disposal behaviour (Chapman, 2009; Cooper, 2005; Niinimäki 2011).

Person-product attachment is the emotional bonding built between a product and its owner

(Schifferstein & Zwartkruis-Pelgrim, 2008). Diverse dimensions are implied such as enjoyment in the use-phase; memories of persons, places and events; support of self-identity; life vision; utility; and reliability and market value (Schifferstein & Zwartkruis-Pelgrim, 2008). Naturally, only positive experiences and memories positively support p-p attachment.

Designing for a strong p-p attachment requires a deeper understanding of the behavioural drivers and personal reasons for consumers purchases, use and product satisfaction as well as disposal behaviour (Niinimäki 2011; Hirscher, 2013). For the designers it is important to understand the general position of consumption and meanings of products in society to fully understand consumer behaviour (Niinimäki, 2011). If the design of an object allows for input from the user, it is more likely to gain emotional value. The more open-ended a product use is, the more contribution and creativity is required from the owner. If the products offer the possibility to capture these experiences or emotions, the personal value and meaning of the product can grow (Schifferstein and Zwartkruis-Pelgrim, 2008). According to Mugge et al. (2009) emotional bonding and attachment can best be created in the use- or making phase of a product. In particular, personalised and handmade products have the potential to gain meaningfulness and value, as they represent a strong human-human relationship (Schifferstein & Zwartkruis-Pelgrim, 2008). This makes a strong argument for an open-ended design processes, as the authors invite the end-user to become part of the final design output and decision making and thus enabling p-p attachment.

The majority of research in this area has been dedicated to analyse the p-p attachment of already owned products and the life-cycle of classic design pieces. Half-way and open-ended design processes and how these could enable stronger p-p attachment represents an unexplored field in fashion and clothing design. Research projects were facilitated e.g. by Kate Fletcher and Mathilda Tham on person-product relationship with clothing through user-diaries that collected information over a long period of time on the use of clothing (Fletcher & Tham, 2004). In Finland, Kirsi Niinimäki (2010) conducted research

about the use phase and ethical purchasing decisions of young citizens, mainly female, living in Finland. All of these projects are yet to include the aspects of open-ended design methods to provide joyful participation of the user and thus enabling p-p attachment.

The two case studies will introduce open-ended design approaches and evaluate the opportunities to create sentimental product value and personal attachment for the user. The authors look out to illustrate the potential of chance applied in methodologies for designing more meaningful p-p attachments and research through design by developing different methodologies for designers and users to create unique garments together.

4. On Chance

With its Latin root referring to the falling of dice, chance has been widely explored in artistic processes. The works of artists such as Vito Acconci, George Brecht and Marcel Duchamp (Figure 01) are representative cases of chance applied to the creative process in art. For its ability of bringing unexpectedness, the use of chance in creative methods promotes curiosity and surprise thus ameliorating the creative flow. Not only fine contemporary and modern art, though, rely on the method for its production. Music, dance, writing and even medicine are other examples that rely on accidental happenings for developing further based on the unexpected. Renowned examples include musician John Cage, choreographer Merce Cunningham, poet W. B. Yeats and researcher James H. Austin as some who put into practice the values of chance in creativity.

(Fig. 1).

Margaret Iversen suggests that instead of copying appearance, chance provides a means of copying natural processes (Iversen 2010, p. 15). In that sense, chance can also be seen as a possibility of bringing man-made objects and nature closer together. One relevant approach, amongst many, to chance procedures in creativity is open-endedness. Open-ended projects, be it in either clothing, art or music, seem to be able to more deeply involve the users and creator with

the objects and the process of making. Not only it urges for a greater interaction between person and product for a piece to be complete, by using the methods possibilities for tighter bonds are set and able to flourish.

The following two sections will analyse projects and data collection from two experiences based on chance and open-endedness. Each of them will focus on different kinds of production. While Generator explores chance and surprise from the designer's part, Make{able} incites DIY production by providing open-ended projects for users to become comfortable with the making of original pieces.

5. Case I - Generator Software and Collection

Generator is a software developed between 2008 and 2009 by Julia Valle and Luis Castillo as an independent project. The idea started as a questioning to programmes that aimed at increasing speed and reproducibility in large scale production of garments (Easters, 2012). Instead of facilitating the reproduction of clothes, Generator aims at facilitating the creation of unique pieces by adding chance and error as the main motors to creative process. Starting from a basic clothing-pattern in *.DXF[1] extension, such as a t-shirt or a dress, the software is used to deform it in an aleatory way. The user can generate as many distorted patterns as desired, while also being able to control limitations to the deformations, according to the software's allowance. Each deformation can be visualized on the computer screen as shown on Figure 02.

(Fig. 2).

The new patterns are saved in a folder with the same extension, and can be printed in 1:1 scale. The pattern is then cut in fabric and reworked three dimensionally in a dummy, thus producing the final piece. The different steps in the process can be seen in the images to the right (Fig. 3):

What Generator brings to users is not open-ended personalization; instead it allows open-endedness on the designer side. Despite that, by informing the clients during the acquisition moment on the creative process, the designer is able to share the experience with them, sharing also the reasons for each piece to be unique and valuable through accidental or chance factors.

Out of the 16 individuals who have acquired pieces from the Generator project in 2009, 10 have replied to a short survey in early 2015. This survey intended knowing more about the attachment they have developed to the pieces by asking simple questions. The results will be briefly analysed in the following section.

5.1 Analysis: Generator

In 2009 around 45 pieces produced with the Generator software were commercialized in Belo Horizonte, Brazil. Six years later, those who have acquired pieces from the collection responded to a brief survey. They were asked to inform about their general and specific (tied to Generator pieces) use and consumption of garments as well as basic personal information. The informants were all female, Brazilian, and the ages spanned from 31 to 64 years old.

When questioned about the average amount of years the surveyors used a piece of garment for, 80% of them stated that the amount was below the use of Generator pieces until the moment of the survey. Regarding clothes in general, the users replied that they wore pieces for an average of 4,2 years, whilst for the Generator pieces, the average was slightly above 6 years. What makes the use of this pieces extended in relation to other pieces in their wardrobes, though? The charts below show the present frequency of use by the users and the reasons for it.

(Chart 1).

For those who stated wearing the pieces seldomly or never, the reasons were gaining weight (1 user), lack of events (2 users) and having left the pieces in another country (1 user). Even though only one of the interviewees had highlighted the

creative process when listing the pieces they had, 90% of them remembered clearly the moment of acquisition of the piece. This information supports the argument that sharing the process of making enhances the recollection of information about a garment, thus providing better grounds for an improvement in p-p attachment.

6. Case II – Make{able} workshops with half-way garments.

Make{able} is a participatory workshop concept, using a halfway clothing approach to allow for user-involvement in the design process. Half-way refers to an intentionally unfinished product- or garment design, as the designer leaves the end user an open space to customize and finalize the piece (Fuad-Luke, 2009, p.95). Half-way products aim to enable the opportunity to “shape and influence the nature of the narrative experience by the very nature of interaction that occurs between two parties...” (Chapman, 2005, p.128). This will let the user become an active influential factor in the product’s story and not just a recipient of the designers given meaning (Hirscher & Niinimäki, 2013). Half-way allows an open-ended product outcome, but enables the user to co-create a wearable garment in less time and with less skills. This aspect can reduce frustration and negative experiences due to lack of time, tools or skills and allow for positive memories and emotions to be captured within the piece. Figure xx illustrates the different levels of half-way – starting from nearly ready-made towards very open designs to be completed by more experienced makers.



1. *Three Standard Stoppages* (1913), by Marcel Duchamp, an important representative piece of chance applied to creative methods. (Source: ADAGP/Paris)



Paper

2 (left page). Julia Valle explains how Generator works in a workshop in Salvador, Brazil. (Photo: Thais Muniz)

3 (below). Generations made by the Generator software based on a dress pattern and the final outcome. (Photo: Julia Valle)



(Chart 2).

The project Make{able} was initiated by Anja-Lisa Hirscher in 2012 and was further developed into an open collaboration among different designers, aiming to enable and empower users to participate in designing their own clothes. Participatory sewing workshops with half-way products build the basis, providing sewing machines, material and professional design assistance to ensure a successful product outcome. The workshops were facilitated in a monthly rhythm in different locations around the greater Helsinki area (Figure 04). The project's timeline was 1.5 years, from May 2012 until December 2013, with ten workshops facilitated and more than 100 participants and different (fashion) designers contributing.

(Fig. 4).

The researchers' own observations as well as those of other designers during the workshops provided the basis for later reflection upon the general feelings, emotions, situation, appreciation and presence of the facilitators and participants. Beyond that, questionnaires were filled out at the location and after 1.5 years or more, a short survey explored the development of p-p attachment through this open-ended design approach.

6.1 Analysis Make{able}

After the workshops the majority of participants agreed that they gained a feeling of happiness and satisfaction during the making process or afterwards, seeing the results achieved. The results made them proud and encouraged to join workshops repeatedly. Most of the participants also said that their attitude had changed and they were more interested in learning more about clothes making and production.

A Joyful atmosphere during the workshops and a positive collaborative making experience are essential aspects to allow for emotional attachment through good memories represented in the garment. Chart 03 shows the expected level of value towards the garments, straight after they were made in the workshop by the first 18 participants.

(Chart 3).

Similar answers were found in the survey, which was conducted after 1.5 to 2 years of the workshop facilitation. Six female Make{able} participants between the age of 30 – 65 years gave insights to their perception about the workshop concept and the pieces created.

All six participants still feel a special attachment to the created piece, as they made it themselves. Quoting some participants: "It is a unique piece which I created myself and makes me feel proud." Or that it represents "enormous value - memory, friends and skill for life". Also, five out of six agreed that they still own and use the pieces and are generally very happy with the results created, and appreciated the collaborative work with the designers and the learning aspect. In response to the question, if the participants knew beforehand what they wanted to make, only two agreed to have a vision beforehand. The other four pointed out that they encountered surprising effects "by chance" and developed the ideas with other participants or the designers during the process. This illustrates that through the combination of open-ended designs, assistance and a comforting workshop environment a safe space for experiments and making can allow for great outcomes that can capture meaningful experiences (Figure 5). Quote from a participant about his creation: "It exceeded my expectations."

(Fig. 5).

The workshop setting with half-way designs offers consumers as well as designers an open space to experiment and learn from each other. Through discussions with the facilitating designers it became evident that they also felt they could learn from the users and increase a deeper understanding of how they perceive clothes/products. One of the designers pointed out that it is "a learning together", as the designer also takes the role of a listener, interpreter, or a teacher/adviser, as new ways of designing and making are explored. The workshop participants, often inexperienced sewers, used their own imagination and sometimes unusual approaches to combine, redesign and create new pieces. This way of designing was strongly supported by the open-ended approach.

7. Conclusion and Discussion

Through this practice-led research the authors have explored whether chance applied to open-ended and collaborative methodology in designing wearable pieces can lead to stronger bonds between users and products. Both projects illustrated quality potential in exploring open-ended design solutions, especially through the interest and positive feedback from the participants. The two approaches to open-endedness (on the designer and user side) provide a broader spectrum for analysis, tackling different social aspects. While Generator focuses on qualitative methods for designing meaningful pieces, Make{able} suggests behavioural alternatives to clothing consumption and making. The survey-analysis contributed to a better understanding regarding the project's impact. They also allowed first assumptions on the matter; open-ended design methods can enable stronger p-p attachment through user-involvement, unique design aspects and features capturing experiences and memories. Understanding the relevance of practice-led research to design (Mäkelä, 2006; Zimmerman, Stolterman and Forlizzi, 2010) the authors reckon this study's limitations for the small number of participants and survey respondents. Despite that, it is understood that the study builds a relevant starting point for further research in this area. The methods created are believed to add to the field of design when appropriated by other designers. For example by embedding these methodologies in the production of more meaningful artifacts, clothing designers would be able to build stronger alternatives to the current fashion system and enable longevity in their products.

A number of research projects and real-life examples already link the ideas of open fashion and participatory design. For example, Rosie Martin (2012), designs with 'diy-couture' various easy-to-make collections that do not require patterns, but illustrate how garments are constructed and can also be sewn by beginners. 'Openwear collaborative clothing', a platform, created as a research project is now offering open exchange amongst makers and designers, and providing free patterns with instructions

(Openwear, 2010). Fashion Hackers from Berlin, uses Facebook to collect ideas, sketches and votes from their followers to implement these in the next collection, which can be downloaded as patterns for a small price and made by the users themselves (Schmuckermeier, 2013). The CUT Magazine (CUT 2013), PaulMalina (PaulMalina, 2013) or the Makerist (Makerist, 2013), offer DIY or 'pre-cut' assembly kits, which are according to Mugge et al. (2005) an opportunity to create emotional product bonding through product personalisation.

With these two case studies and the examples given, the authors wish to communicate possible processual and creative alternatives fashion, which require further exploration by practicing designers and design researchers. The aim is to develop methods and tools that challenge the existing system through design approaches that focus on more meaningful and longer-lasting products. The authors also showed that there are diverse ways to apply open-ended design and chance as a methodology in clothes making. With Generator, the designer used the surprise factor as a framework for the design process while in Make{able} the open-endedness helped to develop skills and experience-moments for the user during a joint making process. Both approaches signalled potential to foster stronger p-p bonding, through diverse features which made the pieces unique, valuable and standing out from the mass.

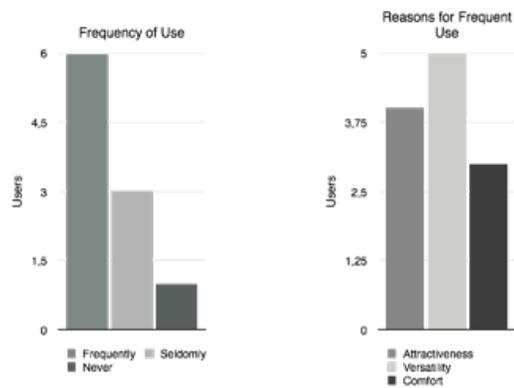


Chart 1. Frequency and reasoning for use of Generator pieces (Source: Julia Valle)



4. Workshop with half-way shorts at “Made in Kallio”, Helsinki (Photo: Daniel Morales)

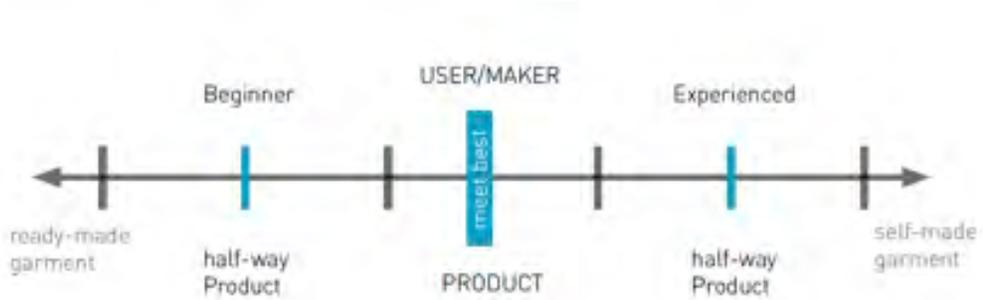


Chart 2. The different stages of half-way.(source Anja-Lisa Hirscher)



5. Results from two different workshops. (Photo: Anja-Lisa Hirscher)

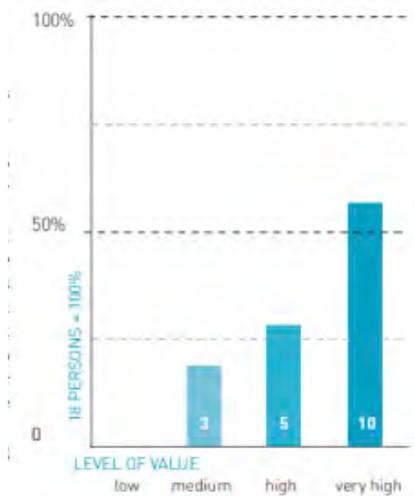


Chart 3. The different stages of half-way.(source Anja-Lisa Hirscher)

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Sites of Making – Sites of Riposte

cloTHING(s) as conversation

CloTHING(s) as conversation is an interdisciplinary research initiative that seeks to disrupt contemporary expectations of clothing. This work questions our tendency to treat garments as forums for creating statements linked to who we wish to be, what we do, who we are, and where we feel we belong. We are exploring implicit forms of clothing that encompass notions of interchange and dialogue.

Since 2012 the cloTHING(s) as conversation research team has sought to challenge a range of worn assumptions - expanding perspectives about how clothing is designed, produced and used. The project is made up of a layered investigation that looks at Design for Sustainability, Fashion, Distributed Manufacture and Wearable technology. The interplay between material practice and sites of social exchange has become a significant driver of our work. Generative research activities have included design-led material explorations and material practice-led textile manipulations. They have resulted in new forms of clothing (using a plus (+) form template), innovative hard-soft connections and 3d printed fasteners.

This paper will reflect on open-ended (ad hoc) spaces where conversation, making and the unexpected have come together in order to support our research. Transposition is key to this approach that is inclusive of: material embodiment, acts of mobility and transfer, cross-referencing, discursive artifacts and disruptive actions.

Keywords:

clothing, conversation, material artifact, social construct, transposition, sustainability, weaving, 3D printing.

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1. Prologue

We are makers. We are Designers. For several years now we have been leveraging insight gained from tensions that arise through active assemblies of people, materials, machines - taking on the complex nature of making in a contemporary context (one influenced by ourselves, our own material ethics, design objectives and explicit constraint). Our work has repeatedly pushed us to acknowledge the specific qualities and difference of artefacts and artifice - in terms of their impact and implicit shortcomings related to the making of stuff. We are aware that the approaches we take are mechanisms to thwart anxiety and the stress of the unknown. While we are set to tackle the unexpected we also use it as a foil, as a means to project beyond current assumptions and ideally to create new meaningful aggregates of artifact and action. Our creative practice is not a solo act but contingent on the social site. It offers balance, agility and the ability to respond to a wide range of unanticipated cues.

2. cloTHING(s) as conversation

Our creative research is connected to an initiative that brings together designers, engineers, sustainability experts, technical staff and students across four academic institutions in the UK and Canada to work on a project that explores the implications of Fashion, Wearable tech and Sustainability: cloTHING(s) as conversation. Sustainability is a problematic fit with domains such as Fashion and Technology where the privileging of either the expressive or the rational/data driven needs of humans indirectly justifies systems of environmental and human exploitation and planned obsolescence. The motivation that drives development in this area can be seen to intuit actions (decision making, modes of delivery, acts of use) that run counter to values and approaches needed to effectively embed sustainability in the everyday behaviour,

expectations and prerogatives of contemporary society.

While our project deals with and applies design approaches used to address issues pertaining to sustainability it also looks to the active discourse occurring in the realm of technology as a means to dislodge contemporary expectations of clothing. Specifically, it draws on insight from the study of distributed networks in contemporary social systems and considers open source business models as a means to rethink assumed routes to designing, producing and using clothing. We have been asking:

- What if clothing were considered first in terms of reciprocal conversation?
- What if clothing were understood as part of a larger system of connection (and connectivity)? Could it be inclusive of a back and forth network of questions, pauses, exclamations - a space filled, with sighs, discord, mimicry?

Our intent is to enable, provoke and develop new sustainable propositions and relations - as a means to provide new routes for designers of clothing.

(Fig. 1).

3. Model of Engagement

Material Artifact + Social Construct

The interplay between our material practice and sites of social exchange has become a significant driver of our work. In order to pursue the cloTHING(s) as conversation research mandate we have intentionally created a framework that allows us to draw on information from disparate domains. Our work and the structures we put into play pull on both abstract and pragmatic making

activities and modes of communication in order to theorize and externalize insight. Generative research activities include design and material practice-led explorations set in parallel with social events.

(fig. 2).

Our Material Artifact concentration is predominantly a forum for us to make, produce, play and investigate novel materials, innovative pattern design and aesthetic development. Additive manufacturing processes and digitally mediated fabrication techniques work alongside legacy textile based systems. Our activities have resulted in new forms of clothing using a plus (+) form template (fig.3), novel fasteners and hard-soft connections that employ 3d print additive technology.

(Fig. 3).

Our Social Construct explorations pull the project research team and external, invited participants into social scenarios (we have five such scenarios planned over the three year period). We consciously align these social construct events with our annual themes Yawn, Concept Pact, Distributed. In distinct settings, our Social Construct events allow us to pull and play with social interactions and revised context. To continually reconsider the clothing we wear habitually and the cloTHING propositions we imagine and create.

Conversation

Instigating and optimizing discursive and disruptive qualities is key to our work. Artifacts help to establish common ground or alternatively act as leaping off points. Actions provide a site for the unexpected. Together they form a conversation. They act as a nomadic ensemble, which allows for mobility and transfer - for cross-referencing within our creative practice. We apply participatory events in conjunction with individual practice led work. Ours is an action-based inquiry inclusive of considered forums for response/riposte. The unknown is a significant driver of our process. Currently we think about it in terms of a space for ambiguity sitting in the centre of a quadrant

or four nodes: action, reaction, event, riposte. We regularly use these nodes of exploration in combination as a means of navigating a space of ambiguous inquiry that does not preclude pragmatic agendas and prescriptive narratives. Action and events are both internal and social sites of inquiry. Tension and unknowns arise as we move across the field - in any direction (fig. 4). Reaction and riposte are spaces for our assets to be considered - to invite and open up new tangents and improvisation.

(Fig. 4).

4. Transpositions

Contemporary philosopher Rosi Braidotti refers to transposition as a means to consider intertextual, cross-boundary /transversal transfer - as a way of leaping from one field or axis to another (Braidotti, 2006, pp.5). Our own acts of making and the social interactions we initiate foster a similar scenario. We work in a space of inquiry made up of zigzag maneuvers. It is non linear (though not chaotic), nomadic (yet accountable) and contingent upon discursive and materially embedded practices (Braidotti, 2006, pp.5). As makers, we have found that our practice fosters an intuitive coherence without falling into prescriptive routines and practices regulated by instrumental rationality (Braidotti, 2006; Sennett, 2008). We see this as a means to work appropriately within our field of inquiry.

Transpositions and the application of Rhizome theory is part of the contemporary Design discourse (Coyné, 2005). There are many examples of it is being put into play using the material-social bind and layered approaches to re-route common assumptions and practices (Donahue, 2015; Manning, 2015; Drove Wendel, 2013). While participatory in nature, our work and that of others is not solely people centric either (Donahue, 2015). Materials and acts of making also play a significant role in the equation, in the strategic zig, zag. Creatives often seek to provide “enabling constraints” / structures for improvisation (Manning, 2015, pp.52). Along with others we apply new modes of engagement that pull on reciprocity between things and actions

(Donahue, 2015; Bennett, 2015) that provide for the uncanny and uncap usual orientations and expectations (Donahue, 2015).

Review of Critical Design practices reveals a prevalence of artifacts as a means of projection and provocation for Sustainability (Badke & Walker, 2013). This is linked to tactics of 'making strange' and notions of defamiliarization long found within Art practice (Shklovsky, 2000; Danto, 1981). In Design it has been applied within a range of participatory, ethnographic based methods (Marcus & Fischer 1986), and used increasingly as a means to critique and develop new approaches to technology (Dunne & Raby, 2013; Loke & Robertson, 2013). Within our own work we have begun to deploy and seek out 'idea objects' (artefacts) that "have the capacity to morph and provide both random and prescribed events of exchange (action)" - that act as "abductive tools" (Day Fraser, 2011).

5. Unexpected as Situational - Connected to Acts of Making

MISTAKE

A technical process and a paper clip in close proximity can lead to new routes. Making cloth involves repeat actions: as the warp is threaded and knotted in (to the loom); as the weft on the shuttle is swung back and forth; as decisions are made about which peddles to lift when. In this process things do not always follow the flow that creates perfection. Rather, hiccups in the pace and meter, in the automation of our processing (movement and decisions), lead to unexpected "mistakes". When considered from a distance, when processed through conversation and across disciplines, perspectives change. An error can translate into possibility. In our case, a glitch in a weaving collaborator's work triggered a designer to pick up another object (a paperclip) and slot it in to the space provided (fig.5). A conversation about links, assumed ways of connecting cloth and possibilities of creating other means (new fasteners) ensued. A significant part of our work now explores modes of connection (for cloth

based artifacts) that does not involve sewing.

(Fig. 5).

BUMP

Intent in front of his laptop, a research assistant working in a bustling lab, on output ready to print (in 3d), is bumped by a passer by. Musings about gestures (bumps and the like) linked to the conversational space extend into considering means of rethinking 3d making - from acts of production to recording. What if 3d printing was used to document, trace and morph? How could the recoding of the gestural (of a conversation) be applied? New mechanisms for considering 3d print notation on fabric (patterns) have come into play.

(Fig. 6).

6. Unexpected as Situational - Connected to Unplanned Events

JAM JAR LID

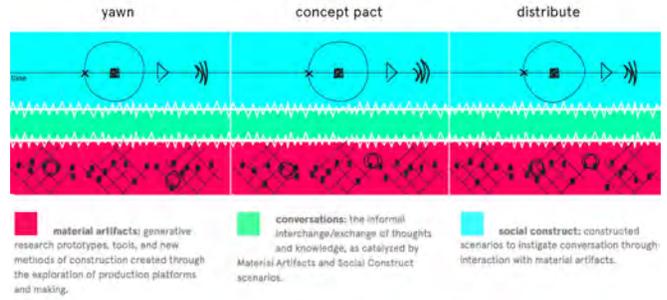
The Unexpected dropping of an artifact that has nothing to do with a research agenda can also inform a route forward and open up new routes. A mason jam jar lid falling to the floor and a designer in a whimsical mood, intuitively attaching it to the bottom of her skirt while in the motion of picking it up and observing a similarity to embroidery hoops can lead to new directions (fig. 7). A reconsidering of formal spaces and uses connected to conventional artifacts help us repeatedly to connect and move on to the development of novel forms. Hoop structures for fastening and modular connections that recognized curved space and conform to the curves of the body (fig. 8).

(Fig. 7, 8).

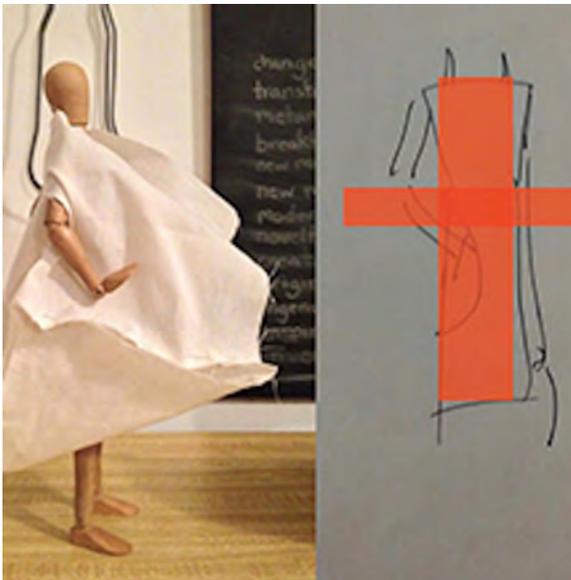
1. our mark



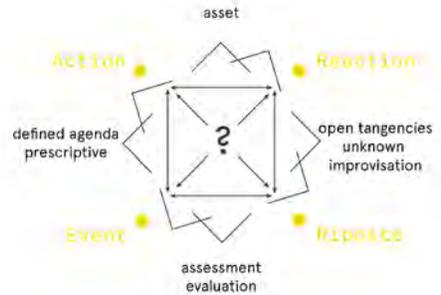
2. framework



3. initial explorations with the (+) template



4. method

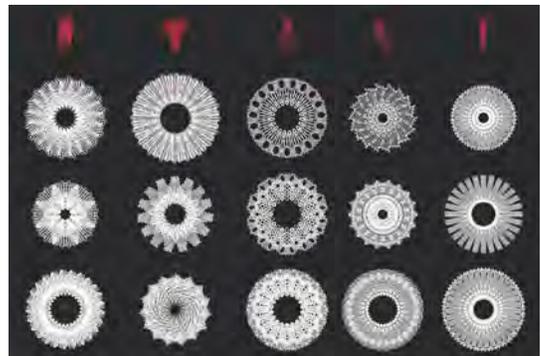


Paper

5. Intuition – paperclip moves



6. 3D print 'conversation'



7. Collective Action I

Rooted in a creative practice that is contingent on the both individual actions and the social site and with clothing as a key site of inquiry we are often drawn to consider the collective and to create “critical simulations of realities that look familiar but are not necessarily natural”(Spampinato, 2014, pp. 13). Psycholinguistic researchers note that the collective action of reformulation is a means of establishing common ground (Garrod & Pickering, 2004). The rise of participatory art and participatory based research methods in design foster this notion. Yet as modes for discourse – and conversation - they can be unpredictable and full of surprises (Bishop, 2006). As noted above, the unexpected regularly turns up!

Sites and gatherings are just as apt to make strange as artifacts. Together they make a potent mix. Interventions are “directed by the complicated factors of two great components in perpetual interaction: material setting of life and behaviour that incites and that overturn it” (Debord, 1957). Dating back to the 1970’s and moving into contemporary context cooperative Art and Design based groups such as Fluxus, Collective Actions, Andrea Crews, and The Centre for Tactical Magic have repeatedly applied notions of revising contexts connected to abstract acts of making as a means to provide advocacy but also to incite transformation (Bishop, 2011).

8. Intentionally Seeking the Unexpected – Applied / Strategic

YAWN

In November 2014 twenty-six people (individuals working in Industrial Design, Communication Design, HCI, Wearable Technology, Anthropology, and Accounting) gathered for Yawn 1, held at a local Maker-space. Each participant, upon their arrival at the venue, was given a task: to identify three types of conversation they may have had that day, to write these on three separate garment hangtags, and then to safety

pin the tags to their clothing. They were then invited to gather for a series of presentations which included, a five minute introduction to the cloTHING(s) as conversation project made up of ‘random’ images and ‘poems’, a lecture on Post Growth Economics, by an accountant (and PhD candidate in Interdisciplinary Studies) and, a twenty minute provocation, a lecture in Latin, on wearable tech and it’s possibilities by an expert in Human-Computer Interaction.

(Fig. 9).

Following these presentations the participants were asked to consider whether the three conversations they had identified earlier were either cutting (causing emotional pain; hurtful) or connective (bonding; supportive) in nature (fig 9). They were then asked to self-assemble into affinity groups based on this criteria and invited to work together (fig.10, 11)- applying cutting or connective gestures and acts of making to a series of provided artifacts:

- a stack of used blue jeans
- a stack of new white shirts
- a stack of fabric pattern pieces (front, back and sleeve components for a bodice)

(Fig. 10, 11).

To our surprise the outcomes were not all clothing based. Sculptural forms that made use of the built environment provided other means to consider different conversation possibilities (fig.12). Disruptive actions and discursive artifacts provided a site for new ideas and forms. The event challenged many of our assumptions and expectations connected to clothing systems (related to sustainability, technology, economics). It provoked a collective shift in perspective. The experience of being confounded by the unexpected (being lectured to in Latin) and confronted with the “open-ended” (fluid, non prescriptive tasks) triggered our next steps and pushed the research team to consider our work on clothing in relation to: intention and being in the moment; intuitive movements, unexpected

inhibitions.

(Fig. 12).

WIND

Working outdoors. Wind - that picks up a form (our clothing (+) template) (fig.13) - that is being manipulated to test a modular open source connection system (Allometry by students at Parsons the New School) and translates it in a different way. A research assistant's aspiration to construct a garment form to serve as a vessel and assist in his descent down a slide is confounded. Working outdoors, using an unfamiliar fastener system and applying additional materials (PLA based 3d print tubing) in new ways served to guide the design team to wonder how our modular clothing forms might be constructed / used as a means to draw us in closer proximity to our natural environment and its wills.

(Fig. 13).

9. Conclusion

We constantly seek to understand context and materiality, to consider theory (Bennett, 2015, pp. 22), to construct new meaning, value and determine appropriate use (Donahue, 2015; Fletcher, 2013; Fry, 2009). Re-cycled, Re-considered, Re-used and Re-vised garment forms and notions, conversation elements, serve to create sites of provocation, experimentation, surprise, and reflection - wherein the odd unexpected interruption or outcome plays alongside the strategic objectives in our material practice and the social spaces we inhabit. These emergent factors facilitate new opportunities and foster novel connections and insight.

Our approach to cloTHING(s) as conversation has been to treat the unexpected as an asset. We are certain that the designers' ability to contend with ambiguity is key. Considered sites for observation, interpretation and reformulation are all part of our toolset (action, riposte, and response). It allows our team to shift and adjust - to practice reflexively. Working on multiple

pathways of inquiry, and maintaining a material practice simultaneously creates a momentum for navigating transpositional spaces - a means of collective action and working with others.

7. in the studio – playing with embroidery hoops



8. fastener development



10. considering the provided artifacts (t-shirts, used jeans and cost of goods)



9. discussion – trying to sort it out

11. after the lecture in Latin - cutting and connecting



13. proximity: Allometry, (+), and wind



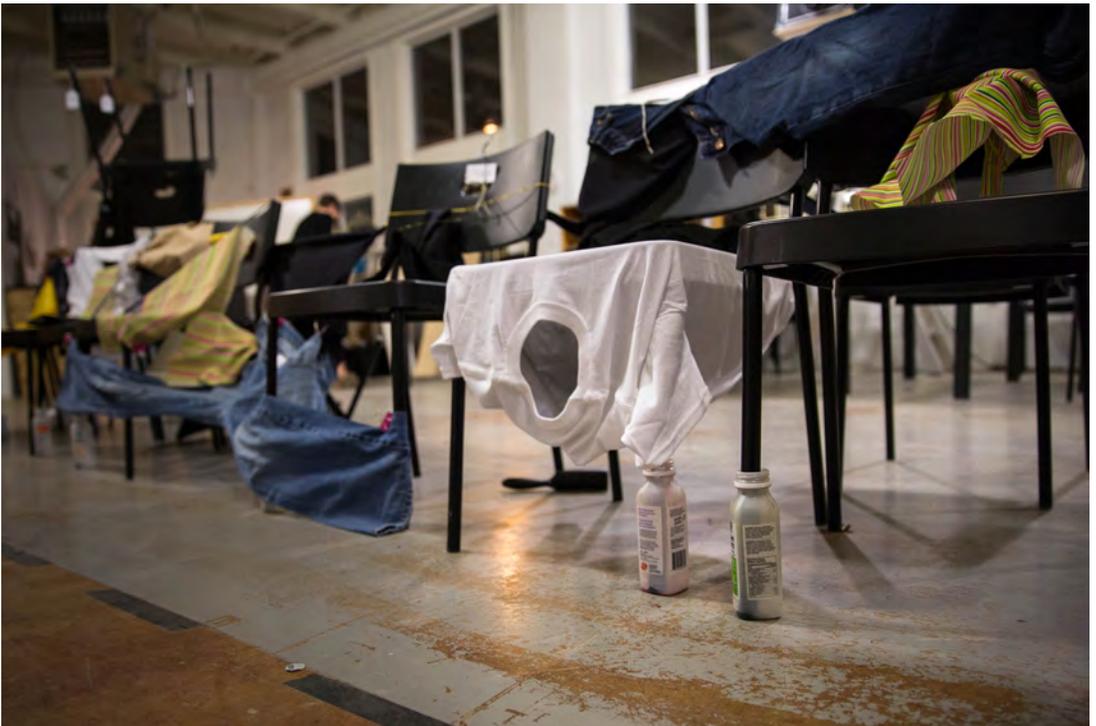
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12. *unexpected outcomes*



The Department of Repair: An Expanded Form of (Re)Making

The Department Of Repair, a six week project at Camberwell Space, Camberwell College of Arts, intended to contribute to the emergence and sustainability of repair cultures, and explore the dynamic force of damage. It consisted of an initial exhibition and series of generative workshops, followed by a static exhibition including workshop outcomes, a presentation and other events. The aim was to create a temporary hub for showing, enacting and discussing repair as part of the making process. Within this project the my scope was broad and included making the actual project – curating the exhibition, furniture, publication and so on; making an exhibit; witnessing and narrating the project itself and reflecting on it.

In this paper I will introduce The Department of Repair, and discuss the forms of knowing embodied by it. As a maker, it became method, outcome, probe and stimulus, used the gallery as material as well as site, embodied know-how and gave space for sharing and manifesting more know-how. I will discuss how it was created through the knowing already in existence – the knowing known; then the forms of knowing that came from it – the knowing made; and lastly the un-knowing it highlighted.

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Keywords:

Repair; making; community; sharing; knowing.

1. The Department of Repair: An Expanded Form of (Re) Making

In this paper I intend to introduce my practice based PhD project, *The Department of Repair*, and discuss the forms of knowing embodied in and through the project. Through several of the exhibits and workshops I will discuss how it was firstly grounded and created by the knowing already in existence – the knowing known; then the forms of knowing that came from it – the knowing made; and lastly the un-knowing it highlighted.

As a maker, I occupy a space between design and craft, usually making one off pieces and small series, exhibiting, facilitating workshops and curating. My practice is informed by discourses of sustainability, designerly ways of thinking, and active social engagement. I do not think we should have to repair everything we own and keep everything forever, but I do think that longer-life objects should be repairable or have a repair system built in before recycling, and that the act of repair should not necessarily be within a neoliberal framework of closed off information and proprietary rights. Capitalist culture instructs us to discard and buy new, however, the act of repair protests against this, objects to it and demands a new route. Mal-disposal of things (broken or not) has led to out-of-control materials leaching and leaking from landfill into natural systems, disrupting the eco-system. Things designed for obsolescence could be considered to have been 'born bad', and our discard practices reinforce this. From this stance, everyday objects are my material, medium and motivation.

In January and February 2015 I led the curation of *The Department Of Repair*, a six week project at Camberwell Space, Camberwell College of Arts, intending to contribute to the emergence and sustainability of repair cultures, and explore the dynamic force of damage. The first three weeks consisted of an exhibition and series of generative workshops run by makers. The second three week period was a static exhibition including the workshop outcomes, a presentation

and other events. The project included a digital and physical wall for contributions of repair stories, and a tool wall displaying old and new repair technologies, from an iSclack to a darning mushroom, all available to try. The aim was to create a temporary hub for showing, enacting and discussing repair as part of the making process. Within this project the scope of my practice was broad and included making the actual project – curating the exhibition, furniture, publication and so on; making an exhibit; witnessing and narrating the project itself and reflecting on it afterwards.

An initial act of object disobedience comes in the form of a break. When something breaks, even if done deliberately, it calls itself to our attention, requests an interaction, touch and communication. This break might even be a regular occurrence – as some systemic 'breakages' such as traffic jams become familiar in their routineness (Trentman, 2009) – the object breakage might also be familiar, think of the handle breaking off a cup. However routine the break may be, it leads us to what Graham and Thrift (2007) call the 'decisional burden' of repair: we must, if nothing else, sweep up the shards of a broken glass.

The dynamic force of damage generates space and opportunities for inventive (re)making on several levels. Stephen Jackson posits that 'repair occupies and constitutes an aftermath', saying 'repair is about space and function - the extension or safeguarding of capabilities in danger of decay' and 'it accounts for the durability of the old, but also the appearance of the new', with breakdown often being a site for innovation (2014 p.223). The complexities and dualities of repair, functioning as both old and new, end and beginning, creation and destruction, feature in many descriptions of the properties of repair. Elizabeth Spelman, in her cultural overview concludes that 'to repair, then, is to enact a complicated attitude towards the past and pre-existent: Repair is conservative but also interventionist; humble but also presumptuous; it honours some moments of the past while erasing others' (2002, pp.125-6). From the many definitions and ideas surrounding repair, I have made my own working definition which is as follows: repair is an attentive act that can occur before or after a break, which makes something work in the way that is needed.

Through the making of The Department of Repair I explored this generative and creative space, with breakage as starting point and siting repair in making. As a maker, it became method, outcome, probe and stimulus. The Department of Repair embodied knowing, gave space for sharing and manifesting more knowing, and highlighted un-knowing.

(Fig. 1).

2. Knowing Known

Exhibiting artefacts by a selected group of practitioners was intended to generate discussion around socio-material practices, highlighting different approaches to repair as well as its conceptual and pragmatic reaches. For the exhibition, mostly tangible and analogue objects were chosen, which visibly demonstrated the application of hand-making as a form of repair, acts towards environmental repair. This project was a discussion of one aspect of repair, and, as curators we utilised visibility of repair as stimulus for conversation and making, and to clearly communicate its sometimes obscured information.

To give order to what we were doing we grouped the exhibits as structure of materials, methods/systems, agents and narratives. This seemed to group the know-how embodied by these objects and repairs, where narratives of objects and owners informed the act of repairing, agents guided it, and used their material and method/system knowledge to make the appropriate choices.

tomofholland's Mum+Dad sweater demonstrated know-how of darning methods, and textile restoration, and is what Richard Sennett (2009) calls a static repair, being restored directly back to a working state. However, knowledge of its layered narrative was offered through the obvious mixing of materials, colours and textures, and its darns demonstrated both skill and a can-do attitude.

Michael Marriott's Thonet stool defined the

agency of repair on several levels, specifically showing dynamic repair, which Sennett describes as potentially altering function, upgrading as well as fixing, and possibly mixing tools or techniques (2009). He intervened with discard and redundancy through salvage and applied skills, and revealed an aesthetic agency through redesign. Found with a broken seat and repaired strut, its previous narrative is unknown but its discarded status indicates that the decisional burden of repair is a personal one. The seat was a break too far for someone: the material breakage made to a social/emotional breakage too. Marriott's 'rationalized repair' (Harper, 1987), purely replacing the seat panel, is made dynamic through application of pattern and the introduction of a hand hole in the seat. His knowing, of seating design and of materials, is shown through this upgrade.

Speaking of kintsugi, a Japanese technique for ceramic repair using lacquer and gold powder, James-Henry Holland (2008) says

Mending utensils is not cheap, and not all damaged objects receive such ministrations. The owner has to decide that the piece has sufficient historical, aesthetic, personal or social value to merit a new investment. The expense of repairing might be similar to that of acquiring a hakogaki, but a newly-mended utensil proclaims the owner's personal endorsement, and visually apparent repairs call attention to this honor.

(Hakogaki is a form of certification of importance)

Maiko Tsutsumi's work, smoothing an ikea table top by appropriating kintsugi, but using wax instead of lacquer and gold, showed knowledge of traditional craft practices, a boldness in her contemporary approach and politically questioned financial and use value(s) through her work.

My pieces in the exhibition, a series of repaired crockery, discussed environmental issues such as the potential of paper plates to be more eco-friendly than ceramic and engaged with historical, everyday methods of restoring ceramics such as boiling them in milk.

With the repair intervention acting as placard, slogans not shouted, but darned, patched, glued and polished, these objects embodied material knowing and skills, they were personal, political,

active and rebellious, making care, labour and skill visible. The objects showed know-how and boldness, applying techniques to unusual objects, and state that we can, we will, we are, through choice and necessity, repairing and reusing our things.

By showing my own work in the exhibition, I reflected on my expanded making practice dualistically, exposing and garnering the critical response to my studio practice and to my curatorial practice. The gallery became an extension of my own studio, opening the doors of my practice wide.

3. Knowing Made

The knowing embodied and created was what Alexander Styhre would call 'messy' (n.d.). As researcher, curator and maker, this conceptual tool gives me a way of acknowledging myself as driver in my research. I brought my aesthetic to the whole project and my experience to the observation ('witnessing') of it. My reporting of it ('narrating') inevitably has my experience of it intermingled through it.

Although broken objects often come negatively to our attention, removing them from the position of dirty or garbage by repairing unsettles the one-way relationship of practitioner to thing or material and begins to teach the practitioner about its material self. Through the a series of workshops exploring repair practices as part of making practice, and drawing on alternative and experimental educational models, we began this subversion from negative brokenness into positive, community lead, knowledge sharing opportunities. I also wanted to continue the Camberwellian discourse of hand-making and materials, while giving space for 'talking back' – which Ivan Illich describes as a way to 'control and instruct the institutions in which [learners] participate' (1973). It was important that the workshops were free and accessible so participants had choice in how to engage, when to arrive, and how long to stay. 'Loose parts' (Nicholson, 1972) in the form of tools, materials and space for use, structure and play contributed to learning activities.

(Fig. 2).

Second Sitters reupholstery demonstration developed into a participatory experience, with everyone working on one chair. On their 2nd day, a participant 'talked back', bringing in her broken chair seat, and repairing the experience according to her wishes. This developed a deep cooperation through shared work, and the practical repair of her chair created a bank of other, new know-how for all participants. Time invested here will likely be reinvested in later acts.

When repair information is held back by companies, it de-empowers and forces the user into being a consumer (Wiens, 2012). The workshop from The Restart Project, a social enterprise encouraging repair of electronics, hacked boundaries in a 'deschooled' (Illich, 1971) manner, building on the skills of participants and staff and exposed a material form of knowing and not knowing. It happened that during the workshop, one of their repair agents smashed and then replaced his phone screen. The reparability was of interest to one visitor, who described mobile phones as 'monoliths' and asked if design decision affect the ability to enact repairs. The reply came that, in some senses, different design solutions (such as smallness) can make repair harder but not impossible - if one wants to repair something, one will. This reinforces the idea that maintenance and repair offer interesting opportunities and challenges. Not all breakages can be predicted, and as Glenn Adamson (2013)says, the chance to explore repair occurs because things have been made, and those things sometimes need working on. By opening objects perceived to be un-openable and showing their reparability, they also opened other possibilities to those attending.

(Fig. 3).

Through the workshops I made a temporary learning site for myself where a discourse of matter and form, of community and social/human interaction, and a bricolage of agents, methods and materials came into play. The workshops showed that, in that setting, interest in repairing was in part centered around technique rather than specific objects, and that some visitors preferred to watch rather than to actively participate, however that did not seem to lessen their experience.

4. Un-Knowing Shown

The repaired phone represented knowing and not-knowing - as monolith it was an unknowable object, however with a bit of existing know-how, more know-how came about - the knowing expanded. The repaired mobile phone re-became the monolith, and in that sense did not offer the information to others, appearing un-openable, and thus un-repairable. The visibility then is key to offering knowing, the decisional burden of repair making appears at two points in object lifecycles - in designing and in using. If the designer does not visibly acknowledge repairability in the material-self of the object, how can that information pass on, how can repairability be communicated?

In his darning workshop, tomofoholland suggests that, when contemplating textile repair, the most important things to match are first colour and texture in yarn choices, and that a material match is a much lower priority. However, mixing fibres can make it much harder to recycle post-user. But does this matter if you are extending the life of the textile in the first place? This question expands through repairing, how does the concrete practice of repairing affect the less tangible post-user life? The visibility of the project, of the repairs, repairing, and repairers, brought tacit and inherited knowledge to the surface. The gallery became a public space for personal reflection, inspiring anecdotes, experiments and conversation. After the project ended it left the questions of where does this go now, where else and how else can it manifest?

5. Conclusion

The Department of Repair was the subject, method and outcome of itself and of my practice-as-research, and as such embodied 'knowing' in many ways. It sought to communicate 'content that is enclosed in aesthetic experiences, enacted in creative practices and embodied in artistic products' (Biggs and Karlsson, 2010).

Catherine Harper argues that 'creation, not consumption... creates object attachment' (2014), and what S. Sinem Atakan et al. (2014)

call the value creation of 'self production' can deepen and make new attachment and values in and through the act of repairing and the object.

From an activist perspective, The Department of Repair sought to make mends and mending visible and also menders. Repairing can make unexpected social connections, seams and deliberately visible repair practices act as placard, protesting obsolescence and connecting people to people, to objects and to capabilities. Stemming from human and object malaise, The Department of Repair, took a conscious anti-consumption stance (the second act of disobedience), making new narratives for society through repair and a collaborative form of quiet activism: by legibly displaying subtle symbols of personal politics, visibly repaired objects become placards of both defiance and empowerment. In celebration of resistance and autonomy, like Plutarch's Ship of Theseus, we can keep repairing our objects until they are all repair, and beyond ("Trigger's Broom," n.d.; Wang, n.d.).

Jacy Wall feels that repairs 'significance today is perhaps a commentary on waste and sustainability and a quiet call for the virtues of patient skill and deep enquiry into process' (2013). Stewart Brand says that to maintain is to learn (1997), and according to Kyle Wiens (2013), co-founder of iFixit, 'to disassemble is to learn, to mend and to move forward'. As repair is 'the process of connecting mind and thing: you are both creator and fixer', (Wiens, 2013) it 'can be regarded as a transformative process and paradoxically, rather than fixing relationships to cultural artefacts, it opens up a kind of dialogue in which the consumer becomes an active agent in their material lives.' (König, 2013).

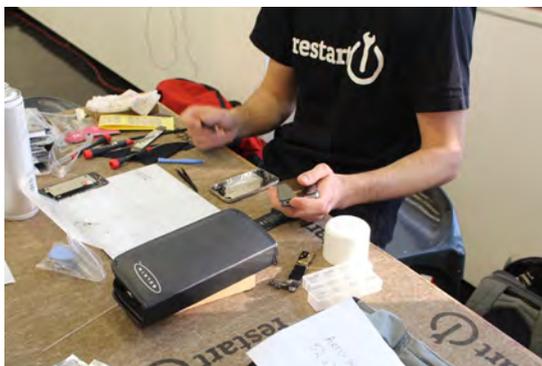
By contrast, making one-off things by hand allows you to change your mind as the work is proceeding in front of you. This in turn is partly (and strongly) influenced by what you are capable of doing practically. There is a 'dialogue' between you and the object you are making, and the medium is your practical skill. (Dormer, 1994)

Through the discourse of repair-making a new conversation arises: a visual, verbal and physical language, of matter and form, of community and social/human interaction, where a bricolage of agents, methods and materials came into

1 (top). *The Department of Repair, Camberwell Space, January 2015*

2 (bottom left). *Second Sitters workshop, The Department of Repair, January 2015*

3 (bottom right). *The Restart Project workshop, The Department of Repair, January 2015*



play, a grouping of distributed knowledge and learning potential beyond my skills, and the beginnings of a community of makers interested in repairing. The gallery became medium, studio and site for learning and reflection, associated tools developed specifically for repair joined the dialogue, strengthened the riotous act.

The project embodied a visual language of repair, and its conceptual reaches, representing the dualism of making as both studio and curatorial practice. Breakage may damage our object relationships, yet making repairs conserves. Repair signifies contrasts of care, labour, necessity and will, and places the object back into use of some form. Preserving and heightening material details, The Department of Repair deliberately engaged with brokenness in order to take a reparative step, with visible repairing, repairers and repairs acknowledging, through itself, repair as a multidimensional form of knowledge.

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P2

Contested Sites of Making

Notes on a place unable to adapt

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There is a difference to how artistic interventions are assessed socio-politically to how they are recognized within the field of art and architecture. What happens when architecture moves out of the office - into the city and onto the street?

Point of departure will be the artistic research Stadium NOWHERE, dealing with unfolding the story of the Bežigrad Stadium by Slovene architect Jože Plečnik, which is a place having difficulties in adapting to new circumstances. The research explored architecture as a nomadic thing and hereby challenged the perception of architecture as a static object. The paper will reflect this process by exploring the new and unforeseen questions that emerged on route. To be able to depict the Stadium as a place and to understand how it interacts with and affects society, the theoretical term “heterotopia” by French philosopher Michel Foucault is borrowed. (1) The current dispute around the redevelopment of the Stadium asks general questions about the collective behaviour, rationales and ideals of society and Stadium NOWHERE can be seen as a response no one has asked for, produced by an outsider in order to learn about a society and its mechanisms. By constantly crossing the borders between art and everyday life the aim is to be able to articulate what otherwise is excluded from the predominant discourse.

Keywords:

***Research by Doing, Critical Spatial Practice,
In Situ Interventions.***

Observations about architecture, heritage, planning and land

Architecture travels internationally. International architecture, disconnected to local situations, is controlled by the forces of The Market. The Market is about economically driven development. Developments need to be attached to communities and places. Places and architecture from the past doesn't always meet the ideals and demands of present and future societies.

Lack of clear rules of ownership to land creates confusion, insecurity and conflict, since boundaries and limitations become blurred. Blurred boundaries and confusion could perhaps be an opportunity to question the current planning principles?

The conflict

I was having coffee at the City Pub in Bežigrad with a local resident, whom I had asked for directions when on my way to visit the Bežigrad Stadium by Slovene architect Jože Plečnik a few days earlier. She told me about the conflict of the Stadium, which I found abandoned and fenced off, like many other building sites in Ljubljana. I was interested in experiencing Plečnik's work, since he played an important role in transforming Ljubljana into one of three Capitals in the Kingdom of Serbs, Croats and Slovenes in the beginning of the 20th century. Plečnik was commissioned by the Catholic Church to build the Stadium in 1925 and it has been operating as a Stadium until 2007, where it was fenced off and since then only open to the elements. The majority of Plečnik's works in Ljubljana are timeless, still in use and having survived big changes in society without losing their integrity, (2) but not the Stadium. It is torn between different planning interests, cultural heritage values, understandings of the law and blame for the blocked situation.

One of several disputes in the Stadium conflict is the question of the protection of the cultural

heritage. A group of residents have formed "The Local Initiative" and are fighting for the protection of the Stadium in its original form, whereas an investor wants to update the Stadium to new commercial standards. Between these two opposites the Institute of Cultural Heritage Protection is positioned and expected to protect the work of Jože Plečnik, since the Stadium got status as a monument of National Importance. According to the people I have discussed with, the Stadium is considered a shameful place that is not up to date in function and without a clear support regarding its status as heritage. It didn't help that the Stadium was used as a backdrop when the Homeguard and the Slovenian Anti-Communist militia swore loyalty to Nazi Germany on Hitler's birthday in 1944. Another dispute in the Stadium conflict is a court case about the legal right to a piece of land, which, since the nineteen thirties has been functioning as allotment gardens for the social housing community, the Fond Houses, situated just outside the Stadium wall. According to the Municipality, the names of landowners got wiped out during communism; the gardens became no man's land and the Fond residents became squatters. As said by the "The Local Initiative", there was no initial dialogue between the residents and the investors before everything got fenced off and there is still no dialogue about the redevelopment plans for the Stadium, which includes the land where the gardens are situated. **(Fig. 1).**

Several attempts to add on to the Bežigrad Stadium have been made over the years. In 2007 a Swiss company was commissioned to come up with a proposal for an up-to-date football stadium, but the Municipality of Ljubljana rejected the scheme. As a result of an international architectural competition in 2008, the investor presented his intention for the renovation of the Stadium to the press in 2012: an overall vision consisting of pretty images for the future. A lot of dimensions seemed to be missing in the proposition: the question of ownership to the piece of land where the housing

community have their allotment gardens and the risk of reducing the historic monument to decorative elements within the proposed large scale building complex, to mention a few. None of the involved parts seemed to have questioned the premises for the renovation of the Stadium; neither those who wrote the programme for the competition, the heritage protection reports nor the architects who created the design proposals. The Stadium became an escalating uncomfortable piece of heritage as the pile of documents and reports grew on the table of the authorities and the grass grew at the physical site in Bežigrad.

What kind of questions is it possible to ask in public?

Is it possible to challenge and disturb a temporarily sleeping public opinion and enable a dialogue?

Time and space

The Stadium can be read as a heterotopy (3) – a marginalized place unable to adapt to society that appeals and upsets at the same time. It is a real space among well-known and ordinary spaces, but it keeps a distance to the surroundings. It reflects the reality of the environment and challenges the ordinary at the same time. Thus the heterotopy is a place for ambivalence and the inadaptable. The Stadium began its life in an abandoned gravel pit; a heterotopy itself, where the specific geographical location is disrupted by a vacuum, everywhere and nowhere at the same time. It can be seen as a specific place or a general place that could be situated in various locations.

Looking at the Stadium as a heterotopy, the specific geographic location becomes less important than the inherent characteristics of the Stadium. It is a piece of architecture that connects to other pieces of architecture – to other Stadiums and to other events.

What happens to the local context and the surrounding neighbourhood then?

The use of architecture to investigate something

Stadium NOWHERE aimed at challenging the blocked situation between citizens and authorities and their lack of dialogue through unfolding the history of the Stadium. In order to explore history making as a participatory experience, I invited students from The University of Ljubljana, Faculty of Architecture to contribute. When working outside ones usual cultural and geographical setting it is important to maintain a larger level of self-doubt than usually, since it is difficult for an outsider to comprehend the complexity of a situation. When you don't understand the situation you can try to understand the logic behind the aspects of the conflict. So I decided to unfold the story of how Bežigrad Stadium got made and un-made by visualizing history as a dynamic series of situations. Behind this process there is a system for investigation, collecting, collaborating, building, recording, editing and exhibiting. I searched for material in the local community, institutions, libraries, on-line, museums, archives, books, films and TV broadcasts. I discussed with people who work politically and critically with urbanity in Ljubljana and with people directly involved in the conflict: the citizens, the investor, the Municipality and the Institute for Heritage Protection. To be able to incorporate uncertainty and the unforeseen on route, the project was developed from these meetings parallel to a workshop with the students.

Stadium NOWHERE is portraying history as an observation of both "historical moments" and everyday occurrences. Beginning with Jože Plečnik's vision for a Capital Ljubljana, the story continues up to the present conflict and the abandoned stadium that is taken over by plants. The unsettled present is seen as a motion from the events of the past to the hope for the future. "Historical moments" with architectural visions, religious ceremonies, military ceremonies, sporting events, commercialization, cultural heritage issues and environmental/ neighbourhood issues, built as physical structures, manifest the passage of time. Time is turned into space, revealing history as a story of unfolding time.

I met the students with a timeline of historical



1. Bežigrad Stadium and adjacent allotment gardens.

Photo: Ana Skobe

facts and a diagram of seven different structures related to seven different aspects of the history of the Stadium and invited them to develop the diagram into built structures from their own interpretation of history. Some groups dealt with the transformation of the use of the Stadium over time. Some dealt with the specific history of the Stadium. Other groups related to the environment outside the Stadium wall by pulling it into the space and thus exceeding the boundary between what is outside the space and what is inside.

(Fig. 2, 3).

- House of Landscape is an enclosed space visualizing the Stadium as a loop beginning in a gravel pit and going back to nature.
- House of Architecture & Urbanism presents the Stadiums connection to Plečniks plan for Ljubljana as a “New Athens”. In 2015 Slovenia proposed a series of Jože Plečniks buildings in Ljubljana for Unescos tentative lists, but the Stadium was not among the selected component parts.
- House of Religion is bringing the religion out of the institution and onto the street – like a small Chapel.
- House of Military tells the story of how the Stadium in 1944 was draped in Nazi flags and used as a backdrop for political ideologies parallel to several other Stadiums in Europe during the Nazi period.
- House of Sports & Commercialization is connecting to other stadiums and games and sees the Stadium from the view of the spectator.
- House of Conflict is a mirror of the administration and documents the on-going battle of the Stadium and shows a model of the Stadium built of elements.
- House of Nature is a spatial open wall structure offering a herbarium of the wild plants growing at the Stadium and cultivated plants from the Fond Gardens on the other side of the Stadium Wall. - A common garden where wild plants and cultivated plants are sharing the same space.

(Fig. 4, 5, 6, 7).

2 (right page).

Discussion with student about the relation between the timeline of historical facts and the seven different structures. Photo: Gitte Juul

3 (right page). Discussions on the student's interpretation of history within the physical structures.

Photo: Gitte Juul



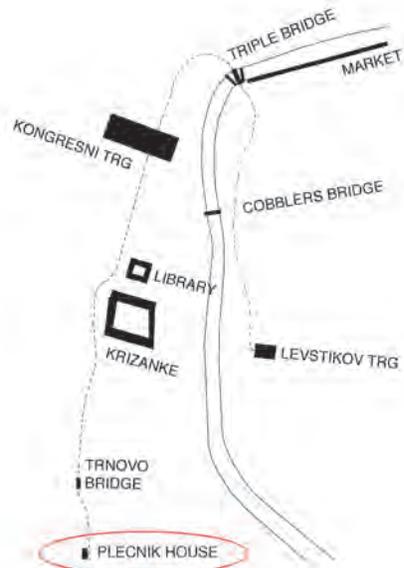


4. Presentation of Stadium Nowhere at the University of Ljubljana, Faculty of Architecture.
Photo: Gitte Juul

5. Walking route for Stadium Nowhere in the city of Ljubljana.
Photo: Gitte Juul



6. Walking in the city.
Photo: Gitte Juul



The walk starts here at 11.am on June 12.



7. Crossing Trnovski most / Trnovo Bridge (Jože Plečnik: 1929-32)
Photo: Gitte Juul

Paper



8. Stadium NOWHERE exhibited at MAO –
Museum of Architecture and Design in Ljubljana. Photo: Gitte Juul

The action

Stadium NOWHERE unfolded the story of the Stadium via the act of seven nomadic physical structures walking around among Joze Plečnik's static buildings in the city centre of Ljubljana, aiming at questioning social and legal norms in dialogue with everyday urban life. It was an interaction between materials, physical urban space and people using the space, in order to create a dynamic and open-ended presentation of the future for people to discuss.

By which parameters should a redevelopment of the Stadium be defined? - And what could add value to the Stadium and its neighbourhood as a place in Ljubljana?

A building is contested territory and cannot be reduced to what it is and what it means. (4) Stadium NOWHERE worked on revealing the existence of the Stadium by exposing its disputes and performances over time: how it had resisted attempts of transformation, challenged city authorities and mobilized different communities of actors. The project was brought out to the public through action in motion and time rather than through static image production.

It wanted to visualize the democratic exercise of power, the legal system and its administration, language and execution and to move these things from a distanced bureaucratic space to an open space in direct relation to people.

Being presented by seven physical structures walking in a row and a chronological timeline showing historical facts, Stadium NOWHERE crosses the borders between abstraction and reality. It opens questions more than providing any solutions to the Stadium conflict. While revealing the boundaries between language and action, administration and construction, institution and public, it relates to the specific history of the Plečnik stadium in Bežigrad, but also to the Stadium as a type of heterotopia; a space which is neither here nor there and have more layers of meaning and relationships to other places than

immediately tangible. (5)

The artistic research reveals the difficulties in working with a rolling conflict situation in public. Since it is impossible to act neutral in public space, the question is if it is possible to create a platform for people to make the decisions themselves without imposing your own personal view on the situation.

Is the proposed Stadium NOWHERE open for the imagination to flourish and capable of challenging a public discussion?

To extend the platform for discussion, Stadium NOWHERE moved out to MAO – Museum of Architecture and Design in Ljubljana. The seven physical structures are exhibited in the open museum courtyard in order to invite the public to share memories and built up a dialogue about the future of the Stadium. Earlier, political systems and strong ideologies made dialogue difficult because of polarization and the determinate solutions embedded in these ideologies. With today's complex reality a dialogue that comes before political decisions is fundamental. **(Fig. 8).**

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“Fly the Bullet*”

Chronology of Beirut, how it made us, and defined our work

**Chuck Yeager: a pilot and dogfighter with high aircraft handling skills.*

Yeager's motto: Fly the bullet. Forget the plane just fly the bullet into position.

Once a bullet is released, it is projected in a vector towards the future. It is allowed to form it self. With no knowledge of what it will be, because it is “A pure formation without form.”

Beirut is a schizophrenic city, filled with various narratives incorporating a long history of conflict, destruction, construction, and reconstruction. The 15-year civil war (1975-1990) still holds repercussions that continuously manifest themselves in our everyday lives. Additionally, our city has been shaped by unjust external and internal socio-political factors that create an overwhelming sense of unpredictability, leaving citizens no choice but to live on a day-to-day basis.

This chaos, along with constant insecurity and absolute uncertainty, exacerbates the capital's deficiencies and hinders all attempts of creative implementations. To put matters into perspective in 2013, we were living at the rate of one explosion per month in Greater Beirut solely (Khraiche & Shaheen, 2014).

Consequently, through our individual and collaborative works, we chose to look at Beirut as it stands today, constantly re-defining our roles and place in the city as architects and activists to the situations at hand. We tackle our city as a ready-made, responding to its present and constraints through alternate readings and implementations. A city riddled with danger, yet ripe with potential, it is our aim to convert this danger into an optimism that speaks. We believe in Beirut, and our hope for the city has driven us to fight for its liveliness through design and optimistic creativity.

Keywords:

Installation, Activism, Small-scale, Public Intervention, Mobile Architecture, Urban Scenarios, Sustainability, Education, Beirut, Object Design, Industrial Design.

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1. Introduction

Beirut is a schizophrenic city, filled with various narratives incorporating a long history of conflict, destruction, construction, and reconstruction. The 15-year civil war (1975-1990) still holds repercussions that continuously manifest themselves in our everyday lives.

Its historical centre, Beirut Central District (BCD), has been undergoing a face-lift operation to efface all its past, removing all previous social existence on the scale of the BCD.

This process of reconstruction, reserved solely for Solidere¹, erased all traces of the war and pre-war period. The effect on the urban fabric has even been stated to be an extension to the devastation of the civil war. (Tabet, 2001) “

Solidere’s methods of re-development have been met with harsh criticism over the years, with respect to its funding mechanics, demolition orders, and compensation methods to original building owners in the BCD.”

Encounters of corruption and unjust socio-political practices, from the civil war and beyond, triggered us to action, allowing us to gradually transform instances of corruption into various creative devices, challenging and engaging with our city. The city as our medium of choice, we become activists.

2. Doomed to destruction

(Fig. 1).

In one exemplary case, Solidere decided to demolish the biggest part of the Beirut City Centre, a multi-use complex designed in 1960s by Joseph Philippe Karam², choosing only to leave the egg-shaped cinema. The shell remained standing as a “derelict space”.

Reacting to the inevitable loss of the egg-shell cinema in light of larger developments, “I’ll race you” (2008), by Pascal Hachem, challenged the notion of destruction in a race against itself³

The work was comprised of a row of six hammers affixed to a single, automated electric motor. Slowly and one by one, each hammer took its turn striking the interior concrete wall of the egg-shell cinema, slowly yet violently pounding bits off the wall of a building doomed to demolition. (Hachem, 2012, p. 79)

(Fig. 2).

3. Finding our place in Beirut

As a group of young architects, we were prompted to believe that we were to have a role to play in the re-construction of our city. However, we were “refused” the right to our practice.

Solidere’s approach to Beirut’s reconstruction doesn’t just cost architects like Khoury⁴ money and professional prestige. To Khoury, denying those with a personal attachment to the city’s past a voice in its future is yet another way Solidere has found to suppress the complexities that once made Beirut teem with life.” (Ouroussoff, 2006)

This induced us to start looking for a place in the city like ourselves, marginalized, cut off, and left aside, that we could claim as our own in Beirut.

Beirut became our ready-made, be it a street, pavement, theatre, or even cutleries etc. drifting between architecture, design, performances and tales, professional practice and academics. The aim was to address places, languages, and objects whose materiality seemed to escape one’s common discourse; rather than defining

or framing the scope, we focused on urban contentions lived by every citizen on a day-to-day basis. Addressing these contentions and making them tangible to city dwellers became our target.

4. Total amnesia

During the early post-war years (1991 to 2004), a total amnesia was imposed on all citizens: one was not allowed to address or even mention the occurrences of the war.

The post-war generation, those who had not lived the war, could not relate to their city; they found Beirut ugly and with no potential.

How would we establish a link with a torn city? How would we counteract an imposed state of total amnesia? How could the city tell its own story?

All the while, the Barakat building (B building) was making the covers of several newspapers: since 1990, it has been the subject of numerous polemics concerning its destruction or transformation.

(Fig. 3).

The B building is out of order, deserted and cut off. It does not have a specific function: it stands as an “anarchitecture”. Such building grew up as we did, aliens in their own city. As a result, it became an instrument, a tool for unfolding shared singularities, that would help in both reading the city and dealing with it, as well as challenging and going beyond the standard dialectics of “new versus old”, “tabula rasa versus restoration”.

In 2000, the Atelier de Recherche⁵ took 45 students to visit the building. The building was to be allowed to speak for itself:

Due to its strategic positioning, the B Building operated as a shield to all buildings that had stood behind it. With its openings over-viewing the Green Line⁶, the building found itself transformed into a fortress: the militias were in need of an observatory to protect their families, while the building needed their support to remain standing. The limits were changing within the building: the outside was getting thinner as the inside was

growing thicker.

Standing face to face, with notions that they couldn't possibly have previously imagined, the 20 to 24 years old students were haunted by the mere thought that “it could have been anyone of them”. What our generation took for granted came as a shock to another. We started wondering if it was the right thing to expose them to such revelations. A catalyst was vital to get them back on track.

The B building was revealed to be a sniper building. Knowingly, snipers are always on the run and don't keep in one place for more than a few hours, while clearly these constructions/buildings could not have appeared overnight. A seemingly false and enigmatic statement encouraged the students to investigate these “vernacular” architectures, putting their fears on hold.

Through oral history, or what could simply be called “conversation”, it was possible to explore the city and its history. Three students were able to meet with ex-militia men to learn about their experience during the war. At that time these men were 19 years old and had resorted to using their common sense, working with the building and everything it had to offer.

Urban facts are two-fold: on one hand, they are referred to regularly in our everyday life (terms and understandings such as Green Line, east / west Beirut, landmarks, historic buildings etc) and on the other hand, they belong to a dimension, that is not easily comprehensible unless one changes his method of reading them.

5. The endless occupation

On April 18, 2001 after several peaceful demonstrations led by Lebanese students objecting to Syrian military presence⁷ in Lebanon, protestors gathered at the National Museum. Refusing to disperse on the order of a Lebanese army officer, forcible measures were undertaken (by what was later revealed to be the Syrian Second Bureau). A clash ensued, resulting in several injuries and the imprisonment of several demonstrators. (Human Rights Watch, 2001)

Ironically, that very same year, the French Cultural Centre announced Beirut to be the “Cultural Capital of the Francophonie”, stressing on the presence of dialogue between cultures and acceptance. (« Le Liban au cœur du Dialogue des Cultures », 2002)

In response to this claimed cultural dialogue, and to the occurrences three months prior, the Atelier de Recherche chose to play on this contradictory interexchange by expressing “a repressed and strangled cry for freedom” in 8 different, simple installations scattered on the premise of the French Cultural Center: the French Embassy. The chosen title was “Dialogue des Cultures dans un Jardin de Sourds” (Cultural Dialogue in the Garden of Deafness).

Displeased with the regarded pessimism implied within the selected title, and in context of the tense circumstances, the French Embassy in an act of censorship decided to omit the final term of the title, leaving it as: “Dialogue des Cultures dans un Jardin (Cultural Dialogue in the Garden). (“Dialogue des Cultures dans un Jardin de Sourds”, 2002) It was easy for many to sense the unfinished title and guess the missing word: the implications of the project were “loud” enough.

Three years later, the Syrian occupation was still present. Pascal Hachem’s “kaak kaak” (2004)⁸ referred to their control of Lebanese territory in performative gestures, and fragmented messages. Hachem approached the old port town of Byblos with a black suitcase carrying several 5x5cm plastic boxes, each containing a miniature kaak.

The kaak, purse-like bread, is commonly sold by Syrian migrant workers, “who in [...] Lebanese discourse are depicted as spies for, or agents of, the Syrian secret police”. (Hachem, 2012)

After the kaaks were sold by the end of the day, Hachem nailed the suitcase to the ground.

Security rushed to dismantle the suitcase, claiming there was a bomb enclosed, although having previously been informed of Hachem’s performance as part of a larger festival in Byblos.

“This raised the question: was it because of a security issue the suitcase was removed or

because of the message it hinted to enclosed within it?” (Sacrane, 2013)

6. Co-existence

Lebanon’s 4.2 million inhabitants (WHO Global Atlas Device, 2014) follow 18 confessions striving to co-exist through several political parties that make up the structure of our inefficient government. It is a space where sectarian and partisan coexistence is challenged, negotiated and reconfigured on a daily basis:

In Public Beirut⁹, a studio questioning public spaces in Beirut, a group of students stumbled upon a pier on the corniche¹⁰, which was revealed to be surprisingly off-limits to the public, although funded by public money. A single religious sect, monopolizing the space, controlled the pier. The fishermen on site denied public access on grounds that the area was simply unsafe to walk on.

Abiding by the constraints set for them, the studio chose to use the latter to their own advantage: it was decided with the students to build a replica of the corniche that runs on tracks, and is powered by a manual handcar. The platform served as a visual invitation for the users to trespass the barbed wire onto the pier, to get to the platform. The “mini-corniche”, a temporary mobile public space, acted as a revelation of the truth behind the pier. (Fig. 4).

Being Lebanese, we are constantly resisting the nation’s 18 confessions. Ironically, upon our arrival to Roccagloriosa, Italy in 2014¹¹, we found ourselves confronted by a religious march: St Giovanni’s procession, through which every household had placed a table with their sacred icons, to be blessed by the priest and the saint’s statue as the procession made its path through the town.

We chose to emphasize the beliefs of Roccagloriosa’s residents by collecting their newly blessed tables and stacking them one on top of the other, creating vertical procession, a bell tower, in a court yard of an old castle, marking a direct link to the sky. (Fig. 5).

7. Current situation: The refugees

UNHCR reports that more than 45.1 million people were displaced last year worldwide, the largest number since 1994. Beirut is at the heart of this global problem. (UNHCR, 2014) Over a million Syrian refugees currently live within Lebanon's borders; the UNHCR noting approximately 1,183,000 registered refugees in mid-2015. (UNHCR Country Operations Profile, 2015) Lebanon has become the country with the highest refugee per capita ratio in the world.

While other architects were working on providing refuge, our challenge was to empower the refugees and homeless to make a living, instead of resorting to begging.

The cart is a common-practice in Beirut: its everyday use varies from selling vegetables to snacks on the street. Many of these carts are tailor-made by their owners to collect recyclable materials. Some of the most important actors of this system are the locals and refugees, who go through the garbage and collect the recyclable goods to sell to one of the wastelands. This is a crucial system complementing the formal waste management system of Beirut. Regardless of his role, the state of the local waste picker is undermined by the society.

Beirut Urban Studio (2014)¹² challenged its students to find a real client for whom to design a more efficient waste-picking cart. The re-designed cart would integrate the activity of sorting within collecting waste, all whilst bearing in mind the constraints of the city, its narrow streets, various topographies and mechanical restraints.

The main questions tackled by the studio were:

- Where does design stop and reality take over?
- How can we achieve this with a limited amount of time and money?

A more efficient cart would mean better income, catering and supporting more waste and thus more recyclable material.

The carts also represented the opportunity to

connect with various local NGOs, in order to provide real, homeless clients with better working/living and economic conditions, shedding light on an ever-growing social issue that remains unaddressed.

The studio above all, focused on the act of building a full-scale architectural intervention. This exercise allowed students to engage in real construction, materials, as well as the rules that govern the city. Four carts were built, distributed and tested in the city.

The satisfaction of the client and success of the design prompted press coverage by the BBC World news¹³, publicizing a vision of our city in a positive manner by exposing its problems and drafting reality-based solutions. The cart also triggered the attention of local NGOs for its potential and eventual replication, production and distribution.

The aim of the Beirut Urban Studio was exposure, demonstrating the potential that lies within the city despite its seemingly infinite obstacles. We became the activist on the scale of the city, aiming to trigger discussions, debates, and ideas on how young architects can be on the forefront of a sustainably critical discourse.

The war is over...

Most of us believe that the war is not over, it has simply changed shape and configuration, instead impacting the local social and economical spheres:

"While the civil war (1975–1990) was characterized by armed violence, in more recent years violence has increasingly affected the population not only on a physical and security level, but also the economic and social level." (Construction in Lebanon)

Although we may not be able to solve all economic issues at large, we chose to contribute on a small-scale that to some, may even seem invisible:

Throughout our professional practice, we have encountered many skilled technicians whose delicate know-how is endangered by mass-production, as there seems to be a conflict within the design discipline between 3D printing and

artisanal work. We believed one should not be lost on account of the other.

The hope of 200 Grs¹⁴ was to create an awareness and appreciation; actively promoting local artisans that are increasingly finding themselves at the risk of foreclosure in light of escalating globalization.

It was also brought to our attention, that with mass production, plastic-molded items suddenly invaded the world, leading users to lose sense of objects: be it the simplest physical awareness of the materiality of an object as held in one's hand. 200 Grs explores the balance between handy-work and basic machinery in producing objects with an inherent sense of authenticity, fully explored once the pieces reach their end users, an action which may seem nostalgic for some or "Mediterranean" for others.

However, this was and still is what we consider the healthy way to fight and keep Beirut alive, as we believe in our own city.

9. Conclusion

"The player in the city: "The aim of the game is not to rediscover the eternal or the universal but to find the conditions under which something new may be created". (Rajchman, 1998, p. 33)

The city has become our field of research, relying on its dynamics and happenings. Learning to embrace whatsoever experience that comes to us; we let it happen. Once lived, we let go, a seamless process of clearing one's mind, allowing us to remain in the present, as if we are reborn in that instant. This process led us to discover new potentials in existing conditions. As Paul Arden once said: "The unsafe decision causes you to think and respond in a way you hadn't thought of." We absorbed all we experienced, whether during the war years or in its aftermath, reacting on the polarized socio/political and economical factors that engulfed the state since then.

Without limiting scale, our scope has ranged from 1:1 built installations in the city, engaging with its realities, whether regulations or utter chaos, while considering corruption as a potentially creative

trigger. Beirut made us who we are and, in return, we strive to convey the positive image of our city through creative processes and practical design.



Paper

1. *Beirut City Centre, Being demolished in 1997*, p363 from the book "Suwar fi Zakirati, 1965-1998, Pierre Madanjan, author; Librairie Antoine publisher, 2009

2. *I'll race you*, Courtesy of Pascal Hachem, Selma Feriani Gallery and Nadour Collection. (2008)



Al nahar



3. Prominent Al Nahar newspaper. The Barakat Building on the front page. Since 1997.

4. Corniche Extended, courtesy of Public Beirut studio, AUB (2013)



Paper

5. Vertical Procession, Roccagloriosa, courtesy of Rana Haddad and Pascal Hachem (2014)



Footnotes

¹ *Founded in 1994, Solidere, the Lebanese Company for the Development and Reconstruction of Beirut Central District, is an association of property rights holders and investors, responsible for the financing and execution of the redevelopment of the BCD in the aftermath of the Lebanese civil war.*

² *Joseph Philippe Karam (1923-1976) is a Lebanese architect, regarded as a pioneer of Modernism in Lebanon. source: <http://www.joseph-philippe-karam.com/>*

³ *Part of a two-day-long emerging artist exhibition called “Hopes and Doubts”, staged in the Beirut City Centre cinema.*

⁴ *Bernard Khoury (1968-) is a prominent Lebanese architect.*

⁵ *Atelier de Recherche was founded in 1997 by Rana Haddad, Pierre Hage Boutros and Gregory Buchakjian in the Academie Libanaise des Beaux-Arts (ALBA). It aimed to deal with urban issues related to the city of Beirut, initiating numerous projects in the city including exhibitions, installations and publications. source: <http://www.alba.edu.lb/AR/index.html>*

⁶ *The Green Line is a boundary line between east and west Beirut during the years of the Lebanese civil war, separating predominantly Christian and Muslim factions respectively. source: <http://almashriq.hiof.no/lebanon/900/910/919/beirut/greenline/index.html>*

⁷ *The Syrian military occupation in Lebanon dates back from 1976 till 2005. source: <http://www.meforum.org/546/the-syrian-occupation-of-lebanon>*

⁸ *The work was part of a larger “Off Festival” in Byblos curated by Sandra Dagher.*

⁹ *Public Beirut was a Vertical Design Studio led by Rana Haddad, Sandra Richani, and Carole Levesque at the Department of Architecture and Design, American University of Beirut in Spring 2013.*

¹⁰ *The Corniche is a 3km boulevard along the Beirut seashore and one of the only public spaces in the city.*

¹¹ *Pascal Hachem and Rana Haddad were invited by the curators of “Public Spaces = A Place For Action” (2014) in a project which was to offer a comparison between the territorial realities of two small towns, one in Italy and the other in Lebanon.*

¹² *Beirut Urban Studio was a Vertical Design Studio led by Rana Haddad and Maha Nasrallah at the Department of Architecture and Design, American University of Beirut in Spring 2014.*

¹³ <http://www.bbc.com/news/world-middle-east-27540234>

¹⁴ *200 Grs is a collaboration between Rana Haddad and Pascal Hachem, established in 2013. source: <http://www.200grs.com/>*

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Finding place: the palimpsest-image

In this paper, I propose to consider place as a film writing mode. To write with place calls for a re-contextualization of the original notion of Alexand Astruc – the “camera-stylo” (to write a film with the camera) -, this time considering place in its historical, architectural, sociological and aesthetical dimensions as a “stylo”.

I defend that there is a correspondence concerning the “in-betweenness condition” of former Yugoslavia – its manifold history full of constructions and destructions, its crossroads location and its multiethnic composition – and a cinematic idea built over multiple referential coordinates: interior and exterior, close and unclose, definition and blur, local and metaphysical. Drawing on an imaginary city nurtured in the grounds of the seven capital cities that belonged to former Yugoslavia, I present a film notion that cuts classifications and overlaps a radiation of place with a personal cinematic exploration of space. The reinvention of Astruc’s stylo is materialized in the palimpsest-image, a way of thinking film images as a simultaneous expression of a formal idea of the shot, a geographical, cultural and material conception of place and a philosophical and artistic approach of spatiality.

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place; film-space; palimpsest-image; memory; identity; film geography.

1. Reperages-stylo and the agreement of emptiness

In 1974, Alain Resnais published a book of photographs,¹ taken between 1948 and 1971, of locations in France, England, Japan, Scotland and United States. Entitled *Reperages*, the French word for location scouting, these images were place studies of films Resnais wanted to make, particularly one, based in London, pursued over seven years and abandoned in 1974 (*Les Aventures de Harry Dickson*). The book is co-signed and organized by Jorge Semprún, Resnais's writer in *La guerre est finie* (France, 1966) and *Stavisky* (France, 1974), in a mysterious itinerary of space and memory. Semprún wrote in the introduction that instead arranging the photos chronologically or by geographic origin, he chose to edit them in "a dramatic sequence capable of underscore the internal coherence of Resnais's photographic work". The result is a world of somber façades, alleyways, tunnels and industrial landscapes, a material phantasmagoria linking all the different images and supporting what Semprún expresses as "the visible avatars of the same dreamt city". From the first image, a quasi-abstract ramshackle façade covered with vegetation, followed by a photograph of the front door of a cemetery framed, again, with thick vegetation, to the last sequence of the book, the general idea is one of dissolution, disappearance, abandonment, something that, as Emma Wilson outlines, is overall present in the films of Alain Resnais: "the material world is for Resnais one of mourning and petrification, cross-cut with aesthetic beauty"².

(Fig. 1, 2).

Nevertheless, for all the emphasis Resnais applies in the search of places which could indicate a potential for an aesthetic and cultural impact, for all dramatic successions and rhymes Semprún draws in the editing, "Reperages" is mainly, for the authors, a décor, a place void of action, and because of that, a place where only characters could, eventually, fulfill the concept of the film work: "these are photographs of places – of decors – where Resnais would like to see an

action (...) empty places before or after the action, where there is, furtively, the inscription of some character(...)"³. There is even literal evidence of this idea when two photos (36/37) of the same street are paired, the second one with a character walking. The description underlines that fact: "Rue Nevers. Arrival of the characters at the empty decors of dramatic space." After all, "Reperages" could be comprehended as a photographic simulacrum of hypothetical parts of films never made.

(Fig. 3).

The reading of visualizations of empty streets, buildings or other type of townscapes is commonly associated with concepts of incompleteness and omission. Although displayed in a different format, it's the usual trope of place as unfinished stage the one featured in David Company's review of the ensemble of Resnais's London photos included in the exhibition *Another London* at Tate Modern in 2012: "These are photorealist backdrops awaiting the daily drama".⁴ If not conceptual charged backgrounds for latent dramas, empty places in film seem recurrently nothing more than establishing shots or punctuation rhythms.

When Charlotte Brunson points the question: "what these spaces are empty of?", the first answer is not different. "They are empty of narrative. They are immanent: spaces in which something might happen. Something might be found, someone might hide."⁵ But these places Brunson is talking about are already meaningful spaces, "the most obvious empty spaces of post-Second World War British cinema", bombsites. Accordingly, ruins and vacant ground relate to something that existed before, but they are now "empty of the characteristics of the social: order, government, control". No longer places, these emptied spaces can only be "place-like" when rendered by the film story. For Brunson, these spaces exist in a filmic limbo, "symbolic possibilities" to be organized in the context of a story.⁶ Just like the places of

Resnais and Semprun's book, they represent an opportunity for a fiction, but they do not activate the process of fiction itself.

As Brunsdon notes, and "Reperages" outlines, empty spaces are frequently concomitant of ruins or abandoned sites. In the history of film, there is no shortage of interest in the subject, from neo-realist post-war Roberto Rossellini's *Viaggio in Italia* (Italy, 1953), to classical art-films like Andrei Tarkovsky's *Stalker* (Soviet Union, 1979) or more recent festival-circuit exits such as Wang Bing's *Tiexi qu* (China, The Netherlands, 2003) and Jia Zhang-Ke's *Still Life* (China, 2006).

The exploration of ruins, however, reached its peak in the art world, namely the multiple photography based projects approaching the matter. Abandoned hospitals, factories, warehouses, towns, resorts, hotels, everything was material for another study. A term was coined for this sub-genre: ruin photography. And the wonderland was found: the city of Detroit. The excess led to depreciative counter-terms, as Detroitism or ruin-porn, refusing the fascination for a dystopian vision of surfaces. The critics of Detroitism/ruin-porn accused the image-makers of ahistorical failing by promoting an aesthetic of miserabilism - a postmodern show of decay without historical pathos. "As a purely aesthetic object, even with the best intentions, ruin photography cannot help but exploit a city's misery; but as political documents on their own, they have little new to tell us."⁷

In bearing an academic despise to other parts of Detroit and to the people that actually live there, the ruin photographers review the touristic voyeurism - the city is nothing less than a depressed postcard "pret-a-porter". In the post-modern world where the old is continuously new, the derelict down-town of Detroit is the new Rome. And just like the Hollywood productions filming in Rome, the city is a collection of landmarks to be quickly consumed.

But one thing critics fail to mention is to assume the aesthetics of ruin have to describe some place in particular: "The decontextualized aesthetics of ruin make them pictures of nothing and no place in particular"⁸. Detroitism vision of ruins can be seen as an extreme and shallow post-modernist

variation of Robert Smithson's re-interpretation of the idea of the sublime, in the way he related with urban emptiness and industrial landscapes as examples of sites where decay results from a blend of natural forces and human actions. The relation between emptiness and representation is, ultimately, a mediation of three approaches to place: to create, to illustrate and to observe. In his book *Vers une esthétique du vide au cinéma*, Jose Moure shapes a definition of emptiness in film and evaluates how different filmmakers such as Rossellini, Bresson, Ozu or Wenders use the concept to reflect on themes such as resistance, transcendence or drift:

Far from being reducible to a theme (the theme of absence ...), a figure (the figure of the off-screen, the empty shot...), a process (the decadrages⁹...), an isolated and identifiable form in the image or in the film, emptiness, as considered in its dual representative and productive value, operates more as a mode of representation, as an "exhibitor" that "affects" the image or the entire film without being decomposable. It is defined as a limit-concept that challenges film in its relation to the world, the real, the senses and the proper cinematic language.¹⁰

By considering the different dimensions of emptiness as elements contributing to new modes of apprehension and re-establishment of the world, and eventually promoting them to establish new modalities of representation, Moure questions the idea of emptiness in film in its diachronic history of repression, temptation and fascination modes.

I argue that emptiness can play a catalyst role on the organization of a film structure where place in its historical, architectural, sociological and aesthetical dimensions can serve as a "stylo"¹¹, re-contextualizing Astruc's term in a new method of capture the visual and semantic qualities of reality as inscriptions of meaning.

2. The in-betweenness

When we look to projects that attempt to find a common identity linked to a place, one characteristic that regularly comes attached is nostalgia. In the case of the countries once designated as Eastern Block, the focus has mainly been on architecture studies, either through an overwhelming contemplation of exotic constructions or by outlining uninterestingly repetitive townscapes. Both viewpoints confine these socialist material organizations of place as dystopian environments, peculiarly prone to delirious space-age cogitations and totalitarian oppression.¹²

In Spomenik¹³, for instance, the Belgian photographer Jan Kempnaers presents a series of photographs of Second World War memorials built in the former Yugoslavia. If Kempnaers continues with the unchanged typology structure itemized in the work of Bernd and Hilla Becher, he also renews the initial purpose of these monuments as sites of memory. A consciousness of overlapping identity is redirected from different periods of the history of the Balkans and the numerous beliefs accompanying them.

(Fig. 4).

Honored celebrations of battles for freedom, suggestions of the supremacy of the socialist republic and avatars of the union of all Yugoslavs, these futuristic structures no longer epitomize the nation, rather circumscribe loss and abandonment. They are, like the country they once represented, in-between, in the process of becoming.

As it is referred by the authors of a book devoted to modernist architecture - *Modernism In-Between: The Mediatory Architectures of Socialist Yugoslavia* -, the in-betweenness concept has been applied too many times, and to multiple regions, to the extent of being a meaningless formula of describing generalities. But “the in-betweenness of socialist Yugoslavia was exceptional: the country condensed so many overlapping geopolitical and cultural in-between conditions that they became one of its defining features.”¹⁴

In fact, let's begin with the geographical location: a region intersecting West and East, fabricated in the realm of two former empires, Austro-Hungarian and Ottoman, and influenced by

Mediterranean culture in the coast - “a collection of frontier zones, setting up segments of native populations as “buffers” against the neighboring rival empires”¹⁵. Then, another buffer zone: the challenging Cold War equilibrium between Soviet influence and western world. Inevitably, resulting from the intricate history of the region¹⁶, identity is constituted by multiple fragments that intertwine. The popular saying of that time describes the puzzle: one country with two alphabets, three languages, four religions, five nationalities, six constituent republics, and seven neighbors. All of this reflected the way cities and places were organized. For instance: the eruption of big new parts of the cities as Novi Zagreb or Novi Beograd, following the increase of population coming to work in the metropolis, or the entire new city built in Skopje after the earthquake of 1963, were manifestations of a desire to create new paradigms that at the same time concurred with the accumulation of former structures and symbols.

After the dissolution of the country, the flux between continuity and renewal in the region is still alive, and in some cases reaching surprising variations, as it is the case of the project of Skopje 2014 operating in the center of town. Countless statues were scattered in and around the main square, from entertaining musicians or shopping women to epic models of social realism style referring Macedonian past, while, paradoxically, colossal institutional buildings built or reconstructed in baroque-esque fashion print the territory with fantasist kitsch. Side by side, the new grandiloquent buildings and statues cohabit with no less massive brutalist structures, eccentric and gloomy, and surrounded by the crumbling narrow cobblestone streets of the old ottoman bazaar, the large avenues of the socialist idealism and the Balkan spirit of courtyards and old neighborhoods. Destructed, reconstructed and finally reimagined, strangely bleak and homely, Skopje is a concrete example of a palimpsest place in its intricate layering of matter, space and meaning.

There is a correspondence between the burgeoning stratification of former Yugoslav cities, the appeal of a foundational past associating imaginative projections directly inscribed in the urban fabric, and the idea of this project in the

demarcation of a new film geography nurtured in the grounds of seven cities. The Yugoslav condition - its manifold history full of constructions and destructions, of new towns built on the ruins or on waste ground, its crossroads location and its multiethnic composition - conjugate with a cinematic idea also built over multiple referential coordinates.

I argue that there is a filmic discourse view drawing on these cities, neither as a nostalgic view to Yugoslav past neither as tabula rasa for experiences fulfilling structuralism agendas or daydreaming landscapes of the mind, rather a multilayered theme of history and future, dissolution and construction, philosophy and narration. Instead of signaling specific marks that describe a materiality of place and collect serialist memories, I defend a film notion based on the palimpsest-image that cuts classifications and overlaps a radiation of place with a personal cinematic exploration of space. The reinvention of Astruc's stylo is materialized in the palimpsest-image, a way of thinking film images as a simultaneous expression of a formal idea of the shot, a geographical, cultural and material conception of place and a philosophical and artistic approach of spatiality. It's a place-stylo that dissolves the boundaries between frame and space by reclaiming a new association with the indexicality of film. It incorporates disappearance and disintegration as concepts assembling an intrinsic aesthetic and material condition and a reflection about the features of decay while rejecting the fascination of the modernist ruin sublime.

(Fig. 5).

Accumulations of signs occur in the displacement of the real, in the echoes and resonances between frame and editing, between history and absence. The palimpsest-image configures a border trope, which encapsulates multiple dialectic marks: interior and exterior, close and unclose, definition and blur, local and metaphysical.

3. All the borders

One of the films made in the aftermath of Yugoslavia that exemplifies a wider study of the complex question of the border is *Ulysses Gaze* (Greece, 1995), a film made by Theo Angelopoulos. It continues the theme of *The Suspended Step of the Stork* (Greece, 1991)¹⁷ in the way representations of suspension, division and drifting are incorporated in a broad reflection about identity and memory. The film describes the return of a Greek-American filmmaker to the Balkans, travelling successively from Greece to Albania, Macedonia, Bulgaria, Romania, Serbia and finally Sarajevo, Bosnia, in search of a film reel of the first filmmakers that documented the region: the Manaki Brothers. The mist is ubiquitous in the films of Angelopoulos, equally as stylistical device and thematic statement. While the mist can be seen as a symbol of the dilution of borders, or even a suspension moment in time and space like is represented by the scene where an idyllic multi-ethnic Croatian, Muslim and Serbian orchestra entertains the population of Sarajevo during the foggy days free of snipers, it also suggests that this place could be a possibility of a new beginning. In fact, the interpenetrating real and metaphysical borders of the film imagine a fluid locus that spans the diverse cultural identities and boundless reorganizations of the Balkan territory. The filmmaker's journey can "steadily trace the dissolution of an idea of the nation" but it is questioning that it evokes a passage "from place to non-place"¹⁸ because home and nation are not always associated. As it defined by Marc Augé, the notion of non-place mentions a place where identity, memory or identifiable social relations are lost, but the intricate distribution of people in the Balkans, the specific geography of the region and the cumulative structure of cities, neighborhoods or streets cannot be easily isolated. Far from representing a thorough documentation of history, *Ulysses Gaze* expresses instead, by means of a fictionalized interpretation of memory and place, the condition of in-betweenness of the region. Bonding imagination and history, Angelopoulos elaborates a tangible film geography of melancholy and expectation, embracing dissolution not as an emptied out process, rather as a dialectic of transformation where history, mythology and personal story.

(Fig. 6).



1. Alain Resnais, *Reperages*. "Ruins of Marquis de Sade castle, Lacoste (Vaucluse)" - 1949

2. Alain Resnais, *Reperages*. "1960. London cemetery. In the footsteps of Harry Dickson"



concur to promote a relationship with place as a foundation for the construction of identity. "We are very much 'in-between', all of us here. People need a new sense of community, politics, and beliefs,"¹⁹ said Angelopoulos when talking about Ulysses Gaze and the connotation with the Yugoslav disintegration. The filmic in-betweenness recovers this dialectic of presence and memory via the negotiation of palimpsest-images with the capacity of abstraction and the perception of belonging.

In my film *Novi* (2012-2015), mixed landscapes/townscapes recurrently unite images of isolated trees with characteristic buildings of a type of architecture. Façades, ruins, herbs, a white sheet in the window, cars in the borders of the frame, are motifs that, on one hand, suggest an approximation with an interpretative theory of landscape, in its symbology, in the emotional associations, in its pre-codified link with melancholy, disaggregation, abandonment or void. On the other hand, the long stationary shots, the *mise-en-scène* of abstract elements within realist compositions, or the conjugation of the movement between surfaces of negative space and landscape views, lead to an idea closer to a contemplative theory of landscape, defined by the work of the image and the editing on the creation of an atmosphere, whether by agglutination, repetition, geometry or contrast. These two approaches are not stagnant and interact in the formation of a saturated image and its application on film and in the consequent transmutation into the concept of a palimpsest-image.

By refusing sociological cartographic procedures, romantic nostalgia or apolitical formalism, I argue that is possible to depart from a view of landscape and place as an enclosed readymade fragment and expand it as a narrative dimension, memorial trace and cinematic dwelling. The combination of emptiness and narration brings questions of philosophical and cinematic representations into a structure of a non-descriptive study about place. In the end, the challenge of a re-evaluation of some of the conventions reserved to the conception of emptiness in documentary and art essayistic films rests on the idea of the palimpsest-image as a mediator between history and imagination, material reality and boundlessness expression.



3. Alain Resnais, *Reperages*. “Rue de Nevers: arrive des personnages dans les décors vides de l’espace dramatique”

Paper



4. Jan Kempenaers, *Spomenik*



5. Miguel Machado, *Novi* (2012-2015)

6. Theo Angelopoulos, *Ulysses Gaze* – imagined orchestra in the mist of Sarajevo



Footnotes

¹ Resnais, Alain; Semprún, Jorge. *Repérages*. Éditions du Chêne, 1974.

² Wilson, Emma. *Alain Resnais*, Manchester University Press, 2006.

³ Introduction by Semprún in *Resnais, Alain; Semprún, Jorge. Repérages*. Éditions du Chêne, 1974.

⁴ Campany, David. *On the hoof and shooting from the hip – Another London in Tate Etc. issue 25*, 2012

⁵ Brunsdon, Charlotte. *Towards a History of Empty Spaces in Koeck, Richard; Roberts, Les(ed). The city and the moving image: Urban Projections*. Palgrave, 2000

⁶ *Id.*

⁷ Leary, John Patrick. *Detroitism in Guernica Magazine*, 2011.

⁸ *Id.*

⁹ The concept of “*décadrages*” (deframing) was theorized by Pascal Bonitzer in his book “*Decadrages*” (1985), and refers to disjointed, fragmented planes placed in the borders of the frame that mix off-screen space with point of view. Filmmakers such as Straub-Huillet, Duras and Antonioni used these “unusual and unfulfilled framings” as a way to instigate a non-narrative film suspense.

¹⁰ Moure, Jose. *Vers une esthétique du vide au cinéma*. Editions L’Harmattan, 1997. P. 8-9, my translation

¹¹ “*Camera-stylo*” was a term coined by French critic Alexandre Astruc in 1948: “I would like to call this new age of cinema the age of camera-stylo (camera-pen). This metaphor has a very precise sense. By it I mean that the cinema will gradually break free from the tyranny of what is visual, from the image for its own sake, from the immediate and concrete demands of the narrative, to become a means of writing just as flexible and subtle as written language.”

¹² The last years have seen the publication of significant amount of photographic books on this trend: Bežjak, Roman. *Socialist Modernism*. Hatje Cantz, 2011; Chaubin, Frédéric. *Cosmic Communist Constructions Photographed*. Taschen, 2011; Kempenaers, Jan. *Spomenik*. Roma publications, 2010; Linke, Armin; Weiss, Srdjan Jovanovic. *Socialist Architecture: The Vanishing Act*. JRP|Ringier, 2012. Pare, Richard. *Lost Vanguard: Russian Modernist Architecture 1922-1932*. The Monacelli Press, 2007, Vienna Centre of Architecture. *Soviet Modernism 1955-1991: Unknown History*. Park Books, 2013.

¹³ Kempenaers, Jan. *Spomenik*. Roma publications, 2010

¹⁴ Kulic, Vladimir; Mrduljas, Maroje; Thaler, Wolfgang; *Modernism In-Between: The Mediatory Architectures of Socialist Yugoslavia*. Jovis, 2012; p.16

¹⁵ *Id.* p.24.

¹⁶ The Great Schism of 1054 between the Eastern Orthodox and Roman Catholic Church and the later Islamization of some parts of the Slavic population during Ottoman rule contributed to the existence of three different religions

¹⁷ *With Eternity and a Day* (1998), these three films are generally considered a trilogy of the borders, roughly resonating the alterations of the Balkan region.

¹⁸ Roberts, Les. *Non-places in the mist: mapping the spatial turn in Theo Angelopoulos’s Peripatetic Modernism* in Wendy Ellen Everett, Axel Goodbody(ed). *Revisiting Space: Space and Place in European Cinema*. Peter Lang Pub Inc, 1 edition (31 May 2005)

¹⁹ Horton, Andrew. *The films of Theo Angelopoulos: a cinema of contemplation*. Princeton University Press, 1999. p.189

The know-how of an unconventional art biennale

The making of OFF-Biennale Budapest

The OFF-Biennale Budapest has come to life as a large-scale international art event and exhibition series; however its significance goes beyond the realms and infrastructure of contemporary fine art. By looking through the process of organizing such an event for the first time and revealing the specificities of the local and the regional post-communist condition this paper aims at introducing OFF as a long-term research project rather than a simple large-scale event. It explores the political potential of the biennale as an enactment of democracy by citizens, by actors of the cultural sector. As a micro-political act OFF can be understood as a performative approach that aims at reflecting on the very recent cultural changes of Hungary, and offers a possible new approach to readdress the emergent cultural-political issues.

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1. Making a statement

The first edition of the OFF-Biennale Budapest was realized between 24 April and 31 May 2015 in and beyond the city of Budapest. It included more than 160 projects, 300 artists, 180 events, 130 venues, and 600 stakeholders (artists, curators, gallerists, organizers, cultural workers, supporters etc.) and drew more than 35.000 visitors. ¹ Its significance however goes far beyond the realms of numbers, names, facts and formats. It signals the moment when the cursor finally does not blink on the top-left corner of a blank page, but rather at the end of the first chapter – that might took way too long to write and rewrite, but it is finally finished and ready to be followed by many more. OFF has come to life as a reaction to a complex set of problems, as an active and affirmative answer to all the questions that now – with the support of a living, breathing cultural network – can finally be asked properly. The origin of the aforementioned set of problems lie somewhere in the political transition moment – in the non-violent revolution – of 1989 and in the fact that democracy as basic political and social principle got build upon a false, instable ground during the transition process from the autocratic environment of communism to a new system that is based on democratic values. In the case of Hungary, the last two decades of the communist era was characterized by an unusual mixture of ideologies, namely classical Marxism-Leninism and some basic elements of liberal democracy (such as free market economics and recognition of human rights). ² Therefore the moment when Cold War ended, and the ideological and actual Iron Curtain fall down was not perceived as a watershed moment in the eye of the Hungarian state / nation. What it resulted is rather a confusion, an ideological uncertainty on political as well as on cultural level. The political and economic changes – free elections, Western-style multiparty system, and capitalist market economy – that got re-introduced and re-established in the course of the 1990s seemed positive enough to give grounds for general optimism. However, as it became evident from today's perspective, the relationship between the people and the

power has not changed significantly; what was previously seen as the working class – Communist Part / State interdependence has simply got translated into new terms, such as civil citizenship and democratic governance. The relationship between the two – to some extent – remained the same; the majority of the society still looks at the government as an autocratic authority that leads the nation, forgetting the basic principles of the democratic state system. In the arts / cultural sphere this phenomenon translates as an almost absolute dependence on governmental funding within the institutions as well as in “independent” artistic practices.

The 1990s in Hungary is generally described as a moment of philosophical and cultural vacuum (Tatai, 2003) caused by the disjunction of (1) the ideological remnants of the communist / Soviet era, (2) the misconception of (liberal) democracy, and (3) the novelty of globalisation that was slowly getting introduced as a phenomenon to the former Eastern bloc. During this period contemporary fine art mostly happened either in state funded institutions (major state museums, smaller galleries / cultural centres funded by regional governments) or in the very few private galleries that got established around 1989-1990 (Szoboszlai, 2002). The infrastructure of contemporary art discourse – we now know as such – only started to take shape around 2005. Up until then most of the institutions were operating individually, without any significant effort to contextualize their existence and program. Moreover, the major principle of contemporary culture around this time was instability; it allowed to squat buildings that are out of use and organize experimental art events, exhibitions, performances in them, as well as it allowed artists to be their own curators and not to care about art market. ³

As the Western influence – which, in the case of Hungary derived from three Western foundations: the Soros Foundation, Ludwig Foundation for Arts and International Understanding and the ERSTE

Foundation – became stronger and stronger by the end of the 1990s, beginning of the 2000s, a number of important institutions and initiatives got launched: the Ludwig Museum – Museum of Contemporary Art, the curatorial program of the Hungarian Academy of Fine Arts, tranzit.hu, white cube galleries, etc. (Erhardt, 2014). The primary objective of these institutions was to contextualize the Hungarian local scene and introduce it to the global network. With joining the European Union in 2004 it all seemed possible, however, the global financial crisis of 2008 and the ever increasing power of conservative right-wing politics slowly led the country into an isolationist, ethno-nationalist, authoritarian state, which since 2010 aggressively invades into the field of culture and art. By 2013 this right-wing FIDESZ government, supported by a New Constitution (Basic Law) that took effect on January 1, 2012, managed to rearrange the power positions within the field. It put into power an ultraconservative civil art initiation (Magyar Művészeti Akadémia / Hungarian Art Academy, in the followings: MMA), who became a kind of “shadow ministry” in regard to cultural (and funding) decisions (András, 2013). It also successfully changed the directors of, among other institutions, the National Theatre and the Ludwig Museum. Therefore, 2013 became the year of changes. Changes, that were imposed on the scene without any possibility to debate, but also, changes that were triggered within the scene exactly by this frustration. Civil protests in and in front of museums (occupying the stairs of Ludwig Museum, Outer Space project in front of Műcsarnok / Kunsthalle Budapest), public art statements, counter-monuments (Eleven Emlékmű / Living Memorial) all were formulated in 2012-13 as direct reaction to specific governmental decisions.

OFF-Biennale took one strategic step further from direct protesting and by simply creating a creative environment for dialogue as well as for building up something new, something unexpected using the language and methods of the cultural scene itself, made a clear statement.

2. Making the research

The idea of the biennale was born in the autumn of 2013. It was Hajnalka Somogyi independent curator, former curator of the Ludwig Museum – Museum of Contemporary Art Budapest who introduced it to some colleagues of her - those, who later on formed the curatorial team of the biennale (Nikolett Erőss, Anna Juhász, Hajnalka Somogyi, Tijana Stepanovic, Borbála Szalai, Katalin Székely, János Szoboszlai). Most of them, similarly to Somogyi, were former curators of the Ludwig Museum, members of the team that had left the institution after the scandal over the new directorship. Their collective endeavour therefore can also be interpreted as a political act, a stand that brings the relationship between culture and politics to another level where it can finally address the “post-communist condition” (Groys, 2008).

In order to understand this post-1989, transition condition better Elzbieta Matynia suggest performativity as a dimension of democracy for closer consideration. In her understanding performative democracy is a practice that reduces the distance between elected representatives and the people, and brings the people themselves closer to each other – which as a tendency can be traceable in Poland already in the 1980s (Matynia, 2009). Unfortunately in Hungary this kind of practice of democracy – which I would say comes only after understanding the real nature of democracy – became visible in 2013. It appeared for instance as an event series at tranzit.hu (Action days), and as a public art endeavour (Living Memorial) – both built upon the basic democratic principles, such as collective agency, forum format, freedom of speech, etc. For OFF, these projects served as examples, methods for focusing on how to unlearn personal preconceptions while forming a performative togetherness.

During the preparation phase of the project the ever growing collective of civil supporters, activist, and volunteers of the biennale gathered together monthly at various alternative locations (artist-run spaces, theatre places) over Budapest, not only to discuss the practicalities of the biennale itself, but also to get to know each other and learn from each other through workshops, debates, and talks. These preliminary forums brought together different generations and players of various areas, even people who never worked together before,

similarly to the public editorial meetings organized by the large-scale international research project FORMER WEST. One of the main aims of the biennale already got manifested during these forums; they served as a catalyst for change, for rethinking financing, communication, and working methods. From the very beginning it was clear that the project will not apply for state funding and will not organize any events at state-funded institutions, which was a very unusual undertaking. ⁴ It aimed at creating an off-network that operates from the bottom-up, outside of the already existing institutional realms.

“Off suggests a dimension of time and human action that is unusual or potentially off-putting and embarrassing. It either describes something too spontaneous (off the cuff, off-handed, off the record) or too edgy (off the wall), verging on the obscene (off color) or not in synch with the pace (off beat). “Off” is about life caught unawares. It is extemporaneous and humane.” (Boyme, n/y)

As part of the learning process the biennale was open for various contributions proposed by curators, organizers, NGOs, art spaces and collectives; there was no central curator or central theme, unlike at most of the traditional biennales. Even though the curatorial team itself also put together a project entitled Check Your Head!, it was only seen as one of the many contributions rather than a main curatorial statement. The team invited artists from Hungary and from the Central Eastern European region (Anca Benera, Arnold Estefan, Ágnes Eperjesi, Petra Feriancová, Kendell Geers, Little Warsaw, Eva Kotátková, Svätopluk Mikyta, Mladen Miljanović, Ivan Moudov, Dan Perjovschi, János Sugár, Tomáš Váněk) to investigate artistic positions that intend to develop an intimate and engaged relationship with the audience, while working with very limited material means. Some of the key terms of these contributions were powerlessness, vulnerable, resistance, affirmative, homo viator, occupation and participation.

Besides these invitations the organizers put together an open call for further projects, to which more than 160 responses have arrived. The proposed projects became independent in a sense that the project leader was solely responsible for the production and implementation of their own project, however with having the network created

through the forums and through online platforms (tumblr, facebook, share banking) as a safety-net the projects could receive help from many directions.

3. Making it happen

The final biennale was realized between 24 April and 31 May 2015, starting with a long weekend of exhibition openings, performances, pop-up events and parties. Budapest was full of biennale-affiliated events that all took part in an experiment in social empowerment and alternative institutional organization. The former hypothesis according to which culture can happen outside of the familiar institutional realms became a strong statement already during the opening few days.

The whole event series started with János Sugár's symbolic Fire in the museum fire-project that was imagined to keep alive continuously for the entire duration of the biennale. Many of the projects reacted directly to the current Hungarian political and social context, such as Dan Perjovschi's OFF drawing (on a window of a café / theatre place), in which he playfully but critically comments on local and global politics as well as on the identity crisis of the Central Eastern European artists. Mladen Miljanović, in his large scale painting entitled Operation Hungary creates a map of potential routes of “art occupations” towards Hungary, while the Horizontal Standing group exhibition organized in a private apartment deals with the burning topic of migration. The workshop When powerlessness becomes form workshop run by Anca Benera & Arnold Estefan examines Kopjafa (traditional Szekler funeral pillars in Transylvania), the explicit right wing symbol in Hungary as a means of re-thinking visual representation of those marginalised, expelled, oppressed social groups by the actual government. In Ágnes Eperjesi's Words of Power project that deals with the impact of political speech, a selection of speeches (originally of foreign politicians in power) are performed / read out in the Parliament by Hungarian politicians.

The biennale has received increased international, regional interest, as it became a model for large-scale art events that aim to focus on social and

political issues. Similarly to the Tbilisi Triennale, OFF carries with it the promise of possibilities, of change, which is of vital importance in a socially, politically and culturally instable state such as Hungary. It proved that civil sphere can and should be motivated to change and to practice democracy, because it can lead us to a more optimistic contemporary art scene and overall, a more optimistic contemporary life.

Footnotes

¹ *Data from the official website of the biennale. Retrieved June 30, 2015, from <http://offbiennale.hu/en/>.*

² *This period of Hungarian communism is known locally as Goulash Communism – referring to the famous Hungarian dish goulash that is a mixture of various ingredients – or Kadarism – after the General Secretary of the Hungarian Socialist Workers' Party, János Kádár (1956-1988).*

³ *For example in the case of the so-called Újlak Group, that borrowed its name from a ruined movie theatre of Budapest they used as an exhibition space from 1989 to 1995. For further details see: <http://www.c3.hu/~ligal/tk03.html#eng>*

⁴ *Most of the financial support was received from private investors (mostly art collectors) and after successful applications to funding organizations such as the Norwegian Grants, ERSTE Stiftung, and Open Society Foundations, etc. The curatorial team and all volunteers worked on the project pro bono.*

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P3

**Knowing in
Practice Research**

Reflections on a Future Practice

Towards a speculative model of practice based research for early career practitioners in architecture and design

Over the past 25 years the 'reflective practice' mode has become the preeminent model of practice based research, shifting from a radically innovative paradigm, to a more established framework that is being tested through the higher degree programs at various institutions around the world.

Through this research pathway a practitioner engages in a rigorous examination of their practice after first having established a 'mastery' of the discipline in which they operate. This model effectively excludes the contributions of those who are in the process of developing their careers.

Where previously young practitioners may have been obliged to set aside their creative practice in order to undertake academic research, the expectation of the current generation of early career practitioners is that the 'practice based' model is the pathway through which higher degree research in the creative fields should be undertaken.

While various hybrid models have been discussed as a framework, the method through which this might be achieved not yet fully articulated. This paper explores the ways through which an emerging practice might be investigated, and begin to speculate on the ways in which early career practitioners might offer meaningful contributions to the field of creative practice research.

Keywords:

Practice Based Research; Early Career Practitioners; Architecture; Design.

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1. Introduction

As an emerging field, creative practice research is in a constant process of evolution and unfolding. Recent theoretical shifts across a number of discipline areas, including the sciences, humanities, as well as the creative arts and design has resulted in a turn towards the privileging of practice as the mechanism through which one might begin to understand and disseminate knowledge. The means and methods through which the approaches and outcomes of creative production can be tested are still being developed. As a consequence, much of the early work in the examination of how creative practitioners operate has been centred on the development of an evidence base that, in effect, serves to demonstrate the legitimacy of the approach.

Towards this end, the origins of the practice based research model, particularly within the fields of architecture and design, have focused on examining the work of significant or established practitioners, whose body of work has already been identified as being outstanding by their peers. In this context, creative practice research operates as a model of explication - through which the 'raw' contents of practice are examined, unpacked and distilled, and through which a contribution to knowledge can be identified.

The challenge with this approach lies in the fact that it relies upon an established body of work to be evidenced at the commencement of the research. This effectively excludes the contribution of those who have not yet been recognised or are in the process of developing a body of work. Moreover, while ongoing production of work is necessary for the effective testing of any creative practice research, a purely reflective model prevents the research from using the production of new work as the primary tool through which the practice is understood.

If a practice based approach to learning is defined as learning through the doing of work, it seems logical that the field of creative practice research

should allow for a model of investigation through speculative production. This paper will examine the context and structures of practice based research and, through a series of case studies of early career practitioners, will consider the methods through which the practice based PhD might operate and enable a future practice.

2. The Reflective Practice Model in Architecture and Design

As a mode of degree by reflective practice has been in place for more than 25 years, during which time it has grown from a radically innovative paradigm to a more established framework that is being tested through research programs at various institutions around the world. In Australia, the model has been in operation since 1991 and the formation of the Masters of Architecture by Project program at RMIT University. Through the first ten years of the program and leading into the first incarnations of the PhD, significant practitioners who had 'already established a significant body of work (were) invited to examine their practice reflectively.' (van Schaik, 1993, p.11) These practitioners had been identified as having established a 'master' of the discipline in which they operate – mastery being established through the recognition of one's peers, awards, and in the case of architecture, the building of buildings.

'They sift through the evidence that their achievements to date afford....and are engaged in the editing and focusing of the work of the material that informs the work and gives it its communicative power.' (van Schaik, 1993, pp. 11-1)

Through this structure the presence of a contribution is evidenced through the significance of the work and the role of the research becomes, in effect, the dissemination and explication of the work, as well as the location of its significance

amid a broader field of practice. The practitioner must continue to practice through the undertaking of the research, indeed it is often suggested to new candidates that their research should be allocated a 'job number' or a 'project folder' in their office, however this is less as a 'proof' of the ideas extracted through the reflection as it is a means of active reflection. The challenge is to work as close to the medium itself, and in order to do so the designer must reflect through the doing of the work – hovering in and around the act - a practising of practice.

(Fig. 1).

The outcomes of these investigations are not generalised or generalizable knowledge, but are instead highly specific observations about the way in which individual practices operate in one or a number of specific domains.

3. The Reflective Practice Model and Early Career Research

The current generation of emerging practitioners and practitioner academics have been educated to view creative practice as a form of applied research. Those commencing degrees in the late 1990s and early 2000s received their formal training in architecture entirely following the establishment of practice based frameworks for design research and education. This group is now entering the productive phase of their careers. With a level of mastery established through working for others, the next phase is to move into positions of leadership, both through the establishment of independent practices, key roles within design industries and academia. Where previously young practitioners may have been obliged to set aside their creative practice in order to undertake academic research, the expectation is that the 'practice based' model is the pathway through which higher degree research in the creative fields should be undertaken.

The challenge herein lies in the fact that there is a fundamental problem with the reflective practice

model as it relates to early career researchers. The model relies on a significant body of work to be present at the commencement of the research to form the basis of the reflection and subsequent speculation. An early career researcher that is in the process of developing a practice and does not have a significant archive of material to evidence it will struggle to sustain a prolonged in depth reflective investigation of their portfolio.

While various hybrid models have been discussed as a framework, the method through which this might be achieved has not yet been fully articulated. For obvious reasons the reflective practice mode is not appropriate for those still in the process of establishing their creative project, however other models such as the quasi scientific 'research degree by project' fail to grasp the multivalent characteristic of design work, instead focusing the researcher on a singular abstracted research question.

The academy has long supported emerging practices, through teaching positions that enable experimentation through a design position and, in the process, providing the financial and other support structures to enable the development of new practices.

As early career practitioners have begun to undertake the reflective practice model, what has emerged has been a hybrid or mutation of the reflective practice model, in which the reflection through the existing body of work is deprioritised, and instead of forming an evidence base of a contribution, becomes the departure point for a series of sustained speculative investigations.

4. Case Studies in Early Career Practice Based Research

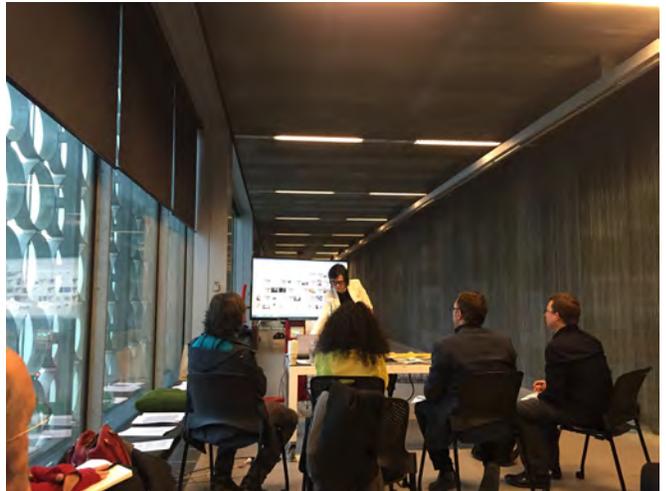
In the absence of the broad body of work to develop conclusions through, the PhD becomes a hybrid speculative model in which the reflections on a nascent body of work become the framework or armature that supports a series of speculations, that in effect seek to choreograph or 'set-up' a future practice.



1. On-going reflective work is shared and reviewed by peers at regular intervals during the candidature (John Doyle)

2. Amy Muir presenting her work at the PRS Melbourne in June 2015

3. The Law Street House (Muir Mendes / Peter Bennets)



Paper



To describe this in more detail it is necessary to look more closely at a number of specific examples of early career practitioners, unpacking their practices and charting their trajectories into and through the PhD process.

These case studies are based on a mixture of interviews and observations of specific individuals and their practices. This includes a practice at the commencement of the PhD process and one approaching completion. While the candidates are both architects, they are each quite distinct in the type of practice in which they are engaged. The method by which this has been undertaken makes no pretence of 'scientific' measurability, but rather makes use of the tools of creative practice research – a reflexive process of observation, reflection and speculative production – evidenced through this document.

5. Commencing Candidate – Amy Muir

Amy Muir is a Melbourne based architect and academic, who was accepted into the PhD by practice at RMIT University in early 2015. Muir is the director of Muir Mendes, an emerging Melbourne architecture practice that has been operation for less than 5 years, but has achieved considerable recognition with a number of exquisitely crafted small projects – in particular the Law Street House which was a self-built house that took almost 5 years and was completed in 2011. Muir was a graduate of RMIT's architecture program, and developed a design studio teaching practice over a period of years before taking up a permanent role as a practitioner academic at RMIT in 2014.

(Fig. 2).

Muir's practice forms an interesting and poignant example of the relevance of the practice based PhD in that its output, both through the design work and the teaching practice, is defined by a singular and (arguably) intuitive vision that is at once highly recognisable, yet at the same time slippery and difficult to pin-down. There is something present that haunts the work, that

resists description in generalities; that is highly particular and firmly embedded in the design act itself, and the sensibility that supports it. Presumably critical frameworks could be applied to explain the theoretical significance of the work, however there is simply no way to really understand the implicit knowledge deployed in the doing of the work, other than a practice based exploration.

While the work is clearly 'significant' and has been recognised by a peer group through awards and publication, as a young practice, to fully flesh out a position the practice must be explored through a projective approach that allows the researcher to explore the act of design, in detail, through the doing of it. With an intuitive practice such as this it is challenging to identify mechanisms through which the practice might be projected. It is not possible to complete a large body of architectural work during the period of a normal candidature (three to six years). Moreover, it is debatable as to whether the artifice of a manufactured research 'esquisse' captures the richness of a full architectural design project.

In discussing this problem and her ambitions for the PhD process, Muir describes the idea of producing a series of speculative touchstones for her practice.

"There's an opportunity in the PhD to be doing something that isn't necessarily been practice, so to speak, which is a (physical) expression of those processes that are happening in a more abstract version."(Muir, 2015)

Muir describes the journey through initial stages of her reflection as being one of rediscovery, in which she uncovered a series of key images, references and ideas, that date as far back as 20 years to her Interior Design studies, and that still resonate in the design sensibility today. The PhD forms an opportunity to further expand this library of "small little descriptions," to become the fuel that reinvigorates and propels the practice forward. As an example of this, Muir describes a preoccupation with techniques of photo montage, which she has used through both her design and teaching practice as device of experimentation and production. The PhD forms an opportunity to expand on experiment in this technique through a series of speculative esquisses that focus

exclusively on the medium.

(Fig. 3).

This process is somewhat analogous to the manner in which her architectural practice was forged. Almost 5 years spent on site crafting her own house at Law St (Figure 3) has imbued the practice with a strong fascination with manners of making, and a self-initiated and hands-on sensibility. In a very direct way, the structure of the PhD Muir describes represents a peeling back of the ‘cladding’ of her practice, to reveal the bones of what structures and organises how she works. These series of speculative projects seek to unpack her process of design – not by reducing the act to a series of gestures or steps, but rather an exposure of the devices, moulds, frames (both conceptual and actual) that shape the decisions made through the act of design.

It is arguable that the explication and expansion of the nascent body of work, that has received strong peer review, will form the basis of a valuable contribution to knowledge. In this case, the speculative production of ‘touchstones’ that seek to expand upon the act of design as a series of armatures of design production, forms a projective method of explicating the implicit ‘know-how’ of the designer, which refers to, but ultimately projects beyond an existing body of work.

6. Completing Candidate – Natalie Robinson

Natalie Robinson is in process of completing her PhD research, with her examination due to be held in October 2015. She is a practising architect, with a nascent specialisation in the design of educational spaces and schools. Her pathway into and through the PhD has been different to many practice based research candidates. Robinson has spent several years working in larger architecture firms and was heavily involved in the ‘Building Education Revolution’ – an Australian Government initiative to upgrade the design and quality of primary and secondary school infrastructure. In 2011 Robinson commenced a

practice based PhD as a means of interrogating what knowledge had been gained through her practice of schools design, and a way of setting up further opportunities to work, research and teach in this area.

The challenge for Robinson wasn’t so much the development of techniques for testing her practice, but rather the establishment and definition of the practice itself. While there was obviously a sustained investigation of a particular area and a mastery of this, her work had been carried out across a variety of practices, taking in a multitude of different consultants, specialists, client groups and other actors, and it was unclear what her role through this might be. As such, the first period of the candidature was spent reflecting on the ideas and processes undertaken in her body of work, but more importantly, mapping the structures, collaborators and organisations that form her practice.

“When I reflected on all these projects, I started looking at the relationship between the collaborators, I was trying to identify were there certain things that were effecting the outcomes of the projects....There seemed to be three key relationships – between the school community, the education pedagogy and the architect, and there were specific things that each of these parties needed to do, and then it was about the relationship between the different parties and how they balanced and worked together. And this then became the basis for the PhD.” (Robinson, 2015)

This network mapping becomes a speculative site of practice. Whereas an established practitioner or practice would be able to document, in a direct fashion, these kinds of relationships that are internal to the practice, with early career practitioners such as Robinson, the site of practice is largely virtual. As such, it is necessary to establish a design ‘agency’ formed of the critical questions and relationships of a practice network, an agency that then becomes the core focus of the investigation. By projecting these concerns onto a separate agent, it is possible to use the reflective component of the PhD to ‘project’ a virtual practice, which then becomes an armature for speculation through the remainder of the research.

In place of a 'significant' body of work, this construct enables the research to proceed in a speculative mode. Through Robinson's candidature, what followed the establishment of the practice was a series of iterative testings of this framework through both the work she'd undertaken prior to commencement, through key precedent projects in the field of educational design – in particular projects at Dandenong High School and the Bendigo Regeneration Project. Through this process an operative question was developed, that identified the role that architecture might play within this particular space, and through an examination of a community of practice operating in the field, formed a propositional statement about the practice that could be tested through design.

The final period of the PhD was spent undertaking a speculative design project that sought to test the limits of this proposition. In order to establish a project, Robinson directly approached Sandringham College, a Melbourne school. Working with the school she developed a series of masterplanning and regeneration projects, which emerged through a series of interactive workshops and exchanges, including teaching a cohort of Masters level architecture students in a design studio project into the school. Through these exchanges it became clear that the contribution of the practice was in proto-typing these processes as a series of critical structures that enable meaningful design interaction between the actors present in the design of schools – a fact reiterated by the later adoption of these processes in briefing a government appointed architect.

(Fig. 4).

The risk with a speculative project is that it becomes an artifice that is detached from the day to day doing of the work. In the case of Robinson, if she'd simply picked a site and proposed to design a hypothetical school, the project would have entirely missed the point of the research. Instead by engaging a school in a protracted process of briefing, through which a series of speculative design tools (figure 4) were employed as communicative devices, she was able to use the project as a mechanism to draw out the moment of design, and through this distil a series

of principles inherent in her working method that form the basis of a contribution to knowledge.

In this sense the doing of the PhD forms not only a series of armatures that define and propel the practice, but clearly demonstrate an articulation of a particular know-how, latent in the designer and representing a significant contribution to a particularly 'real' and concrete challenge in the practice of architecture. Moreover, it is arguable that it is in the projection beyond the known that this knowledge is uncovered.

7. Armatures of future practices: reflections and a speculation

In writing this text it is often difficult to distinguish between the processes and ideas proposed, and those of the more established reflective practice model – other than the relative age and experience of the candidates investigated. The model proposed is very much a hybrid or mutation of the existing model, drawing on its careful reflection through the work.

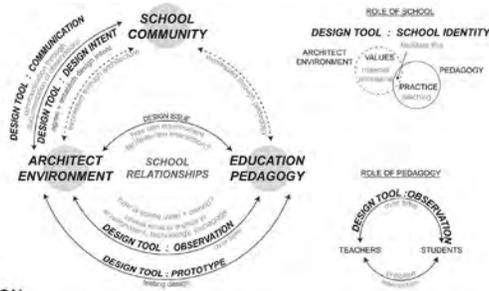
While the difference may be subtle, it is the emphasis of the projective nature of an early career practice based research project that is critical. In order to expand upon a limited body of work, the research must draw upon the reflection on the work as a framework for a series of speculations, through creative practice. These speculations must not be external to the candidate's practice 'project,' but rather an extension of it – a projection of what already exists.

Through both practitioners described above, these speculations have taken the form of devices, processes and proto-types, which are not necessarily themselves design products, but rather are infrastructures of design production – that are themselves tested through the design of complete works.

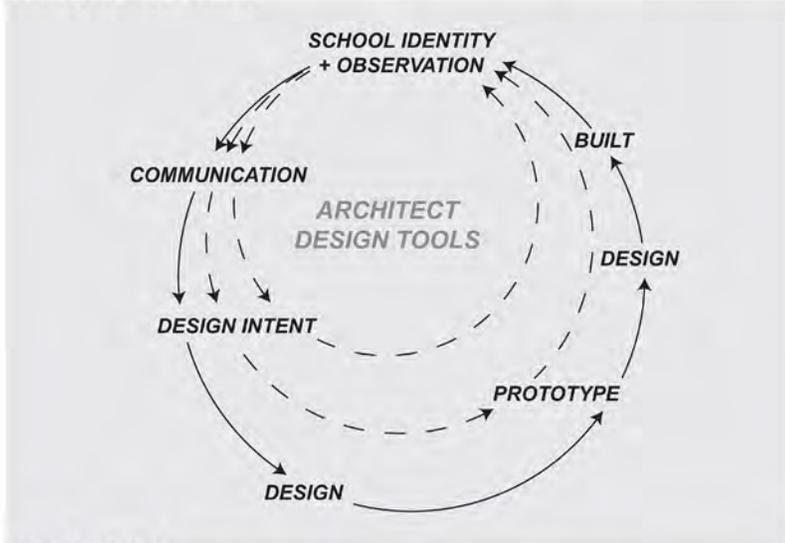
In this way these devices form an armature for future practice, as both a distilling down and an amplification of an existing practical knowledge. Moreover it is in this projection that a contribution to knowledge can be identified. If the field of

practice based research has been principally been preoccupied with identifying evidence, the speculative model of research is one whereby the contribution of the work is demonstrated directly through the doing of the work itself.

ROLE OF ARCHITECT
 DESIGN TOOLS
 SCHOOL IDENTITY
 OBSERVATION
 COMMUNICATION
 DESIGN INTENT
 PROTOTYPE



DESIGN TOOL IDENTIFICATION



4. Panel from the completion seminar illustrating the design tools as a contribution to knowledge (Natalie Robinson)

Paper

DESIGN TOOL LOOP



ARCHITECTURE DESIGN TOOLS

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“ADAPT-R FRAMEWORK”

Each ADAPT-r Artefact is the result of a research making process. The ADAPT-r Framework plays the role of catalyst for further discussion to find new paths in CPR. The ADAPT-r Framework Exhibition is a collective idea which arose through discussions between creative practice researchers during the Adapt-r Days research events in London (January 2015) and then in Brussels (February 2015). It comes from a necessity to communicate and share the knowledge developed through the PhD by Practice and the postdoctoral research into creative practice undertaken within the aegis of the ADAPT-r network.

The main objectives are:

- Communicate and share the knowledge of the research works through the embodiment of ‘making research’ in the artefacts, and the further explication of ‘researching making’ in the accompanying texts
- Put ‘in dialogue’ the different research works.
- Reflect and communicate the relationships and connections between different means and approaches of making creative practice research
- Bring together researchers usually ‘isolated’ in their own research work, in the making and dissemination of a common research exhibit
- Consolidate through the exhibition a network among ESR and ER researchers

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with: Alice Casey, Michael Corr, Cian Degan, Marti Franch Battlori, Eric Guibert, Karin Helms, Gitte Juul, Sam Kebbell, Ana Krec, Steve Larkin, Irene Prieler, Valentina Signore, Siv Helene Stangeland

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Keywords:

Creative Practice Research; Artefact; Research catalyst, Community of Research.

On not knowing how to make

Creative practice research necessarily involves attempts to explicate the role of silent, embodied knowledge in the research process (Gray & Malins, 2004; de Freitas, 2002; MacLeod, 2000). Finding words - and indeed images - for that which is known through the hands of makers, and its influence on shaping the design of the research presents several challenges. Using examples from my doctoral research, this paper explores how, as a practitioner-researcher, I approached bridging this gap between implicit and explicit knowledge and maps out my development from a “taciturn” practitioner (Igoe, 2010) to a self-aware, articulate researcher. I detail three examples that highlight critical turning points in my research journey in order to demonstrate the influence of my embodied knowledge on the research process. I conclude that in my view this emphasizes the importance of the body as a site of knowledge generation that to some extent renders objects and texts inadequate as containers for this experiential knowledge, but raises questions for researchers concerning the documentation and dissemination of sensation and experience.

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Keywords:

Embodied knowledge; Research design; Research process; Emotions; Sensations; Articulation.

1. Introduction

As an experienced textile maker and trained designer, I take it for granted that I know how to shape and transform material, but because I am usually paying attention to what is happening at the end of my fingertips – responding to the resistance of materials and adjusting the pressure or position of my tools – I am not necessarily questioning how I know this, nor what the implications of this knowledge might be more broadly.

My practice-led PhD examined the contemporary relevance of hand-stitching skills in social contexts. Working with the premise that skilled hand-stitching concerns more than technical ability, I explored the correlation between the nature of embodied knowledge acquired and practised through the rhythms and patterns of skilled hand-stitching, and the crafting of mutuality and cooperation acquired and practised through participation in collective making. The focus of the research concerned the dynamic relationship between practical skill, the body and its proximity to tools, materials and other people during actual experiences of making.

The research took its direction from the principle that knowledge of the material world and the relationships we make in it and with it is understood foremost through manipulation and active engagement; that this kind of knowledge is not handed down through texts but emerges from experience, and that theoretical understanding follows (Gray & Burnett, 2007). In line with this approach my principal research methods involved working directly on a series of hand-stitching projects and activities with other people in a variety of settings, combined with close observation of these experiences and recorded conversations with participants.

I draw here on three examples of activities undertaken in the course of the research. I begin with my observation of skilled stitchers in a patchwork-quilting group and my use of video to refine the focus of the research question.

My second example discusses hand-stitching workshops devised specifically to explore themes concerning the perception of this knowledge and reveals the different expectations participants have from this knowledge. Finally, having identified a gap in my own knowledge – that I couldn't know what it felt like not to know how to stitch - I explore the frustration and clumsiness of not knowing how to make.

2. Making and knowing in creative practice research

The broader context of this discussion is the relationship between making and knowing, and the central importance of this to practice research in the creative arts, particularly as the field grows and demands greater precision in order to define its critical boundaries.

It has been argued in the past that the voices and experiences of practitioners and their making processes as sites or events of knowledge generation have often been absent from academic debates because the essence of their activity is to make things, not to discuss their making. Craft critic Peter Dormer explains a possible reason for this writing that “this knowledge is expanded and its values demonstrated and tested, not through language but through practice” (Dormer, 1997, p. 219). An exception to this is David Pye's analysis of the workmanship of woodcarving (Pye, 1995 [1968]). His detailed exploration of the nuances and specificities of handling tools in his particular craft practice introduced the now well-cited concept of “the workmanship of risk”, a term used widely to describe the recognizable difference between the processes involved in crafted and mass-produced products.

More recently, the disembodied nature of the anti-haptic experiences of screen technologies that infiltrate our daily routines in the home and

the workplace has provoked a revived fascination with hands-on making (Clayton, 2010) and consequently an increased attention is being paid to the knowledge embodied in hand-eye-mind coordination. This is not restricted to the creative arts disciplines. Notably sociologist Richard Sennett draws on his close observation of the tacit knowledge of skilled hands and bodies, to explore ideas about citizenship and community cooperation suggesting political and social implications (Sennett, 2008; 2012). In the field of anthropology, Tim Ingold explores the development of skilled practices in relation with materials and the environment, and the influence of these behaviours or actions on abstract reasoning; of making as thinking (Ingold, 2000; 2011; 2013). Trained as an architect, anthropologist Trevor Marchand's extensive fieldwork explores the on-site embodied learning of practical skills through his own apprenticeship to building (Marchand, 2001; 2009) and fine woodwork trades (Marchand, 2010) in his research into the cultural value of knowledge in practice and the learning of manual skills.

I believe it is therefore important to find ways to demystify the processes of making, and in particular articulate how the knowledge is generated so as not to lose sight of the important contribution creative practice research makes to the wider academic research community.

However, the creative practice research community encompasses many different approaches to undertaking research and the different disciplines under this broad heading each prioritize different perspectives and purposes for their particular types of making and knowing. My own field of Textiles, according to Elaine Igoe, has so far been particularly silent: "The paucity of academic writing concerned with the idiosyncrasies of the textile design discipline marks it out as taciturn in comparison to those disciplines of design that have been instrumental in the emergence of design research over the past five decades" (Igoe, 2010, p. 2). Igoe takes up this challenge. Borrowing the term "taciturn" from Dormer (1994, p. 15) she uses the concept as a starting point from which to begin articulating the usually silent knowledge embedded in a textile design practice and to explore the epistemological specificities of

Textiles as a sub-division of design practices. She emphasizes that "[o]ne challenge to overcome when attempting to discover the distinguishing features of the textile design sub-discipline is the requirement to make explicit the tacit knowledge closely shared amongst the textile 'disciples' " (Igoe, 2010, p 9). One such example is Rachel Philpott's research into deployable three-dimensional textile surfaces (Philpott, 2012). Although her works involve both hand-making and CAD/CAM technologies in their production, she highlights the significance to the development of her research project of using her hands. The sense of touch and the embodied knowledge generated through handling, manipulating and folding materials is integral to the thinking process of textile designers. Another is Nithikul Nimkulrat's work with paper string exploring the influence of the expressive qualities of material on the production of artworks within a textile practice (Nimkulrat, 2009).

Attention is being given to the intelligence of thinking evident in practical, embodied knowledge, and clearer definitions of how this knowledge is formed are emerging. Nevertheless, in my own experience of attempting to articulate the embodied knowledge of hand-stitching practices I found that not knowing how to make things was also an important factor in determining the nature of my particular type of practical knowledge and the value of the body itself as a tool of research.

3. Example One - Using video: defining a critical perspective

One of the challenges in moving from a practitioner to a practitioner-researcher was to identify which aspects of hand-stitching I was able to study both from the inside bringing to bear my prior knowledge to the subject, and from the outside as a critical observer.

In the early stages of the research I wanted to study what a group of stitchers working collectively typically do. As a form of naturalistic enquiry (Snape & Spencer, 2003) it was important at this stage that participants made work independently

from my interest in their activity. To this end I initially opted to find and work with an already existing self-formed group and made contact with a patchwork-quilting group based in south London whose members agreed to participate in the research. I went on to observe the group over a period of eleven months, documenting their work and interviewing members.

As a practitioner, I share skills, knowledge and practical experience with these participants, and my own experiences of hand-stitching influence my understanding of theirs (Aull-Davies, 1999, p. 15). Whilst on the one hand this meant there was a reciprocal appreciation between us, I found it also confused my role making it difficult for me to see clearly what I was looking for.

It was whilst filming the quilters during a group workshop that a refined focus for my research questions emerged. Although using video to document what participants were doing was an appropriate method “through which I could experience something similar to what my research participants were both describing and experiencing themselves” (Pink, 2008, p. 138), I found that paradoxically the device of the camera also separates the person observing from the subject of observation. The framing precision of the viewfinder enabled me to see clearly and objectively what as an intuitive maker I might not separate out from an otherwise holistic making experience.

I found this a useful way of defining a critical perspective on my subject. It enabled me to realize I was focusing my attention on the dexterity of the quilters’ hand movements: their hands and fingers appeared to move and respond to the materials on their own account – picking up pins, stroking and stretching the fabric until it lies flat and straight – as if making their own decisions about when to fold the fabric, or how far to push a pin through the layers sensing exactly the right amount of pressure needed, adjusting the angle, and then repeating the same process (see figures 1 & 2).

My attention was drawn to movements and sensations I recognized from my own tacit knowledge of hand-stitching but took for granted.

Using the video camera enabled me to refine and delineate my focus on the hands’ knowledge-in-action and begin to question the implications of this knowledge.

However, it is important for me to acknowledge that I and the quilting group participants are, as Maynard and Purvis (1994, p. 6) explain, differently positioned in relation to both the production of knowledge and the kinds of knowledge we possess. By showing the patchwork-quilting group extracts from the videos and explaining to them what I was wanting to investigate I discovered that although we had shared interests in stitching, we did not want to know it in the same way. For this I devised other types of collective making experiences with other groups of participants.

4. Example Two – Workshops: Taking A Thread For A Walk

Now with a clearer research focus and a self-conscious¹, if not yet explicitly formed, understanding of hand-stitching I felt in a position to facilitate making experiences with groups that explored in greater depth questions concerning what the tacit knowledge of hand-stitching might feel like, the words we might find to describe it, and people’s perception of it. I devised a series of workshop tasks to prompt discussions with and between participants. This required participants who were comfortable reflecting on and evaluating creative activities in group discussion and I turned to groups of students. The works created during these workshops are on display in the exhibition. In this brief paper I will recount observations from one of these workshops held at the Royal College of Art in London with five participants comprising fellow research students of varied stitching experience. I requested participants make value judgements of simple stitching tasks I had executed myself prior to the workshops, firstly by looking and secondly as a result of having done the tasks themselves.

I discovered that the knowledge gained from doing is a notably different experience from looking. Their evaluations changed; the doing altered their perception of the stitching. For

example, referring to the sample on the left in figure 3, having made her own version (shown on the right), one participant explains: 'I found that my evaluation in terms of its aesthetic qualities changed a bit after doing it according to which I enjoyed more.' Others express similar changes of perception: 'There is a change in the balance of how I appreciated the patterns and textures after I made it myself,' and '[n]ow I've done it, it gives me a different insight.' A process is not necessarily apparent from just looking at an artefact; doing the tasks led to a deeper appreciation of what is perceived visually.

The ensuing conversation between participants also explored the visual differences evident in the samples. Despite following the same instructions each piece of stitched work resulted in noticeably different qualities of mark.

In the extract below, participants discuss their perceptions of value attached to the aesthetic expression of individuality on one hand and the perceived necessity of functionality on the other:

Joy *But it's not good enough for what?*

Lisa *Holding together fabric.*

Vanessa *For holding together something because it's not going to get... it's not going to be neat, and straight.*

Joy *Yeah but it could be a design detail... still holding the jean together but it performs a visual effect. That's another thing.*

Vanessa *Yes, that's true. That's another thing... You see, because if you talk about a visual effect that's different. But I was thinking from the practical point, you would think that this is going to get caught...*

Joy *But that could be part of the whole design aesthetic.*

Lisa *I'm happy to have some kind of mark-making on it as long as it does not interfere with the functionality of the other stitches.*

For some, the infinite differences evident in the handmade marks indicate prized and valued representations of personal expression. However, others placed greater value on the functional

aspect of stitching: attaching fabrics together. Cultural differences in the perceived value of machine-like uniformity, even if executed by hand, were also acknowledged, as one participant with experience working in Asia noted that:

I think the value comes from a very realistic necessity for them, or that's what they think ... so this cotton because is all even and straight is really seen as high quality. When I went there, one of the things I actually did first, having really no background in Textiles, was actually to say ok, we're going to make a thread that is thin and thick ... and they were horrified, and after they said to me - my other colleagues from the Philippines - that they've only done that for me because they knew I was kind of coming from the outside. I didn't know any better. But they would not have broken those rules otherwise.

The tasks and our discussion brought to the fore questions of perception, expression, function and performance embedded in the act of hand-stitching.

In contrast to my earlier observations of the quilters, who appeared to manipulate their hands and fingertips intuitively, easily combining their stitching with conversation, these workshop participants demonstrated a focused concentration on the tasks required of them. When questioned on this a participant with only basic skills explained that depending on the task and the skill of the stitcher, the level of concentration may vary: '[i]f you come from a non-practical stitching point of view, as I do ... what was difficult was to actually put the needle in the right place... I needed to concentrate more.' Watching as novices wrestled with fabric, thread length and sharp needle, made me realize that when I sew my hands and body manipulate tools and material smoothly and comfortably causing minimum strain so that I no longer pay attention to what my hands are feeling and can concentrate on the design of the work. A sensual intelligence (Dant, 2010) accompanies the dexterity and precision of handling and positioning the needle as my hands gauge distance and use pressure in their search, feeling when the tension of the thread is sufficient to have satisfactorily made a stitch. Sennett describes this as "a constant interplay between tacit knowledge and self-conscious awareness, the tacit knowledge serving as an anchor, the explicit awareness serving as

critique and corrective” (Sennett, 2008, p. 50). My apparent lack of concentration highlighted a gap in my knowledge: that I didn’t know what it feels like not to know how to make.

5. Example Three – Not Knowing: Learning to carve stone

In order to investigate how it might feel to discover the sensations of new tools, materials and processes I joined a stone-carving evening class with the intention of examining my acquisition of basic skills through first-hand experience.²

I chose stone-carving as I wanted to try a craft that shared some characteristics with hand-stitching so I could compare the qualities of these experiences directly. As such, stone-carving similarly involves repetitive gestures, and progress towards the completion of a piece of work is slow. But it differs in other ways, which meant my body, hands and thoughts were alert to the particular discomforts of learning a new craft skill. Whereas needlework is lightweight and easily transportable, stone is hard and heavy requiring physical strength; it can’t be easily tidied away and transported in the manner of home stitching projects. I usually sit to stitch and manipulate the work in hand to suit my posture, but working in stone required me to stand, moving my body around the work.

The shyness I felt on my first evening of carving presented itself as timid, wobbly gouges on the stone’s surface. My eyes could visualize what I wanted to make but my hands didn’t know how to go about it. My nervousness faced with the unfamiliar stone led me to adopt a rigid stance where, literally feeling the resistance of the material, I tried to impose my will on the stone. I write in my notes:

As expected, I felt very clumsy to start with. Holding the chisel correctly and guiding it against the stone at the correct angle looks straightforward, but isn’t ... My forearms are very sore from wielding the hammer. They ache, particularly my right arm (hammer arm). The fingers on my left hand tend to lock from gripping the

chisel in a particular manner. I have to slowly un-bend them when I release the chisel and my right hand is shaky. It hurts. I’m sure I am tense, and grip the chisel like a dagger, which will make it uncomfortable for me.

I experience this grappling with a new material as alien and hostile. I find it tiring and frustrating. Trying almost too hard to make some sort of mark I resist sensing and listening to the material, aware only of my own body and its exertions. I feel this resistance in my body as pain. From my knowledge of other handcrafts I know that as I practise I should aim for a sensation of mutual interdependence, whereby the material yields to the tools which I should be able to hold comfortably as an extension of my fingers and hands. I can see this in the comfortable familiarity I observe that my teacher has with the stone:

Her movements are so graceful and confident, the subtleties like adjusting the angle of the chisel are so smooth and deft. The way she carves is more like moving through the stone. I feel like I am trying desperately to assert my thwack onto the stone. The stone always gives in to Marcia. It resists me often.

As I practise all my attention was needed to adjust my body and attempt to attune my position, the pressure exerted and the angle of the tools.

Hand-stitching is also precise work that depends on one’s ability to control and manipulate the sensations felt at the end of a sharp tool. The deft coordination of the hand, eye and mind requires a combination of the senses - especially touch and vision - adjusting spontaneously to constantly changing stimuli. A practitioner without experience concentrates fully on the sensations felt in the body, literally feeling the acquisition of knowledge.

6. Conclusion – Exploring and encountering: in search of knowledge

I began my investigation with an intuitive sense of the quilters’ embodied knowledge of their stitchcraft borne from my own practical knowledge of the skills involved. However, it was my encounter with a skill I didn’t know that

allowed me to begin explicitly defining the nature and characteristics of this embodied knowledge. I used embodied knowledge of making to guide my questioning, and therefore influence the design of my research journey.

On further reflection this has also highlighted the central role of the body in the generation of knowledge in this field. Making requires we use our emotions and senses to explore, act on and with our world; investigations that lead to new discoveries, acquaintances and conversations in an evolving relationship with materials encountered.

An encounter suggests an unfamiliar 'coming-up-against'. 'Coming-up-against'³ is critical here as it implies being 'in-contact-with'. There is, therefore, a physical and active dimension to an encounter. The sensory boundary between the self and the thing encountered is permeable and an impression is made. Through touch, smell, sound and vision elements of the thing encountered seep into and enmesh with the self, thereby transforming one's knowledge of the surrounding material world. As philosopher Michel Serres writes: 'I mix with the world which mixes with me. Skin intervenes between several things in the world and makes them mingle' (Serres, 2008, p. 80). This idea of 'mingling with the world' suggests "a conception of the human being not as a composite entity made up of separable but complementary parts, such as body, mind and culture, but rather as a singular locus of creative growth within a continually unfolding field of relationships" (Ingold, 2000, p. 4).

However, as a 'continually unfolding field of relationships', each time we pause to reflect on the artefact made, the relationship changes. Capturing this sensitivity experienced by a knowing body through documentation, either in text or with images remains elusive. The development and flow of an intuitive creative practice can be inhibited by the interruptions of documentation. Reflexive note-making after the action helps to turn the experience into words, although some of the spontaneity and accuracy of the sensual experience of working with tools and materials is lost through translation into the language and order of rationality expected of the researcher. It is

impossible to capture entirely the totality of these experiences of making, to be at one and the same time "the dispassionate onlooker able to observe the goings-on rationally and impartially, and also to be the intuitive, instinctual colleague ... This is the taxing position (...), the problem of 'being there'." (de Waal, 2002, p. 185).

1 & 2. The deft movements of the quilters' knowledgeable hands captured on video. Video stills © Emma Shercliff.



Paper

3. The participant initially ranked the sample on the left, executed by me prior to the workshop, as the least aesthetically pleasing. After executing the task herself, shown in the sample on the right, she then ranked it the most aesthetically pleasing. Photographs © Emma Shercliff.



Footnotes

¹ I use 'self-consciousness' here in a way that aims to replace its colloquial meaning as a synonym for embarrassment or shyness with a more philosophical usage such as by Sennett (2008: 50) to denote a form of subjectivity generated in tacit knowledge. This use of the concept of self-consciousness refers also to 'self-reflexivity'.

² I enrolled for one term of ten weekly evening class sessions, each lasting two and a half hours. This was followed up by several more sporadic sessions undertaken to complete my carving project comprising three seven-hour Saturday workshops and four more evening sessions.

³ 'Encounter' derives from the Latin *contra*, which means 'against'.

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Ways of knowing, ways of telling

Recognition and explication of knowledge in creative practice research

Creative practice research attracts creative professionals keen to develop knowledge of their own methods, processes and works, to further their own practice. This can be seen as a contrast to the model of knowledge creation within the Humboltian doctorate, whereby the researcher is seen as contributing through personal research endeavour to the collective human project of knowledge within a discipline. In order to develop knowledge of and through practice, the researcher must become attuned to the different ways of knowing which inform practice – understanding developed in and of experience, which is personal to the researcher. Yet to make a contribution as research there is a sense that knowledge must be able to be communicated or disseminated. Looking across a number of doctoral projects within the European training network Architecture, Design and Art Practice Training-research Initial Training Network (ADAPT-r ITN), and developing discussion with practitioner-researchers, the defining role of communication and relations with others in the development of practitioner-researcher's knowledge about their own practice is observed. The representation of experiential content in anecdotes and stories, and the testing of framings, or descriptions, of the work with expert panels and audiences of peers is shown to be important for creative practitioners embarking on a PhD by Practice.

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1. Introduction: the context of creative practice research

This paper explores some of the particular challenges presented when developing and explicating knowledge through creative practice research, with a focus on the work of experienced practicing architects engaged in creative practice research doctorates. Creative practice research can be understood as a mode of research whereby the practitioner's own creative practice forms the subject matter of the research and informs the methods of research. Importantly, creative practice research is produced in the dual contexts of contemporary practice and academic debate, therefore, the goal of knowledge production and dissemination comes hand-in-hand with goals of production of new works and contribution to a wider milieu of practice (Bergdorff, 2010).

2. The ADAPT-r ITN: Institutional Context and Empirical Content of the Research

The research presented in this paper forms part of a larger project and Europe-wide network dedicated to creative practice research. The Architecture, Design and Art Practice Training-research Initial Training Network (ADAPT-r ITN) operates across Europe with strong ties to the Royal Melbourne Institute of Technology (RMIT). It is a PhD model that supports experienced practitioners in researching their own practice (ADAPT-r ITN, 2013).

Adapt-r ITN is inspired and informed by the RMIT's 'PhD by Invitation'. Leon van Schaik established the invitational doctorate in 1986, so as to allow, 'practicing architects to present their own work as the subject of a PhD.' (BD, 2012) Given that the programme has now been underway for almost thirty years, a deep experience in this particular model of creative practice research has been developed and it is this knowledge that is currently

being shared and developed within in the ADAPT-r ITN.

Our role as researchers within the partnership is to look broadly across the doctoral projects of the various researcher/practitioners, with a view to developing a greater understanding of the PhD by Practice and the types of knowledge that this kind of research can both require and produce.

3. The Creative Practice Doctorate and the Post-Humboltian Doctoral Research Context

In discussing the ADAPT-r doctorate and approaches to developing and explicating knowledge within it, it is helpful to trace some of the motivations of the candidates of CPR doctorates. These may differ from research students within the historical model of the Humboltian doctorate, with its emphasis on expanding disciplinary knowledge within the university. Boud and Tennant note that the development of doctoral education to include candidates based outside of the university, or developing doctoral research with the view to applying it to the workplace, means that there is a "growing awareness that it is not productive to view doctoral education in narrow, instrumental terms", therefore, understanding the activities of doctoral candidates requires consideration not just of activities which might constitute research in the pursuit of contribution to knowledge in the traditional sense, nor of training for a research career (Boud and Tennant 2006, 295).

In the context of the ADAPT-r network, 'early stage researchers' undertaking doctoral study are relatively established professionals in the fields of architecture, landscape architecture, art and design, and their attraction to the doctoral programme is, at times, more about improving their practice through developing understandings

of the processes of their own work, such as its motivations and context, than actively contributing to new knowledge in the disciplines in which they practice. This approach is in line with a shift observed in higher education and knowledge policy and practice at the turn of the 20th/21st century:

“ The production and distribution of knowledge is no longer seen as being the exclusive preserve of the universities [...] knowledge is produced in workplace contexts. Such knowledge is performance related and ‘situated’ in a particular context [...] it is not configured by the existing forms and boundaries of knowledge found in universities.” (Boud and Tennant 2006, p. 295)

This shift is recognisable in “a strong policy emphasis on the link between research, innovation and economic performance, so universities are now seen as agents of economic growth” (ibid., p. 294), an understanding which helps to situate how doctoral candidates can focus on developing knowledge for use in relation to gaps in understanding within their own firm rather than in addressing knowledge gaps within the discipline or across the wider field of practice. Boud and Tennant also emphasise the “desire for personal satisfaction and intellectual stimulation and for recognition and acknowledgement by others” as an important consideration in developing understanding of this changing ‘type’ of doctoral candidate and approach, something that we might argue to also be important within the Humboltian doctoral model (2006, p. 295). An extract from an interview with an ADAPT-r research fellow, who is a director at an architecture practice gives an insight into the mental, and professional ‘balancing act’ of the ‘PhD by Practice’:

*I was very keen to stay close to the work of the practice. But at the same time I had to directly interact with the other things I am supposed to be doing in the office as a director in the office, like getting projects, and finding work for people and that it was quite reassuring ... that by coming here and talking about the work it turned out that it became a way of generating new projects.
[...]*

[The PhD helped me to] understand how research could inform my future practice. This happened

through conversations at the PRS (Practice Research Symposia), conversations at the office, but also a growing confidence, that what we were doing (i.e. self initiating projects and producing publications that were about a kind of desire of a project) was a kind of legitimate tool to action. The PhD allowed me to frame this, so reflection on the practice actually could turn into prospective action and tools emerged, which were quite potent actually, and they helped me to legitimise something we were doing.

The process of research here is framed as a guide or input to future practice in developing understanding of the ‘tools to action’ developed by the practice. But there is also a - personal or professional - growth in ‘confidence’ and, through knowledge developed in discussion of the work with other practitioners and researchers, a sense of the work of the practice which can ‘legitimise’ it.

This framing of the activities of research and their relationship to practice and to personal and professional understandings of practice is reliant on developing knowledge from design and architecture practice, which is often tacit, tied to personal experience, and, possibly, instantiated in artefacts of design. This paper develops a line of questioning about how such tacit, experiential, and personal knowledge may be explicated or exposed, through doing creative practice research, so that it can be accessible to a broader audience, beyond the personal development of individual candidates.

4. ‘Recognition’ as a Component of Developing Knowledge through Creative Practice Research

Within the model developed for supervision of the ADAPT-r PhD by Practice, practitioners begin by looking back over their past work, in an attempt to see it afresh and observe themes or patterns from a diverse and contingent body of work. Candidates are encouraged, in verbal presentations and in their supervision, to move away from received understandings of what their work is doing, the style or approach. Instead, they are encouraged to

reflect on their work within a wider understanding of their community of practice (peers in practice, other designers their work is aligned with or they see parallels too) and recognise what it is that they do differently, what is specific or particular. This initial stage of the research is reliant on creative practitioners being able to recognise particularity in their own experiences of creative practice.

5. Examples of Instances of Recognition in Creative Practice Research Doctorates

In order to describe instances and processes of recognition, the research experiences of four different creative practice researchers will be discussed in this section. These experiences were discussed during interviews that took place in the spring of 2015. The selected practitioner-researchers demonstrate different attitudes to recognition, and different approaches to dealing with it. They are also at different stages in their development of the research:

- Interviewee A is an architect, educator and researcher who also works as a sole practitioner. He received his PhD in architecture through the medium of practice from the Royal Melbourne Institute of Technology.
- Interviewee B is in architectural practice with her partner. She also teaches architecture and is an ADAPT-r fellow at RMIT Europe, Barcelona. She is currently just over half way through the doctoral programme.
- Interviewee C is an architect, educator and researcher and government advisor. She received her PhD in architecture through the medium of practice from the RMIT.
- Interviewee D is an architectural practitioner, academic and advisor. Alongside running a medium-sized practice, he is a visiting critic and lecturer and design advisor to local government. He recently received his PhD at RMIT Europe.

When asked to describe a transformative moment in the understanding of his practice during the PhD process, Interviewee A discussed the recognition of a particular set of conditions from an early spatial experience, initially as a hunch that they were important or formative to his architectural design approach. The theory of early formative spatial experiences impacting on design knowledge came from the practitioner-researcher's reading of Van Schaik's 'Spatial Intelligence', which prompted a review of spatial memories alongside the reflection on his practice to date. A feeling of recognition was reported as he reflected on the spatial conditions of a house he knew as a child and perceived that they had importance for his work- this was reported as a 'feeling' initially, rather than something that could be discursively substantiated:

Interviewee A: I could not explain what it was exactly, at that moment.

Interviewer: But you felt it?

Interviewee A: Yes. It was poking me here (gestures to his side). And saying 'You have to investigate that and it's going to be a lot of work', which I subsequently did.

The recognition of a particular spatial experience as formative, and the acceptance of reliance on forms of recognition such as feelings about aesthetic experience which cannot be discursively communicated, then prompted the practitioner-researcher to focus a particular moment on the building site, where he took a photograph to mark a moment and a 'noticing' of a set of spatial/material relations.

Interviewee A: I still remember the moment when I took this picture. I took it simply because I said to myself, 'This is a nice image. I want to keep this building like that'. Full stop. And it went into the archive.

But having gone through the spaces of this house [the formative early spatial memory] mentally, it came back. [...] This was a moment of insight.

Through his PhD research, Interviewee A developed an idea that he could begin to explicate knowledge relating to his personal form of practice through giving names to elements of spatial

experience. This was done with the intention of applying those names to other situations and developing understanding through the process of mapping and classification.

I could look at it and I could begin to give names to things. 'This is a thickness and that's a substance, that's a depth and that's a darkness'.

This process of classification was developed through his PhD research and resulted in a number of terms, which were discussed in the research catalogue, such as: thickness, depth, perspective, chronology, and substance.

In contrast, Interviewee B was tentative in discussing her work as research, or what the focus of her research was. She described discomfort in not being able to clearly state her PhD topic, but also a growing acceptance at pursuing research without clarity:

I was really intimidated or confused about the fact that - you know 'What's your PhD, what's it about?' I'm slowly realising that maybe, hopefully by the end I might know what the PhD is about.

Interviewee B confidently described an important moment for her in the transformation of her own understanding of her work, which had come early in the process of the PhD, as she and her partner presented the work of their practice to an audience of practitioners and a panel of practitioners and academics as part of a Practice Research Symposium (PRS):

Interviewee B: When you're standing at the front and you're talking about vernacular architecture and they just straight away said "It's nothing to do with vernacular architecture - you need to stop talking about that."

And then we realised, no, it wasn't. Although we have an interest in vernacular architecture. What we're doing isn't necessarily a continuation or a rethinking of that. That was quite freeing I think, because then that enables you to do things that someone who was interested in vernacular architecture wouldn't do.

This 'realisation' came as a result of a dialogue of reflection, presentation, reaction and reflection.

Firstly in presenting their work the architectural partnership had reflected on their past work and chosen to portray it in terms of the vernacular - architectonic moves informed by the materials, construction skills and needs of a particular locality. This did not fit with the perceptions of the (international) panel to which they presented. Interviewee B described her response to this experience; having her own conceptualisation of her creative practice overturned as a shock, but she experienced it in a very positive way.

Interviewee B went on to discuss an exchange with her supervisor when he came to visit her office, which had a similar outcome of the rejection of her previous understanding of how the practice made and understood material choices and expressions:

Interviewee B: We were always going on - we were trying to - tectonic expression and all this stuff. And he said, "Yes, but you feel free to use steel and use steel in a certain way. Why do you paint steel and you don't paint plywood?" And we said we paint steel because it's a manufactured thing. And he said "Yes but you use plywood. Plywood is completely manufactured and you don't paint plywood."

I still don't really know why we paint steel and we don't paint plywood, but I do realise its not about 'honesty' or faithfulness to a material. It's probably much more about aesthetics.

From the examples given, it would appear that Interviewees A and B both looked into the more formal aspects their own practice - thickness, depth, plywood, steel - with a view to recognising perceived particularities in their work. These qualities were then explored through classifying the work in relation to words, through both reflection and discussion. As such, the material and spatial qualities, that they decided to focus upon and name, were set in words. This, in turn, led to the relationship between the practitioners and their artefacts of practice changing, as words created explanatory links, where previously translation had neither been considered nor required.

Bergdorff, in his discussion of artistic research, highlights the challenge of linguistic expression of the experiential component of artistic work

(Bergdorff 2010). Drawing on the practice turn in the social sciences in understanding the instantiation of knowledge in everyday practices, Bergdorff questions how artistic research might access this knowledge, which is present in action and interaction but is not directly accessible to later reflection.

Biggs emphasises that practice-based research “prioritizes some property of experience arising through practice” and questions the abilities of linguistic and non-linguistic modes of argument and communication to develop knowledge from experiential content (2004, p.8). The challenge of experiential knowledge is in its make-up of tacit and ineffable content as well as that which is explicit. If, as Biggs argues, and we would follow, practice-based research which has transferable outcomes and can be “meaningfully communicated and disseminated to others” is more desirable that research which is only of “limited interest and applicability to other practitioners”, the question of how to disseminate to specific audiences knowledge which is, initially at least, tacit or in part ineffable must be addressed (ibid).

Biggs distinguishes between experiential feelings and experiential content, the former being individual subjective awareness, and the latter something on which one may reflect cognitively, claiming that experiential feelings represent experiential content, and noting that both sensory and cognitive elements contribute to experience (ibid). The challenge for practice-based research and its experiential aspect is in the experiential feelings that represent experiential content, which remain “private to the experiencing individual” and thus cannot meet the dissemination criteria of research (ibid).

However, Biggs argues that in accepting that experiential feelings are a representation of experiential content we should also accept that experiential content might be represented otherwise - through linguistic expression, performance by other means, visual representation etc.:

“A representation is some sort of translation where we step away from what we are trying to conceptualise and describe it in an alternative form, for example a

landscape painting allows us to see connections that may be less apparent when confronted by the actual landscape itself.” (Biggs 2004, p.11)

6. Recognition and Influence of Group Dynamics and Agency in ADAPT-r ITN

Interviewees A and B both had personal understandings of how they recognised elements or ideas specific to their respective forms of practice. Interviewee A described recognising something within himself from a specific ‘feeling’, whereas Interviewee B’s understanding of her own practice was challenged by comments from a conference panel in a public forum. Taking reference from the writings of Foucault relating to subjects and power (1979, 1980), it maybe suggested that both interviewees (A and B) viewed the act of research as something that was inherent to a deeper subjectification process, whereby they sought to recognise themselves in relation to classification or categories, through which they themselves became the subject. However, whilst this may be a means of looking at oneself, subjects do not deliberately exert power; they are passive objects in relation to power (Heller, 1996, 78). As such, when taking a broader view of creative practice research and the post-Humboltian doctorate, of its intentions for innovation and application in non-academic contexts, can the researcher make himself or herself the subject, relinquish power, and still maintain relevance?

With regard to the power that may, or may not, be exerted through creative practice research, it can be argued that practice itself is an inherently social act, not least since practitioners work within, and in response to, communities of practice (Amin & Roberts, 2008). This brings to the fore concerns relating to agency (Giddens, 1982, 1984), whereby the power to exercise, influence and limit action and intentions impacts upon the relevance of creative practice research situated in a particular context. The importance of community and context were, however, discussed during interviews with two recipients of the PhD by invitation (Interviewees C and D), where

recognition relating to practice was understood, firstly in relation to the group dynamic of the PRS and secondly in relation to an entrepreneurial context-based approach to practice.

Where Interviewees A and B looked into themselves when seeking to recognise what was particular to their respective forms of practice, Interviewee C discussed that value that she perceived in the group dynamics of the Practice Research Symposium (or PRS, a biannual event for practitioner-researchers, developed as part of the RMIT Invitational PhD programme and now a key element of the ADAPT-r network and model). Interviewee C described a feeling of 'comfort' as integral to accessing a means of telling and knowing practice within this particular collective setting:

Interviewee C: It was all possible through the PRS, when the atmosphere is loosened up or that you feel really free to talk, to be sincere, with yourself and then to make the best effort to explain your practice, only when you feel comfortable enough and this kind of comfort comes from this informality.

Indeed, throughout the interviews with ADAPT-r doctoral candidates and supervisors, the PRS was highlighted as a forum for a distinct kind of 'public behaviour', not just in the candidates presenting but also in being part of the audience and the 'group dynamic' of 'listening and sharing each others work'. The model of the PRS expects that candidates talk about their practice/research in a particular way and, according to those we interviewed, the presentations should, not least, be: provoking, imperfect, sharing, sincere, comfortable and generous.

From our experience as researchers attending two PRS events (Barcelona 2014 and Ghent 2015), it would seem that those present aim to develop new knowledge through the telling of stories, both visually and verbally. These stories are not simply verbal presentations, but include body language, words, images, artefacts and conversation. Through the sharing of stories, candidates test, or propose, what is recognisable in their practice. These proposals are then challenged, or evaluated, by the assembled group of supervisors, panel members and peers, who describe where they recognise value in

the practice. Through these events, a shared language develops, which includes common or repeated references and anecdotes. Indeed, the candidates, whilst at times asserting their individuality as subjects, can perhaps most successfully be viewed, as researchers, in relation to each other through the PRS process, since the symposia allow candidates to consider their influence, actions and intentions in relation to others, which may assist them in recognising what their original contribution to knowledge might be.

Where the PRS allows for the development of shared narratives, language and understandings, it is less clear how these stories impact on innovation and are applied in practice. The 'safe space' provided by the symposia, whilst providing a place for professionals to talk, creates something of a bubble, where the client, local community, policy and planning policy are rarely discussed, in favour of talking about feelings, fascinations and urges. However, there is variation across the candidates and a few do deliberately use their doctoral research as a means of not only of discussing how they exert agency within the urban realm, but also how they might use this discussion to innovate and change their mode of practice.

As an example, Interviewee D discussed how the doctoral research allowed him initially to look at some of the intentions behind actions he had taken in practice and then to adapt his mode of practice accordingly. He still talked about feelings and intuition, but not with regard simply to himself and his supervisor, but as a way of approaching the entrepreneurial aspects of practice, which resulted in him making a 'leap of faith' based on a belief or ethic for the trajectory of his practice:

Interviewee D: ... when we started as a practice we were working in a really small back office in somebody else's building and there were two of us and we were basically sharing a laptop. And then this building came up and it was much bigger than we needed and it was a real bit of rent to find every month. And we just made that kind of leap of faith into moving into the big studio, which we still have - the two of us with no furniture, fantastically empty - but because we made that leap larger projects came...I guess we were making a statement about we were ready for something, there was a kind of projection

of something, of a maturing or a change

[Business is] the other dimension of working as a practitioner, that it's not like an academic because there's also kind of a business that you have to keep going and that's, you know, I think there are tensions between the two - How do you move into spaces you want to be?

By looking at his PhD research as a means of considering where to position his practice, Interviewee D demonstrated how creative practice research might be applied in the workplace. Much like interviewee C, he does not talk about the formal aspects of architecture, but takes a broader, more strategic view. This may, in part, be a result of him having a team of staff and his role in practice as director. However, it demonstrates that much of the knowledge, experiential or otherwise, in this type of creative practice research is not only directly involved with the designed artefact, but with positioning, negotiation and intention within changing networks of humans and artefacts.

This suggests that knowledge production can take place across a broad field in which the creative practice researcher develops understanding relationally with regard to agency. As such, to focus on research as only an individual endeavour, whereby the researcher becomes the subject, limits the scope and possibilities of creative practice research. Practice is a collective approach that develops in relation to specific contexts and intentions. Incorporating this approach and learning to develop knowledge through it, is one of the challenges of the post-Humboltian doctorate.

Architectural creative practice can be understood as a group activity that happens in relation to context, intentions and actions. Where it has formal outcomes relating to the urban environment, such as plans, buildings, infrastructures etc. which can form part of research, there is a great deal of knowledge that is both experienced and shared in the processes and negotiations relating to these formal outcomes. However, with regard to these processes, there are many actors who shape the negotiations, as such there can be no sole practitioner/researcher. This shift from the individual author/architect to common practice,

no doubt, has implications with regard to the creative practice doctorate, not least in relation to questions of authorship and original contribution to knowledge.

7. Possibilities of explicating knowledge in and for practice through creative practice research

An important aspect of better understanding of how knowledge is developed within creative practice research is in framing the motivations of the practices of this type of research within the context of practice. In contrast to the model of knowledge creation within the Humboltian doctorate, whereby the researcher is seen as contributing through personal research endeavour to the collective human project of knowledge within a discipline, creative practice research undertaken within the ADAPT-r network attracts creative professionals keen to develop knowledge of their own methods, processes and works, to further develop their own practice. In order to develop knowledge of and through practice, the researcher must become attuned to the different ways of knowing which inform practice – particularly understanding developed in and of experience, which is personal to the researcher. Yet in order to contribute as research there is a sense that knowledge must be able to be communicated or disseminated. The challenge of representing understanding developed through experience in order to discuss or share elements of the research is shown to be surmountable, with linguistic expression argued following Biggs to be one means of representing experiential content, while experiential feeling is another means.

In looking across a number of doctoral projects, and developing discussion with practitioner-researchers, we note the defining role of communication and relations with others in the development of practitioner-researcher's knowledge about their own practice. The representation of experiential content in anecdotes and stories, and the testing of framings, or descriptions, of the work with expert panels and audiences of peers at events organised specifically

for practitioner-researchers is seen to be critical for many creative practitioners embarking on a PhD by Practice. Their involvement in these events and the collective experience is highlighted by participants as transformative in how they 'tell' and know about their practice. However, in discussing their research, or 'practice as research', and in the written documents of this research, we have observed that practitioner-researchers, in turning a reflective gaze upon themselves and their work, can see themselves as subjects, and lose a sense of agency within the complex and dynamic interrelated human and non-human networks which make up the practice of architecture, landscape and urbanism.

We wish to draw attention to the value of exploring and developing new knowledge collectively which can occur within research events and foster more open ways of telling and knowing. We also wish to query who might be included in acts of talking about practice as research, and whether it is possible, and desirable, to open up a space to represent the experiences of others involved in the practice of the built environment alongside creative practitioners? In developing an understanding of the post-Humboltian architectural doctorate as a means for architects to create knowledge through and for the development of (their) practice, this might include clients, engineers, contractors etc. in telling creative practice experiences otherwise, and creating other kinds of practice research conversations.

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P4

**Practitioner and Maker
in a Research Perspective**

Trust in the maker

Exploring ways in which practitioners can engage with the making process.

In pre-modern times Architectural practice was based on the construction site, the 'Master Builders' were fully immersed in every aspect of the design and construction of buildings. The majority of practice has since distanced itself from the making process, handing over control to contractors. In this paper, I explore two key projects, based in different practice environments that have been pivotal in developing my own approach as a practitioner to design and make. Firstly I explore how by both designing and making a project, the Architect can develop the design in an evolutionary mode, keep control of the design throughout the entire process, and gain knowledge through learning by doing. The second project, explores the way in which contemporary practice can benefit from a more collaborative process of designing and building, working alongside makers, harnessing the experience of others for mutual benefit. I have been seeking a way of bringing the numerous advantages of being fully involved in a joined up design & fabrication process, into a more formal practice environment by creating opportunities for building exploratory prototypes at 1:1 scale in iterative steps throughout the process. I believe this method of entwining of design with making has the potential to feed innovation, whilst at the same time become an invaluable communicative tool for engaging clients and end users into the building process.

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Practice led enquiry

A challenge is set out every day in practice, how best to navigate the translation from brief, to idea, and then into a built outcome. This same dilemma is laid out afresh with every project. How can a shared ambition between client, users and designer be realised in a way that gets somewhere close to achieving the imagined goals in its material creation?

The origins of practice, and the long tradition of the 'Master Builder' fascinate me. The Architect, for thousands of years was responsible for the entire process, from design through to construction. They would have been based on site and closely engaging with the making process, taking full responsibility and control of the build. Modern times have seen the profession gradually separate design from the making process. Projects lead by contractors rather than the client or an Architect are increasingly common, and have the potential to leave the Architect into a powerless position in terms of controlling detail of construction on site. I am interested in exploring how contemporary practitioners can re-engage with the act of making within the design process in a more fulfilling and fruitful way.

The exploration is focused on my experience as a practitioner, across a variety of types of practices working in a team with others, in both the voluntary and private sectors. My working environment itself has alternated between studio, workshop, and the building site itself. The earlier work is documented through the design and construction of Tarlungeni children's centre built between 2006-2008, a project that explores the notion of 'Master Builder' by immersing ourselves in the design and making process from start to finish. I have been inspired by some of the more niche recent practitioners who have explored the architect-maker boundary's with great success, such as Mary Watts, who constructed the Watts Chapel over a ten-year period, Lina Bo Bardi who is well known for her presence on site both during and after construction, and other contemporary

examples such as Rural Studio who double up the opportunity to combine the design and making process with education programmes.

The second project examined in detail is the 'Reading Room' an interior for the Wellcome Collection completed in 2014. Approximately 8yrs on from the initial exploration as a maker myself, this project has proven to be a fantastic testing ground for moving this conversation on, and finding a new way to re-engage with making, in a more formal and professional practice environment. Key moves include allowing room for prototyping and experimentation throughout all stages of the programme, employing collaborative tactics, trusting others to make, and nurturing knowledge exchange with craftsmen and contractors alike. As a result of this process we have achieved something that feels extremely unique, that has noticeably benefited from the way we guided the process.

Build it yourself

In 2006 I became a Trustee, and Project Leader of the charity Voluntary Design & Build. Alongside a team of fellow graduates I spent two long summers in Romania, working on the design and construction of 'Tarlungeni Children's Centre'. The project was initiated via a connection made through the British Council with a local NGO, The Foundation for Social Assistance and Youth [FAST]. Based near the city of Brasov, in Transylvania, FAST had been providing a variety of services within a poor underprivileged rural community, including educational classes to a majority poverty stricken Roma children. FAST were looking to build a small building project on the grounds of the local school whereby they could provide care and education for children under 7, who at the time did not have access to schooling, we agreed to help them achieve their goal.



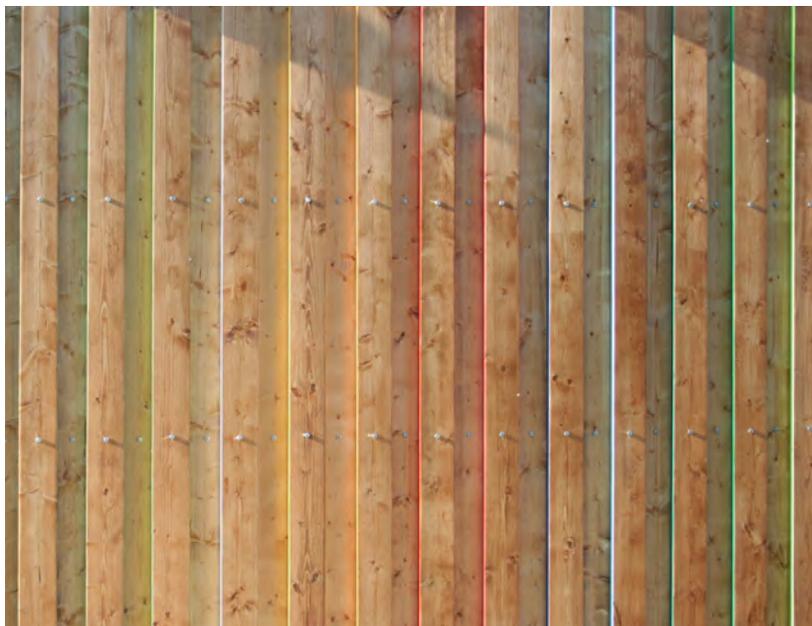
1. (above).
'Site Works' 2007 (Authors own)

2. (right).
Cladding detail (Authors own)

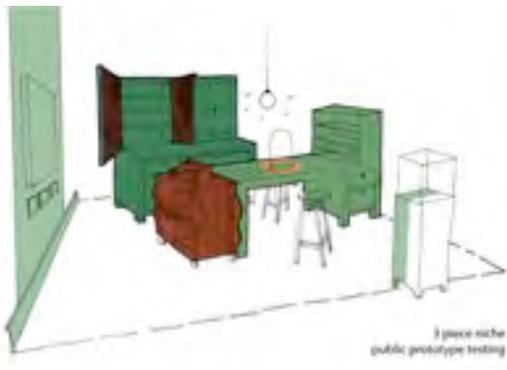
3. (below).
Sketch design & public and testing event (Authors own)

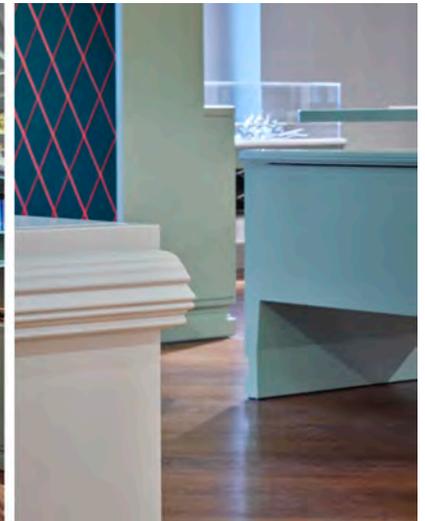
4. (opposite, top).
Dress rehearsals (Authors own)

5. (opposite, bottom).
The Reading Room (Photographs by Timothy Soar)



Paper





We tested and explored the brief with the stakeholders, and developed concept designs through conversation with representatives from both the school and the charity. Once we agreed on a layout for the building we began the construction of the centre without delay. It is worth noting that although we had our basic design in place with a structural strategy, we had still to develop the technical design and construction detail. To a large extent we did this design work as we went along, this felt like a real luxury! N.b no planning permissions were required as the local mayor supported the project, so both the external appearance and the internal fit out details were not locked down at this stage.

We dug the soil from the ground, bent rebar by hand to form cage reinforcements, shifted concrete, cut and assembled the timber frame. When necessary we brought on board local craftsmen and builders for advice, but essentially we built everything with our own hands working with locally available materials. This physical graft was hard work, but it provided us with the opportunity to learn, and also immerse ourselves in the project. Our closeness to the material and the time spent on site meant that any design work required could just flow as and when required. We had a close relationship with the school and the charity, and they regularly dropped by to take a look at the progress and discuss ideas as we developed them.

(Fig. 1).

We were living and breathing the project, although much slower than a team of professional tradesman, through the activity of making every component of the building we knew everything there was to know about it. This knowledge gave us confidence in deciding how to detail the building, the design work seemed to flow as we moved from one construction task to the next. This idea of closeness with the materials and the time spent on site influenced the way we designed, our material experiments on site became the building, and allowed us to refine the design. We also benefited from closeness to context, spending time with the community, and the client team influenced the in-situ decisions and informed the detail and finish of the building.

Designing the detail through iterative steps, on site, the design evolved not in a radical way, but a responsive way. As we completed one process or task, we could review the next in light of what we had built before it, and what we had learnt from it, allowing us to adapt and improve the design along the way, a kind of 'fine tuning'. On the whole we tried to avoid extreme changes and abortive work so changes tended to follow this step-by-step process.

There are numerous examples of the design following this iterative process, which lead to what I believe to be an enhanced result. For example, the detail of classroom cladding was born out of a need to use the locally sourced timber rather than the shingles we had originally contemplated. The choice to lay the timber cladding vertically against the building responded to our decision to incorporate a welcoming curve to the entrance corner of the main classroom. The school had been keen on us using colour in the façade, and we explored ways in which to do this without being over dominant or requiring frequent maintenance. Through an on-going process of sketching and testing on site we came up with the idea to paint the side profiles of the timber cladding in a range of colours, to create a subtle rainbow that changes visibility as you move past the building. It took a few attempts to perfect the process of painting each piece of timber with two coats of colour on the short edges, and then staining the front edge to protect it from the weather before mounting it onto the external wall. This was a long laborious process, but we were happy to take the time to process this element which gave the exterior a unique character that fascinated the local children, we managed to do it within the budget we had allocated, and everyone including the client was delighted with the effect.

(Fig. 2).

Each and every nook and cranny of the building was custom built and carefully designed and detailed by the maker. Drawings were not required for communication with a contractor, only to communicate amongst ourselves, for working out details. Most drawings happened in the form of sketches on odd pieces of paper or on the back of offcuts, photographed for the record. The one

CAD drawn plan we had printed on site became lost under a layers and layers of sketched lines, becoming a palimpsest. Although the act of technical drawing lost its importance, our role enabled us to be in complete control of what was built.

This alternative from the ground up approach was a fantastic opportunity to test a new version of what the 'Master Builder' might be today, through Architects taking a role that involves full responsibility and control for every construction process. We were inexperienced in many of the skills required, and the project encompassed our entire energy. This inexperience made the whole process extremely slow and inefficient on time, something which improved over the course of the build. Despite the inefficiencies, the joy of this process can be found in the built result – a custom made building, with the added benefit of the experience gained by all of the volunteers who contributed their time and energy to the project. We each took away with us a new set of skills and knowledge that subsequently has become invaluable in the construction of further projects across a variety of practices. Back in the realm of more traditional practice, this strengthened understanding of site processes becomes even more valuable to me as I became responsible in practice for communicating with makers and contractors once again.

Prototypes and collaboration

Named as 'one of the best new public spaces in London' (Roux 2015) The 'Wellcome Reading Room' is a new type of hybrid space. Part gallery - part library, enjoying open access, members of the public are encouraged to spend time in the space, to sit, to read, to touch and interact with objects from Henry Wellcome's vast collection of scientific ephemera.

The project was initiated by the Wellcome Collection, and led by an in house team of experts with representatives from the galleries, the library, and specialists on the collection. We (AOC Architecture) were brought on early in the project,

before there was a clear brief for the project. A great deal of time and energy was spent engaging with the team, identifying their needs and aspirations, and working towards a shared vision to create a space for browsing and searching the collection, that could be curated flexibly over time.

To support the requirements of the brief, the scope of works included the complete internal refurbishment of part of the existing private library into an open access public space. We stripped back the existing partitions to open up the space, and created an overlay of bespoke furniture, objects, and interpretative graphics. The Reading Room project was to run in parallel with the total refurbishment of the Wellcome Collections's building on Euston Road, the main contract for the refurbishment works had a relatively long programme. This gave us breathing space within our own programme, which we turned into an opportunity to structure our design process to allow multiple opportunities for testing our designs at 1:1 scale- both within the public realm, and within the design team during the concept and continuing through the technical design, and beyond into the construction phase.

As we jostled around all of the information gathered we began this process of testing our ideas spatially, by sketching and modelling our ideas for 'loose fit furniture' to support this. Our proposal was to create a series of niches within the space that had a more intimate feel, an almost domestic scale. Each niche including dresser type cabinets to house objects and books that the public can browse, alongside this a table and chairs laid out as an invitation to sit, to take a closer look and enjoy the material. This first step of the process was supported by precedent research, prototyping through scale modelling, sketching and drawing.

(Fig. 3).

Next we held public testing events, allowing us to probe some of the hunches that had been made about how the public might respond to the invitation to participate - to touch, linger, and engage with props that mimic the objects from the collection. We wanted to test our physical ideas in relation to the spatial arrangement and types

of furniture's we would need to encourage and support these activities. In particular we wanted to trial our idea for the niche, for which built a table and purchased a second hand dresser as a prop. We gained confidence and momentum from these early testing events, harvesting feedback from the public, which allowed us to begin to unlock the approach to the brief requirements, and develop the designs with greater confidence.

Further rounds of testing and prototyping throughout the design process, included 1:1 exploration with drawings, and on-going fabricating of furniture prototypes. For simplicity, and to help us keep to a minimal budget we made a set of tables ourselves in the studio, allowing us to explore proportions and specifically heights of the tables. By pairing up two heights split across a table we wanted to suggest that visitors could both sit, in the manner of a dining table, and stand, in the manner of a laboratory workbench on the same space. This would allow for separate activities to occur at the same time, and even perhaps collaboration informal mixing or discussion between the two.

Our explorations into furniture typologies, scale and proportion were progressing well, the next stage required a review of the detail as to how the furniture would take its material form, what the character that would set the tone of the space should be. It felt important to us all that the furniture was carefully crafted, and were keen to explore how we could make something extra special, by adapting existing or standard techniques to make something just a little bit different.

One of the key details developed and used across the whole range of furniture inspired by our investigation into the manufacture process behind the creation of timber mouldings. We learnt that the blade on the spindle moulder machine can quite easily be customised to achieve a new shape, this knowledge empowered us to create our own bespoke ingredient. Our design for the moulding was based on the character behind the Wellcome Collection, Henry Wellcome. By tracing his side profile, which included his infamous moustache, we had a series of blades cut for the spindle moulder, enabling us to embed his profile into the furniture elements, tying them together

as a family of furniture. Learning from the maker, and adapting tools of the trade was the key to unlocking the design detail.

At this point we were able to prepare a detailed package for tender purposes, and conduct interviews with contractors. Bob, a Director of MER Services Ltd, a company that pride themselves on 'creating an atmosphere where clients can talk through their projects, safe in the knowledge that MER are able to empathise with their objectives and deliver 3Dimensional cost effective solutions, that remain sincere to their original concept.' Bob, brought with him to the interview a mock up of part of one of the cabinet vitrines, a junction that we knew would be challenging to construct, and something that he had instinctively thought to try out. This demonstrated his skill and experience, but more importantly a positive response to our desire for a collaborative responsive relationship between designer and maker.

(Fig. 4).

We soon appointed Bob and the team, and embarked on a hugely beneficial collaborative process, with a focus on creating 1:1 prototypes, enabling client team, designer, and contractor to participate in the refining the construction details together. We regularly visited Bob's workshops, exchanging sketches, and spending time coming up with solutions to the challenges set out by the construction of the furniture. We arranged regular design meetings, like dress rehearsals, around the evolving set of 1:1 prototypes. This gave us the opportunity to look, touch and feel details, and discuss options for material finish. These dress rehearsals became increasingly useful as we acted out how each element would be used using props, we overlaid museum objects and graphic interpretation, tested lighting integration, and reviewed practicalities to do with operations and maintenance at regular intervals.

Bob made us aware of numerous making challenges that we had not considered in the detailing process, and worked with us, with the shared goal of maintaining the integrity of the design, without leading to simplifications, or adaptations that would heave ultimately altered the overall impact of the furniture, and the space. The skills and expertise of the contractor fed into

a dialogue within which we were able to refine our designs. As part of this process we had regular sign off of elements to ensure things kept moving forwards, and ensured that the client had regular opportunity to be involved in this exploration.

Collaboration not control

The two projects described in this paper sit amongst a wide-ranging group of projects I have worked on, that have each explored a unique approach to the practitioner's relationship with making. Over almost a decade, the two strands of practice seem to have been informing one another in discrete ways, these projects seem to document perfectly a shift in focus. The hands on approach, that allows the designer to maintain control over all elements of the build, has evolved to become more focussed on collaboration, prototype and innovation by different means of engaging with the making process. The legacy of one approach has made its mark on the other, the desire to integrate with the making process has lead us towards a less linear methodology than the traditional, where ideas and objects can be bounced backwards and forwards between members of a team throughout the process of design and construction.

(Fig. 5).

Although the project type and briefing process, worked at a very different pace for the two projects, they both had high ambition to meet the requirements of a bespoke brief. They both explored ways of incorporating design into the making process to enable fantastic outcomes. The construction of Tarlungeni Children's centre explored how through entwining design and construction, becoming the maker can teach the designer new skills and open up opportunity to evolve the design during construction, as we had full control of the design and build. This at the early stages of my career was a fruitful way of understanding how things are made, plugging a gap in my education, and enabling me to gain invaluable knowledge on construction processes. The collaborative approach adopted for the Wellcome reading room moved on from this method of engagement and began to uncover the potential of the theme of trust within the

process, learning to enhance the process whilst working with a contractor and releasing some of the control. Finding an experienced and enthused maker to engage with the design was critical, and laid out the potential to collaborate within a professional context throughout the design and build, to produce something equally as unique.

In the case of the Wellcome Reading Room, the closeness to the physical construction was embedded into the design programme, both during the design process, and during the construction phase, to the benefit of the final result. By creating opportunities for the maker to engage with the design process, as a practitioner I gained knowledge through collaboration, testing at 1:1 scale has become an essential part of my toolkit, tailor made for each individual project. This prototyping enables precision, enriches the client experience, and enables a material richness within the building fabric that can be experienced and enjoyed by all.

This process of sharing knowledge with the maker, can enhance a live project, and also has the potential to impact on future practice. Although not all projects have the generosity of programme as the two examples discussed, I think it is of huge benefit to seek ways in which time can be built-in time for testing and prototyping the work within professional practice, no matter what scale of project. So long as the testing remains focused on the pertinent issues, it has the potential to create space for innovation and refinement. If continued into the construction period, the collaborative approach allows further room for appropriate conversations to continue, and where necessary design evolution on site.

Allowing room for experimentation in each case seems to be key, the vehicle by which this is achieved has varied along the way. On reflection, in my practice I have come to realise although I thoroughly relish in the opportunity to make with my own hands where appropriate, be it a model, a prototype or a small-scale build, there is no reason for the designer to hold all of the cards, all of the time. The opportunity to use my experience of making to engage in conversation with skilled makers that I can design alongside inevitably leads to a more satisfying result.

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Live Projects as Research

Tools of Practice Research in Making Architecture

Hands-off or hands-on? Do architects 'design' buildings or do they 'make' them? This paper addresses the role of the architect as a maker, someone who has a foot in many camps in order to bring together and realise an intention in response to a setting. In a field where professional practice tends to take precedence over research, what is architectural research? How do we define it? Using examples from live projects carried out by students and researchers, this paper explores the different roles and tools adopted in three specific concrete settings: Navi Mumbai, Freetown and Agra.

Mainstream architectural design works in a hands-off way. However architectural making is definitely hands-on. To the extent that architecture is about making rather than planning, a hands-off approach is untenable. It is impossible to produce good architecture without being involved with the setting because making is a creative act using the resources, both physical and cultural, available within that setting. In the practice of architectural making, researchers need to develop a discourse around a topic and take action, after due deliberation, in an ethical way. Research is a part of this process. This paper identifies the varied roles architects have played in each of the three live projects and explores the implications for the architecture profession and in academia.

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1. Introduction

Hands off or hands on? Do architects 'design' buildings or do they 'make' them? This paper addresses the role of the maker/architect as someone who has a foot in many camps trying to articulate and then realize an intention, tuned by iterative response, so as to fit snugly within a setting; the architect as a polymath – a master of many trades (Twigger 2013).

Architect-makers need to communicate with both the gentleman in his drawing room, as represented in the Honeywood File (Creswell 1929/2000), and the labourer at the bottom of a trench on site. In our live making projects, students often have to negotiate with ministers and global organisations as well as small NGOs, and to the men, women and children in poor communities, involving them all in the process of making. In this process, the development of a range of roles and a spectrum of relationships are required, and certain sets of rules and decorum need to be observed.

In a field where professional practice tends to take precedence over research, what is architectural research? How do we define it? Small live projects embodied in very particular settings can act as research tools to help define a topic from the forensic study of the physical fabric and culture of the place and, by a process of reflective making, generate insights at a range of scales from the street to the city.

This paper explores the roles of detective and maker which architecture students and researchers at the Cass School of Architecture have adopted in carrying out live projects for transitional settlements in three specific concrete settings: Navi Mumbai and Agra in India, and Freetown in Sierra Leone.

Located in social, ethical situations in impoverished communities in rapidly changing urban contexts with only scarce physical resources, our live projects have sought to engage people in making, not only to produce schools buildings and sanitary installations but also to support the capacity

of residents to engage with the civic realm, so as to be able to access the wider opportunities available within the metabolism of the city. This relationship is one where a community can provide a rich setting for study, and in exchange, they broaden and deepen their engagement with the opportunities offered by the city.

The informal city settlements within which these examples are set provided rich learning environments for both researchers and residents, where the making projects themselves became a shared ground for skills exchange and the negotiation of difference. The role of detective enabled students to engage, survey, sense and react to the setting. The role of maker proceeded by testing a first intention which had emerged from the detective work and by a process of trial and error, fine tuning this intention to fit the setting.

In combination with developing an understanding of the physical fabric, landscape and infrastructure, working with the metaphor of a detective, the architect can uncover social, political and cultural patterns and reveal matters of concern to the residents. By fabricating a dynamic dialogue, ideas can be represented as they occur and accommodated to actualities on the ground. Since the situations studied are profoundly unfamiliar to the students, we are obliged to work from very first principles. In this environment, students need to have tools for inquiry, tools which allow them to gain familiarity with their surroundings. The type of equipment required is that which can measure both the physical topography (such as a tape measure or Google Earth) and methods to interrogate and record the cultural, economic and political, which is more difficult. Under this second heading, 'cultural exercises' are developed which facilitate access into the communities that are being studied and make it possible to represent reflections and insights gained during that exchange.

The intention is not to collect, at a distance, a

pocket cultural map, which would be a reductive exercise, but rather to allow the students to use their five senses and their psychological antennae to capture and frame issues which are meaningful to the inhabitants (and perhaps strike a chord with more global issues of interest to the student). In order to avoid the negative exploitative possibilities implicit in this process, the ethics of research practice need to be employed. This includes ensuring that engagement in identifying and representing topics for inclusion in negotiating, constructing and representing an appropriate discourse is widespread and open to all (McFarlane 2011).

Having established a representative discourse arising from forensic research, the architectural detective's second task is to 'make a case' to and with those involved. However making a case is usually just a preliminary declaration of intent prior to crafting a response by a process of trial and error. We try as much as possible to get students and willing residents working with their hands on small live projects. We emphasize small, because larger projects have an internal momentum of their own which tends to overwhelm context, making it much more difficult to sustain a dialogue between learning and making, residents and situation.

Learning by doing is a heuristic process of explicit intention followed by contextual resistance requiring, in turn, an accommodation of intent. This iterative process is a way of engaging residents with the physical and cultural context through the process of making, letting it push back in a gentle way, allowing the architect and community to produce schemes which fit. When carried out explicitly in real time and reflected upon after each iteration this is the methodology of research by making (Mitchell 2010).

2. Making a Case: Quarry Classrooms, Navi Mumbai

Invited by a local Indian NGO to help construct a camp treating common eye diseases in the stone quarry settlements of Navi Mumbai, students found when they arrived that such diseases had been

successfully treated during the previous year and that a different problem was much more pressing. The residents were urban migrants squatting on mined land. The lack of a permanent registered address prevented their children from gaining access to education. The NGO, Association for Rural People's Health and Educational Needs (ARPHEN), proposed a programme in which they taught the children for a year through 'bridge classes' leading to basic educational certification. In exchange, the government agreed to accept these children into state education. Working with ARPHEN, student architect detectives identified suitable locations for community classrooms, made a case to the quarry owners for them to release land for building, marshaled local resources and started to build bridge classrooms with the community.

The first classroom was embedded within Baban Seth quarry settlement. There was a backdrop of cliffs at the edges of the quarries where blasting was going on. Sometimes stray stones landed on the roofs from the explosions. In the dry season residents developed eye diseases from the all-pervasive stone dust and in the monsoon, the place flooded. So what sort of building was appropriate here?

Students and the Baban Seth community produced a very simple building out of local but not nostalgic materials. Children helped clear the site and found and fetched water for construction. The quarry owner donated stone. The building form was based on the idea of a traditional community platform but with low brick walls, steel structure, grilles and reinforced corrugated plastic roofing added. These materials were accessible, affordable and the skills existed to use them adequately. Local masons were familiar with the idea of a community platform and construction proceeded without a formal set of drawings. The steel framed roof came next and security grilles, shading and monsoon proofing came the following year. (Fig. 1).

The building fits easily and loosely within the surrounding settlement morphology. The classroom also had a recognisable formal coherence, a new form of amenity building with spans longer than the domestic but nevertheless

fitting well amongst the collection of buildings making up the quarry settlement. This classroom was built next to a small temple and in the end had a spatial relationship with it. Temple and school were painted the same color as people took ownership of the building and it became embedded within the fabric of the community. (Fig. 2).

The proposal doesn't fight the existing urban grain, it doesn't try to compete with it. Whilst being modest in its construction students tried to craft their building more carefully than the adjacent buildings. Despite wanting to improve things there's pride in the existing way of building. People can see and recognize the improvements and consider whether to absorb them into their own way of making a place to live.

City Making:

The making of a building is integrated with and very much a part of the design process. Proposals are crafted by capturing, framing and harnessing ideas from precedent, and by a dogged process of trial and error, balancing resistances in the worked materials with appropriate accommodations in methods and ambitions. Each of the interventions: platform, roof, screens, paths were built at different times, fit loosely together and have their own name and recognisable internal coherence. They also fit loosely with elements constructed before and afterwards. They were inspired by precedent and have in their turn acted as precedent for classrooms elsewhere. The project provides an example of a fluent making trajectory which for very little financial cost has up-scaled from making a building to making a contribution to, and an exchange with, the changing topography of the city.

We found that many differences of opinion were resolved by doing demanding things together. In this way a method of working was generated which did not just produce a classroom but also contributed to community cohesion. Not long after the classroom was in operation and connected visually with the temple shrine, residents started to make their buildings more permanent by replacing tin and tarpaulin walls with brickwork. The local

Corporator (the local authority representative) arranged for street lighting, water taps and paved streets and drainage infrastructure in the settlement.

Baban Seth is one of many temporary mining settlements along the Navi Mumbai ridge. Only a few have survived the inevitable working out of the nearby quarries. As the mining moves eastwards, the settlements usually up sticks and move nearer the new work site. But now Baban Seth has a school and the residents have confidence in its survival it is much more likely that the settlement will survive and prosper as a permanent suburb of Mumbai. By fitting a school within the dynamic landscape the student researchers have consolidated a part of the city.

3. Making a Case: Meera's Toilet, Agra

In Kachhpura, an urban village on the edge of Agra, student architect detectives worked with the Centre for Urban and Regional Excellence (CURE), a local NGO. In the process of increasing visibility by mapping the settlement, interviewing residents and compiling detailed ergonomic drawings of inhabitation, one particular story - Meera's toilet (Tang 2014) emerged which took precedence over all others.

Kachhpura's residents do not have internal toilets and women used the surrounding fields to defecate, mostly in the evenings. This procedure became dangerous and unpleasant as the city expanded, encroaching on village land and making privacy in the open more and more difficult to find. One local woman, Meera, was frustrated at the situation, which included harassment by men and often led to health issues such as kidney problems, restricting the number of trips women would make to the bush.

With a view to generating alternatives to open defecation, students built up a case for toilets in the back yards of houses. However, at first, most residents did not want to have toilets inside their houses, stating that they were 'dirty'. Meera was the first to request the installation of a toilet and

1. Making research through building a classroom,
Navi Mumbai, 2010 (Source: Bo Tang)

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septic tank in her back yard. Students raised a small amount of money, about half that required, which eventually developed into a revolving community credit fund, administered by CURE. Meera really was the pioneer, the test case, because she took a cultural leap in the dark. Now over 200 village houses have internal toilets installed whilst 200 more are on the waiting list. The municipal authority has pledged to provide subsidized funds for these remaining toilets.

(Fig. 3).

Soon, all the householders in Meera's street had toilets and septic tanks installed, and it was renamed 'Clean Street' by local residents. Once more children were the key to cultural acceptance. Students and NGO went into the village school and started talking about the alternative hygiene arrangements necessary when you have a toilet in your house. As a result children policed their own parents in this new sanitary regime making sure that this cultural change worked properly.

Still working live in Kachhpura, student architect detectives took one further step, in consultation with the village Panchayat (council) and in partnership with CURE. They installed a hundred metre long series of septic tanks alongside the main open drain with the last couple of tanks being filled with plants. This Decentralized Wastewater Treatment System (DEWATS) takes dirty water from the main drain and produces water clean enough for irrigation, building work and flushing toilets. Fitting this long linear system within the village required a difficult process of negotiation with individual householders which would not have been possible without the manifest success of Meera's Clean Street. It transformed the surroundings to such an extent that the area around the outlet of DEWATS is now used regularly for wedding ceremonies. (Fig. 4).

City Making:

In 2012 the city authorities declared Kachhpura the first open defecation-free slum in Agra and as a result are investigating the whole network of flood plains and open drains which serve the city's slums, to see if the project can be replicated elsewhere. They are considering the need for clean water and sanitation for the hundreds of registered

slums which lie alongside these drainage canals and asking for copies of the student schemes to inform them of the possibilities. In Navi Mumbai politicians have arranged for surface water drains to be installed to protect the community classrooms from flooding, giving legitimacy to these interventions and promoting them as a way forward in establishing such mining communities.

4. Making a Case: Rita's School, Freetown

Research in the peri-urban settlement, Kaningo, a poor settlement on the edge of Freetown, Sierra Leone of Freetown, whose population was made up of civil war refugees, was sparked in 2008 by Rita's request for help to establish a primary school. This led to a collaborative partnership which opened doors to a stimulating academic learning environment. The research process was designed to test resistances and make accommodations to locally encountered realities. Insights and new knowledge emerged as the work progressed.

Architect/detectives first investigated the local physical and cultural topography around the school site sufficient to ensure an appropriate fit for proposals. This was effected through negotiation, institution formation and the assembly of practical capabilities built into the research process. In 2009, a local NGO, CESO, was registered. The first two field trips (2009-2010) reviewed the physical, cultural, social and economic conditions in Kaningo and its surroundings. In 2010 researchers investigated local technologies, trade practices and material availability in order to assess available construction techniques. This involved conducting interviews and documenting observations and construction processes through sketches and photographs. In addition a hands-on workshop experimented on-site with making cementitious walling blocks and ventilation grilles. This work was compiled into a construction manual. (Fig. 5).

By September 2011, the modest school building was completed. Whilst the school operated ever since (except for the period of Ebola outbreak where it was used as an information resource

2. View over Baban Seth stone quarry settlement showing the construction of the community classroom, Navi Mumbai, 2009 (Source: Shamoon Patwari).

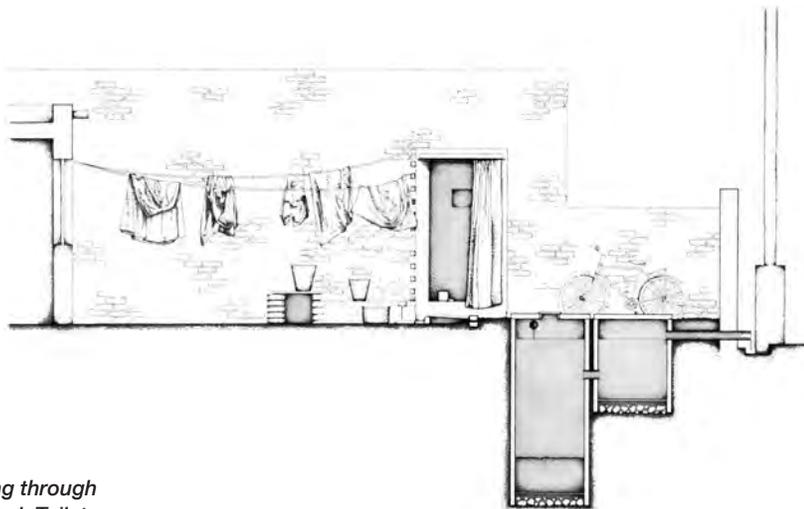


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4. Wedding tent erected at the outlet from the DEWATS, Kachhpura, Agra, 2012. (Source: Bo Tang).



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3. Section drawing through Meera's Septic Tank Toilet System, Kachhpura, Agra, 2008. (Source: Bo Tang).

centre), research and capability building has continued. Incremental upgrading of roof, floors and finishes was carried out in summer 2012. In July 2013, students and local carpenters worked together to design and construct timber benches and desks for two classrooms during the school holidays.

City Making:

The research in Kaningo made explicit the deep social problems encountered by poor Freetown residents. These included a sense of isolation from, and a lack of confidence in, democratic engagement with the city.

As a result of this civic disconnect a second phase of research aimed to raise awareness of the architectural history, culture, and potential of places such as early 21st century Kaningo, alongside those of early 19th century Krio Downtown, home to a distinct family of timber board houses, and early 20th century colonial Hill Station made up of timber box houses, prefabricated in Europe. These places were built at different times and under different conditions but are nevertheless spatially adjacent and all part of the rich architectural culture of Freetown.

Since 2011 ARCSR students and researchers have been carrying out measured surveys of houses in three Freetown neighbourhoods (Mitchell 2013). They have also assembled data from the literature and recorded oral histories in order to facilitate a comparison between them. Partnering with CESO and the residents of Kaningo over a relatively long period has allowed time for negotiations for students to facilitate practice in challenging circumstances. Ethical practice and research have been combined to generate tools and skills whilst training emerging researchers and practitioners to co-produce outputs.

Having explored the urban landscape in this way, researchers investigated ways to give a sense of identity to the growing populations of newer neighborhoods where the greatest social change is currently taking place. Exhibitions of the research and talks and seminars sponsored by the British Council in both Freetown and London have helped by generating a wide response from

the Krio diaspora, the Government of Sierra Leone, students, professionals and the press. More importantly, they have enabled the residents involved to witness representations of their neighborhood included as a valuable contribution to city culture laying down the basis for a sense of shared spatial identity.

(Fig. 6).

Involvement with a live project to build a modest primary school provided a dynamic learning context within which students were able to gain first hand an understanding of the local physical and cultural topography. Students went on to represent the future potential of the peri-urban place within which the school was situated, and in combination with two other survey areas were introduced to two live conversations at city level which have seeded projects to design both a new school of architecture and a national museum. In April 2014, London Metropolitan University signed an agreement with the University of Sierra Leone and the Sierra Leone Institute of Architects to collaborate in founding Sierra Leone's first School of Architecture. The new school will use ARCSR's research into Freetown's historic neighbourhoods as the basis of its history curriculum, and it will use the building methods and attitude to sustainable design pioneered by ARCSR as the basis of its design curriculum. This new initiative grew directly out of the making research.

5. Conclusions

Working within impoverished communities in rapidly changing contexts, our live projects have sought to engage residents in transforming their domestic, neighbourhood and, by extension, their city topography. This involved three communities providing access for our students to rich urban settings and, in exchange, gaining capabilities and learning ways of working which facilitated their access to broader city opportunities. The implications for the architecture profession of working in this way are much broader than those addressed in these three settings, and have resonance for architects working ethically within transitional settlements worldwide.

Whilst mainstream architectural practice and planning is increasingly carried out remote from the site, to the extent that architecture is about making rather than planning, such a hands-off approach, is untenable. For the architect maker, working through representation and performance (Pickering 1995), the key to producing good architecture is to become embedded within the setting where the usually meagre physical and cultural resources available are assembled into an entity which is greater than the sum of its parts.

Making practitioners first need to develop a discourse around a topic defined as a result of forensic physical and cultural surveys. Through a process of shared deliberation and testing fit through a process of trial and error, creative action can be ethically validated. Research is part of this process. Consequently, the freedom in academia to work on live projects for those with the greatest need has enabled the reinterpretation of live projects as research tools whilst, at the same time, requiring architect makers to adopt a broader role.

Involvement in live projects brings together the three strands of teaching, research and practice in architecture. Research by making is appropriate because it changes lives and adds value within an ethical framework extending beyond conventional research practice to include the associated environmental, social and cultural costs. This promulgates a way of thinking and practicing which by accommodating strife and minimizing side effects and hidden costs, can become strategic. Thus this 'bottom up' research provides insights which can be effectively scaled up to contribute to city culture and policy.



5. Making cement ventilation blocks; blocks used in the classroom building, Kaningo, Sierra Leone, 2010, 2011. (Sources: Amanda Rashid, Bo Tang).



6. Exhibition put together by students, held at the British Council Headquarters in Freetown, Sierra Leone, 2013. (Source: Dominic Dudley).



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Acknowledgements

The *Architecture of Rapid Change and Scarce Resources* is an emergent academic research area within the teaching and practice of architecture investigating low-income settlements in urbanised environments from degree level through to PhD. We explore the culture of making and the contribution this makes to effective change for transitional communities in situations where resources are scarce and where both culture and technology are in a state of rapid change, particularly in informal urban settlements. Generously supported by the Sir John Cass Faculty of Art, Architecture and Design, London Metropolitan University and The Water Trust (ARCSR), we use live projects as a tool for research, teaching and practice, in order to examine and extend knowledge of the physical and cultural influences on the process of transforming the built environment.

The process of the COCOON

Research and development of a climate responsive building by computer design and local knowledge of building techniques on a cross-cultural level

The idea of the project is to investigate architecture from a sustainable low-key point of view in local climatic conditions with local materials and cooperating with local people, but with an experimental approach to form, space and material, which involves architects and craftsmen from different places and cultures with their unique individual backgrounds.

The project is a built case study in South India and explores the use of a split bamboo construction to make arbitrary double curved forms, which makes a contrast to an orthogonal plinth construction made out of local red bricks in a climate responsive building, and with the function as an alternative training and educational centre for farmers. The result shows a unique approach to bamboo construction and local materials, where it is possible to merge new digital computer techniques with a craftsman's material understanding. The main design tools have been analogue models and digital computer models generated in the programs of Revit, Rhino and T-Spline.

The building has been designed in Denmark at the Aarhus School of Architecture assisted by professor Byoung Cho and Sara Kim from South Korea. The construction was built in Trichy at KVK farm, South India during November and December 2014 in cooperation with the CARE School of Engineering under dean Vijaykumar Sengottuvelan and assisted by local craftsmen.

Keywords:

Climate responsive building, double curved split bamboo construction, architecture on cross-cultural level.

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1. Cross-cultural cooperation

The development of this experimental building in local materials through a cross-cultural engagement was initiated and mainly sponsored by Aarhus School of Architecture, Denmark. The purpose of this was to unify different cultures and backgrounds and through mutual learning develop a new way of thinking about material, form, space, and function under local conditions. Through the design phase, which took place at the Aarhus School of Architecture in Denmark, the professors and students of Studio CONTEXT, assisted by visiting professor Byoung Cho and assistant Sara Kim from South Korea, formed the idea of the project and the design. Through the actual implementation of the design in South India the team cooperated with professor Vijaykumar Sengottuvelan, staff and students at the CARE School of Engineering in Tiruchirappalli, and structural estimations for aspects about the load of the construction was carried out by engineer Er. Rajendran. A workshop was given in bamboo technique by architect Neelam Manjunath and staff from the Centre for Green Building Material & Technology in Bangalore. The joint cooperation developed ideas and solutions, which were fit for the local climate and environment.



1.

2. Pedagogical approach

The pedagogical approach of the project was to form a collective understanding among students of a climate responsive design process in a local community. The idea of the project was formed during 2013, and from that time contacts between Aarhus in Denmark, Seoul in South Korea and Trichy in South India were established. A pedagogical strategy in five phases was established at Studio CONTEXT during spring and summer 2015. The strategy started with a preliminary phase in the studio environment at Aarhus School of Architecture, where students studied examples of subtropical and tropical buildings with an exemplary approach of how to deal with climate and local materials. The different building analysis were drawn and built in models 1:50. In the second phase the students designed on paper and in models some variations of a small building for the KVK farm in Trichy on basis of the knowledge gained from the first phase. In the third phase an extract of these designs was pointed out in cooperation with professor Byoung Cho, and it formed the foundation for one collective design, which was explored and coordinated among the students in models and digital drawings. The fourth phase started with field studies in India to gain empirical knowledge of the local building tradition and ended up with the construction of the building on site in Trichy. The construction of the building started with a workshop, where it was possible for students and teachers from Aarhus School of Architecture and CARE School of Engineering to study different aspects of the design in mock-ups 1:1, while local workers were establishing the physical foundation of the building. After that the building were constructed in cooperation among teachers, students and local workers. The fifth phase was concerning with the documentation of the building and the process, and it ended up with some new drawings and edited photos, which were presented in a small exhibition primo 2015.





3. Inspiration

The inspiration for the project came through the studies by students at Studio CONTEXT, Aarhus School of Architecture of climate responsive architecture in the subtropical and tropical zones, which later were developed into small sketch models and drawings of possible constructions. From that stage the idea of a light bamboo construction evolved, and more intensive studies on bamboo used in buildings started. In this context students were especially interested in professor Auwi Stübbes organic bamboo project for the IMM furniture exhibition 2006 in Cologne, Germany—the structure was made for indoor use but had an open construction in split bamboo from a central column and outwards in soft and individual rounded curves. This construction had big resemblances to the act of silkworms that spin themselves into cocoons, with arbitrary and round shapes. The production of silk worms is one aspect that is cultivated on the building site at the KVK farm in South India. That is why the project at an early stage got the title: 'The Cocoon'. Another major inspiration studied in books was the theories on tectonics and lightweight architectural constructions created by the German engineer and architect Frei Otto.

4. The site

Under guidance by the CARE School of Engineering the location of the project was decided. The choice fell on the 'Krishi Vigyan Kendra', which is a NGO research and education centre for farmers situated 20km southwest of Tiruchirappalli. The actual location on the site was changed a couple of times but after negotiations it was finally decided to place the building on the left side of the entrance to the farm with a close diagonal connection to the main administrative building, some more functional buildings and palm trees on the south side. The access to the building is from a main path and along the organic bamboo construction to the different plateaus in the middle of the newly designed building.

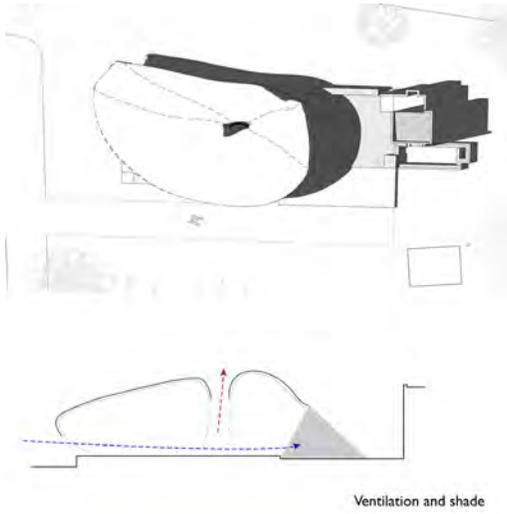
5. The function

The function of the building is a new small training centre for education of farmers. The footprint of the building is 9x17m and consists of an educational ecological toilet, a constructed water purifying bed and an open 'plaza' in connection with the natural surroundings shaping the arrival and a place for casual relaxation. Finally, an organically shaped bamboo construction 7x11m and with a maximum height of 3.8m stands free from the plinth, which enables ventilation through the centre of the building. Together the elements create a space for alternative learning.

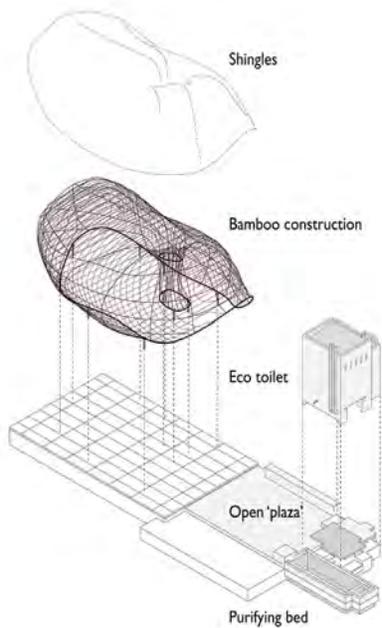
6. The four building elements

The building consists of four elements. The first element is a layering of three plateaus that grounds the building to the place. The first plateau is rough and made of granite stones for the foundation. The second is of red brick and the last is of a dark refined orthogonal granite slab. The plateaus divide the building into three sections. The middle section is an open part, which functions as an entrance plateau, and at the same time a connection between the building and the surrounding nature. Small raised platforms in solid red brick create places for resting and casual social meetings. Two building volumes are embracing this empty entrance space. On the right hand to the east is the eco compost toilet with a planted water purifying system; it is designed in red brick and with three black sun chimneys in iron for air ventilation. The toilet, water purifying system and the external sitting arrangement appear unified because of choice of red brick material and orthogonal design. On the left hand to the west is the section for alternative teaching, which is a bamboo construction of woven split bamboo, it stands on an organically shaped frame of joined split bamboo strips with coconut thread holding it in place. This frame is lifted from the ground/plateau by a series of black bracket arms made of steel. The bamboo construction has a central woven column of with a hole in the middle so air and light can penetrate through the roof construction. A series of twenty 4-split bamboos run out from the sides of the column and are fastened to the bottom frame.

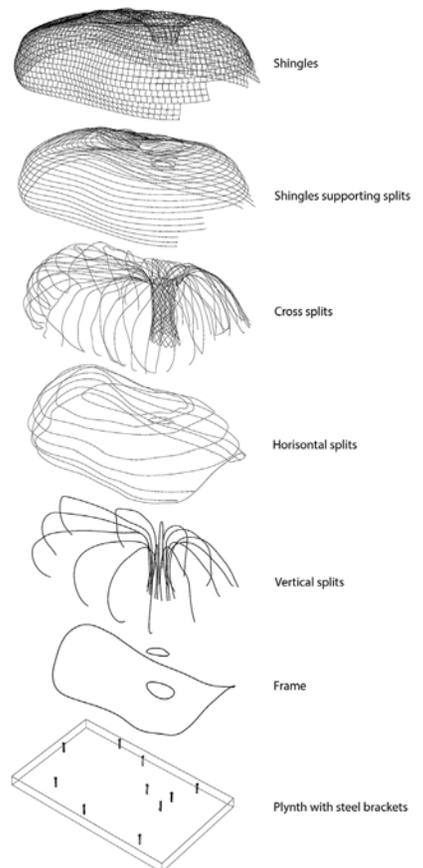
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They form the organic shape of the building and at the same time centralise the space in the column. Diagonally on the vertical 4-split bamboo, 8-splits are woven into the column till the second ring of the column, where another 8-split diagonal is woven in the other direction. These 8-splits and 4-splits are woven together in lines that form the whole shape of the bamboo construction like a basket, forming triangular shapes in a system that create static stability. The bamboo splits are tied together with iron thread such as a concrete reinforcement. On top of the bamboo construction are layers of bark from the palm tree 'areca' (also known as betel nut) fastened on slim splits of bamboo and joint on the construction with the same iron thread as mentioned earlier.

7. The digital design tools

The computer programs used during the design process had a major impact on shaping the building. One could say the building's final appearance during construction is forged through the meeting between digital tectonics and the will of the bamboo material. When the decision was made to lay out the building through a dualistic play between orthogonal forms with heavy materials and a light organic construction of bamboo on top the choice of which programs for sketching the building could begin. Very soon we chose the program Rhino to be our main design tool, hereby T-Spline became the medium to assist in shaping the curves of the construction and Grasshopper to program details of the shingle patterns. A 3d print was later added. The program Revit was used to calculate quantities of material, make sun analysis etc. This decision of programs has had a major impact on the final result of the building with its doubled curved forms in natural materials. It exposed a creative potential of the combination of modern digital technology, natural, sustainable materials and handcrafts in a local environment.

8. Local materials and local workers

To obtain a sustainable approach to the project as possible, it was decided to primarily use materials

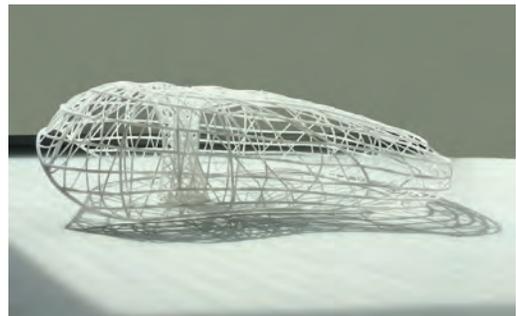
that were available locally and craftsmen from the nearby community. This meant the decision of materials fell on granite, low-burnt red bricks, bamboo and bark from the palm tree 'areca'. The workers were self-educated in the surrounding community and the nearest blacksmith fabricated all ironwork by hand.

9. Preparation of construction

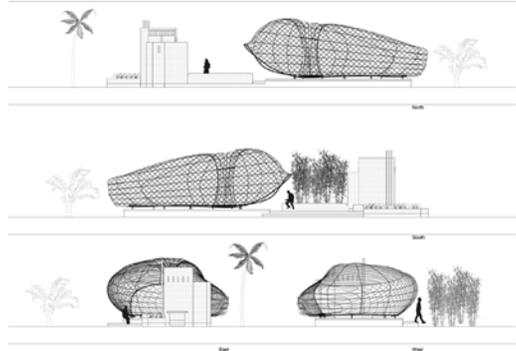
The construction process started with a workshop where different aspects of the main bamboo construction were investigated in a scale model of 1:10 and mock-ups in scale 1:1.

Simultaneously with the investigation process the preparation of the bamboo splits began and the foundation of the building was made. The

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investigation for the mock-ups were centred around the construction of the openly woven bamboo column in the centre and the relation between it and the bottom frame made by the many woven bamboo splits, this would finally form the building. Progress was made through three mock-ups, establishing the concept on how to form the final building from inside to outside. At the same time a perception of the form of the bottom frame was developed. Unfortunately, time was short, so any detailed study of load bearing capacity, strength of different joint methods and special cantilevered areas of the construction were not executed, which later proved to be a lacking point in the preparations. Parallel to this process the preparation of the bamboo started with water treatment for days in open vessels with holes drilled into them for tar treatment. After that the bamboos were split into 4- and 8-splits and treatment with local knives and sandpapering of more than 5km bamboo splits started. Mock-ups of the shingle roof were created and decisions on how the layers of bark from the palm tree 'areca' should be mounted on the construction were taken.

10. Construction

The construction of the building was divided into two sections. One section with students and local craftsmen took care of constructing and building the ecological toilet, water purifying system and the external sitting arrangement with the appearance in red brick, while the other division of students and local craftsmen were engaged with building the lightweight construction in bamboo. After putting the scaffolding around the building site the first objective for the bamboo construction was the foundation of the bracket arms, which hold the outer bamboo frame and the oval ring for the inner woven column. When the bracket arms were fixed in the foundation, it was possible to start the construction of the bamboo frame with 4-split bamboo pieces joint into a continuous and unified line of six bamboo pieces. After that it was possible to establish the oval of split bamboo on three brackets in the middle of the building and start weaving from the inner 'bamboo tree' formed

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of three oval bamboo split rings and outwards. To adjust the form made by the woven splits to the designed digital model strings were drawn up to the scaffolding when a lift was needed and for downwards pressure stones were hanging from the splits. When completing the weaving of the 5km of 4- and 8-split bamboos the crossing bamboo sticks were joined together by metal thread to create a stable structure that would spread the forces out over the whole construction. After the making of the construction the shingles of coated bark from palm tree were mounted on long narrow bamboo splits that were fastened to the construction as a new layer with a darker brown colour on the outside surface and a lighter tone on the inside. Some smaller construction and surface details were added at the end of construction.

11. The final building

The result of the investigation can be found in the design of the final building. Surprisingly it turned out that the meeting between a digitally designed and hand-manufactured building was better than expected.

The inner will of the flexible material bamboo seems to have added an extra layer of dynamics to the digital design, that has given the building an expressive exterior character and a light and crispy interior feeling. The building is small but acts as a series of materialized plateaus leading into the light and three-dimensional bamboo construction where new learning processes can proceed.

12. Conclusion about the bamboo construction

During construction the team found that there were several mistakes in the overall process, partially caused by lack of understanding of the character of the bamboo material and also due to miscommunications during the construction phase. There should have been more bracket

arms placed closer to each other, the bottom ring should have been thicker, and the bamboo weaving should have been denser. Finally, the joints between the bamboo splits should have been done from the column and outwards, so the load would have been spread more harmonious on the whole construction system during built up. On the other hand the project showed that with the right treatment it is possible to construct a bamboo building with arbitrary double curved forms from thin split bamboos, that through the material use points back to the local history and though its form and space points to a contemporary understanding of architecture.

13. Final conclusion about the project

The final building proved a fruitful mutual learning experience among the participating people from different cultures in the project. Despite some misunderstandings the result shows a unique approach to bamboo construction where it's possible to merge new digital techniques with a craftsman's understanding materials. The project shows it is possible to investigate the potentials of arbitrary double curved forms in climate responsive bamboo constructions in the future for new sustainable architectural solutions.

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Illustrations

- 1: Project location in Tiruchirappalli, India**
- 2: Building from northeast**
- 3: Section diagram and site plan showing wind flow and exterior shade.**
- 4: Axonometric drawing showing the different elements of the project**
- 5: Axonometric drawing of the bamboo construction system**
- 6: 3D print of the bamboo construction**
- 7: Digital elevations of the building**
- 8: Mock-up in scale 1:1 of inner woven bamboo column**
- 9: The start of construction with inner column and bottom frame**
- 10: Constructing the woven bamboo column**
- 11: Mounting bark shingles from inside**
- 12: Adjusting the heights of the bamboo splits with stone**
- 13: Bamboo building seen from southwest**
- 14: Bamboo building seen from northeast**
- 15: Interior of wall**
- 16: Interior of central column**

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The academic design practitioner

This paper inquires into how creative practice-led projects can generate dynamic connections between the tools of research and the tools of design practice through case studies of individual academic design practitioner projects to provide unique contributions to industry and society. Each case study represents a different approach to academic design practice that enables recognition and reflection of potential shifts in industry-based design practice, based on the advent of advanced manufacturing technologies, innovation opportunity in small batch production and rationalising the complexities of commercialising 3D printed products. Comparing the case studies primarily addresses the themes of knowing how to engage a practice-based research project and the set-up of projects that can offer academic and industry relevant contributions. Evaluation of the case studies identifies core attributes of the academic design practitioner and how practice-based design research operating outside of the constraints of commercial design projects can advance knowledge uniquely beneficial to industry development. Significantly, the conclusions of the paper suggest that the academic design practitioner may be defined as a researcher with up-to-date competency in industry-based design practice, enabling them to adapt practice-led research projects that can strategically develop multi-tiered outcomes that supply academic and industry relevant outcomes concurrently.

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1. Introduction

Archer (1995) describes research through practitioner action as a form of situation-specific Action Research noting its value in producing insights that cannot be otherwise obtained and providing hypotheses for testing in generalisable Applied Research. Research on how designers generate ideas, set and solve problems and the cognitive aspects of designing is developing well (Cross, 2007), though its direct application may only be interpretable at an academic or industry level at best. Research on design processes at a practical level either only provide insights into how the tools of design may change (e.g. CAD systems) or speculate on the effects that may be felt by design practitioners as a result of predictable changes in associated industries. These forms of research are not very effective at the company level where the two ends of the spectrum must link together in ways that are compatible with the strategic goals of the company. Therefore, realisation is as important as exploration in the context of providing implementable principles, processes or outcomes for industry. By developing artefacts through to a refined form enables the research to examine changes in design process as a consequence of changes in the way products are made and sold.

2. Background

Research whether practice-led or practice-based is situation specific as the investigator is a significant actor in the research situation. Consequently, research through practitioner action is non-objective. Archer (1995) states that there are however, circumstances where the best way to investigate a principle or process is to attempt to construct an artifact as a means of establishing a hypothesis for further research inquiry provided that, as academic research, the project is 'calculated' to expressly produce new knowledge (i.e. knowledge directed), systematically conducted transparently and

the results published or exposed to critical examination. The projects in this paper have been conducted to examine changes in the product design industry and practice and we argue that the rationale for practitioner action is therefore necessary. These are object making in a small batch production context, design for commercialisation of 3D printed products and design for improved performance using 3D printing technology. Each evaluation also discusses the project's compliance with Archers definition for academic research.

2.1 Changing design process

Absolute understanding can be achieved through making, which differs from the understanding a medical doctor may have about the human body or an automotive mechanic may have about combustion engines (Crawford, 2009). There is also a proprietary knowledge produced that is only possible through learning by doing (Fingleton, 1999), knowledge that can only be accessed through the actual engagement with making such as the physical appreciation of material and methods of material processing, making also has the ability to generate ideas (Dobson, 2013) that otherwise would remain undiscovered. The onerous task of making is compounded by the tension that exists between the abstract idea inside a designers mind and the physicality of materiality. Managing this tension in the context of an actual object enables the designer to succeed or fail in real terms, materiality is an excellent arbitrator of truth and honesty. Making provides a way to access forms of knowledge and understanding that would have otherwise been lost had a third party been instructed to carry out that function. An advantage of pursuing a commercialisation pathway with 3D printed products is that the products can be individualised or shaped to bear a closer relationship with a person's culture and its meaning. For designers this cultural meaning

is important because it forms part of the way they design. Hara states that Italian design, whose latin radiance helped develop modern design, is quite in contrast to meditative German design (2015). Therefore research on meanings is intrinsically visionary and built on the researcher's personal culture (Verganti, 2009). New ways of determining how that process may successfully manifest in the context of commercialisation of 3D printed products must be examined through practice-led research by academics with the technical design ability to take the product design outcome through to completion.

Design for Manufacture (DfM) is a term to describe design processes geared to providing parts and assemblies optimised for mass-volume production (O'Driscoll, 2002) and may need to be replaced by new design processes, as 3D printing begins to integrate into mainstream manufacturing. Mass-volume manufacturing is difficult to access and has a high cost of entry (Ball, 2012), whereas 3D printing has a relatively low-cost of entry and is highly accessible. 3D printing is a new technology that may increase its influence in manufacturing. Verganti (2009) highlights that the ability for companies to compete on incremental improvements (such as styling) will become more difficult and larger innovation leaps that understand and push new technologies will become critical. Here smaller technology-driven companies may be best placed to push innovations and strategically implement design through 3D printing as their larger competitors are restricted to only making breakthroughs from within their existing market base (Brown, 2009)

2.2 Changing industry

The digital transformation of manufacturing has not only resulted in increased efficiencies but a democratizing of making more broadly. No longer are unique, bespoke or custom offerings considered a barrier to becoming a manufacturer. Design for small batch production is now a possibility for an expanding number of makers (Anderson, 2012). This is in part due to the emergence of advanced manufacturing technologies (AMT) such as 3D printing that enable anyone to manufacture products on

demand and avoid the high cost of tooling, storage and distribution (Markilli, 2012). This is made possible through online service providers such as Shapeways who act as manufacturer, retailer and distributor (Wohlers, 2015). In the case of Shapeways this is done by allowing anyone to create an online shop hosted on the Shapeways website. They then upload images and 3D printable files of products they want to sell through their shop. Prospective customers can then visit the Shapeways website, browse the shops, order and pay for products that are then 3D printed by Shapeways and directly dispatched to the customer. Shapeways pays the designer / shop owner a small fee for each sale, similar to a royalty payment. It is now well understood that where in the past designers might have been trained to design restricted geometries for mass manufacturing suitability (Hague, et al. 2003), 3D printing presents the opportunity for designers to create complex and previously impossible geometries (Thompson, 2007). The advantages of 3D printing are going to change industry by encouraging re-design of parts considered to be necessary to take advantage of new technology (Diebold, 1952). As a new technology, designing of new parts using 3D printing may serve to reduce manufacturing costs (Atzeni, et al., 2010), improve quality and part performance (Mellor, Hao and Zhang, 2014; Petrovic, et. al., 2011) or consolidate parts (Pandolfo and Walden, 2010).

3. Case studies

The design projects presented in this section have been selected to provide an understanding of how product design research through practitioner action may serve to relate exploratory design processes with ways of developing industry practice in response to technological and business change.

3.1 blk side table

Generating complex forms in small quantities using semi-industrial methods is an ongoing challenge that exists in the field of object design and manufacture. blk specifically examines the

extent to which the square section common in traditional turned wooden legs facilitates innovative types of assembly and construction methods in object design. The objects – a series of small tables and table centre pieces – demonstrate how innovation can be achieved through engaging with material and challenging existing construction methods and accepted functional expectations. The blk series of designs provides a platform for the development of new objects that can be distinguished by their method of construction, assembly and configuration.

(Fig. 1).

The blk objects came about through two knowledge directives. The first directive was an investigation into timber object construction and batch production within the context of present day manufacturing conditions in Australia, with the focus being a type of production located between bespoke making and high-volume manufacturing. A second directive was an exploration into the making of complex forms within the above mentioned context that operates in limited quantities and uses semi-industrial fabrication methods. Associated to this directive was the desire to better understand the relationship of regular and irregular surfaces on objects and the impact on predetermined functional requirement blk emerged following an extended period of time reflecting on an eclectic collection of turned wooden legs, specifically, how traditionally they were utilised in the construction of furniture such as tables and chairs. The square top section of a traditionally turned wooden leg allowed for rails and support members to be easily attached, as opposed to the more difficult process of attaching to the circular part of the leg. The rails were removed and multiple legs were attached together, legs of different sizes and of different material, the result was a simplification of the construction process and an irregular and a chaotic assembly of legs, importantly however it uncovered a line of enquiry. A series of prototypes eventually lead to the rationalisation of the turned wooden leg, leaving only the square top-section. This resulted in what is known as block construction, in itself this is nothing new, butcher's chopping blocks are made this way and they have been around for centuries. But incorporating irregularity and diversity that

was present in an earlier prototype, uncovered an opportunity to challenge preconceptions about furniture construction, horizontal surfaces and aesthetics. The resulting side table designs with irregular tops question the need for homogenous horizontal surfaces. Their limited functionality demands the user to carefully consider how to engage with it. The legs function as they should holding the table top above the ground, are also part of the tabletop, they are not turned like their predecessors, instead, they extrude downwards remaining faithful to their original 'square section' geometry.



1. blk - side table, Wood (Jarrah), Design by Berto Pandolfo, 2013 Photo by Dieu Tan

3.2 Eyewear

Eyewear is a product that can have a low purchase price, if mass produced, or a high purchase price if made by hand. Mass producing any product requires a large amount of investment capital (Ball, 2012) and making a product by hand requires skill and knowledge that requires dedication and time to acquire (Sennett, 2008) as well as being expensive if outsourced. The project focus was on designing and manufacturing eyewear as a self initiated project without the need for large capital investment. The practitioner sought to investigate if it were possible to design and manufacture eyewear sunglasses so they could be manufactured and distributed through a 3D printing bureau such as Shapeways.

(Fig. 2)

The knowledge directive of the Eyewear project was to investigate how such a product would need to be designed so it could be effectively made by and distributed through a 3D printing bureau.

The main focus of the Eyewear was the hinging mechanism used to connect the temples (arms) to the frame. The hypothesis was that through the use of laser sintering (a form of 3D printing) the eyewear frames could be made with all moving parts combined. It was decided to take this approach because in theory laser sintering enables objects to be built with internal moving parts. In other words the front frame and side temples were all to be made connected together with no further assembly needed other than the fitting of the lenses. To test the theory it was necessary to physically 3D print a hinge mechanism to see if the hinges would actually function. Five different types of hinges deemed suitable for Eyewear were designed and 3D printed. For various reasons none of the test hinges performed satisfactorily, therefore another hinging system was designed that would not require any hinge pins and would be easy to assemble and repair. This led to the elasticised hinging system that was eventually incorporated into the final outcome of this project. It was crucial to make the design for testing because if the test hinges hadn't actually

been made and tested it would not have been discovered that integrating the hinge was unsatisfactory and in turn an alternative solution in the form of the elasticised hinging system would not have been developed.

3.3 MTB Crank Arm

After some formative research on how the technology works an account of the advantages and restrictions associated with the technology a key study in 2009 (Maidin et al.) identified three categories of innovative design specific to 3D printing. These are geometric complexity, parts consolidation and product customisation. A review of product categories that may benefit from 3D printing in the future based on the 2009 study led to the bicycle components industry.

(Fig. 3).

The design and fabrication of a Mountain Bike (MTB) Crank Arm came about through two knowledge directives. The primary directive was to investigate how weight, material and performance factors may be collectively improved by the use of 3D printing through the design of a MTB Crank Arm. The project proceeded as a practice-based research project supported by an industry partner, though the rationale for the designers active involvement in the design development was not clearly articulated at the beginning. Shortly after the project start, a secondary directive emerged, which was to seek an understanding of any changes in the design process when designing for 3D printing given that it's a developing technology and bound by a different set of requirements from standard manufacturing technologies.

The rationale for addressing the primary directive through a practitioner action became relevant because of the need to manage the exploratory nature of adjusting the design process (e.g. emphasising and facilitating iterations through CAD model variations as the key input for the 3D printer) which needed to be conducted in close collaboration with the industry partner. At the time of the project, there was limited published research on design processes for 3D printing and without a theoretical guide upon which to

develop a process for an external designer to apply, and given the primary investigator had demonstrable practical experience in product design work for industry, it is appropriate that they enact the design of the MTB Crank Arm as a means of addressing the secondary knowledge directive. A key advantage of practitioner action in the conduct of the research project was that the industry partner was closely involved in the development of a potentially new design process that is created experientially, in terms they can understand and offer contribution.

4. Conclusion

We define the academic design practitioner as a researcher situated in an educational institution and primarily conducts knowledge directed enquiry through practitioner action.

Reflection on the case studies provides some basis for understanding how practice-led research can be used as a central research device that effectively provides innovation outcomes for companies as well as examine changes in design and manufacturing processes that have wider industry impact.

The blk project (3.1) demonstrates that the modified block construction method could be adopted by creative practitioners or small batch producers that are neither skilled artisans or high volume manufacturers. It also confirms that form complexity can be achieved by engaging with existing technologies and applying them in new and different ways. In challenging the preconceived notion that tables need to be homogeneously flat, the blk project opens the possibilities to objects with varying scales of function.

The Eyewear project (3.2) showed that it was possible to design eyewear that can be made and distributed through a 3D print bureau. The project also helped to create new knowledge about the limitations of 3D printing small integrated hinges through laser sintering in polyamide.

The MTB Crank Arm design (3.3) successfully demonstrates that a unified form and an appropriately light weight can be achieved by

designing with 3D printing direct metal laser sintering technology. Engineering testing on the structure has not been conducted on the part to verify its performance in that regard. A record of the primary research directive and design result is published (Pandolfo and Walden, 2010) and the prototype was exhibited thereby exposing the research to a level of critical examination.

4.1 Industry benefit

The blk project reinforces Anderson's statement that recent trends in DIY, Digital Craft and Small Batch Production have underlined the opportunities identified in the New Industrial Revolution (2012) where opportunities for small businesses in high value enterprises that are both artisanal and innovative can become an alternative provider of things the world still needs.

From the practitioners perspective the Eyewear project achieved the stated objectives as it verified that it is possible to design eyewear so it can be manufactured and distributed through a 3D printing bureau. New knowledge was gained in relation to the integrated hinge design in conjunction with laser sintering in polyamide. Both of these results are of value to practicing designers investigating new ways to get self initiated design projects produced and sold.

2. Eyewear, Selective laser sintering in polyamide Design by Stefan Lie, 2010 Photo by Stefan Lie



Manufacturing companies often have a particular technical competency that can unleash new ideas. A practical approach to exploring that competency through verifiable product design outcomes provides a means to view the application of that competency in terms that the manufacturer can understand. Design methods to conceptualise and prototype innovations is a central research device that can uncover much more about the potential of a manufacturing business than simply what the next product will be. The MTB Crank Arm and Eyewear project represent a University-Industry Collaboration (UIC) described as the active engagement of an industry partner (Advanced Manufacturing Services) in a joint research project with academics (Schubert et al. 2014). Successful UIC projects with a manufacturing SME is dependant on the enquiry operating at a company-level (as opposed to an industry-level), yield short-term implementable outcomes and facilitate knowledge transfer between the researchers and the SME (Walden et al. 2015). Both the MTB Crank Arm and Eyewear projects are successful in this regard. Determining the integration of 3D printing into mainstream manufacturing requires an exploratory enquiry method such as research through practitioner action in order to successfully conduct a UIC with a manufacturing SME because existing modes of practice are not likely to be applicable and hypotheses for new modes must be provided. The potential for 3D printing technology to disrupt the pace of new product development and commercial pathways previously relied upon are predicted to affect design's role in manufacturing organisation.

Broadly, the academic design practitioner engages in what Koskinen (2011) might describe as a form of constructive design (lab) research, though the objective is to frame the knowledge enquiry closer to local industry concerns. In this way it can address new knowledge directives that hypothesise future-focused knowledge outcomes, more supportable and relatable to companies in a way no other development of design can.

5 Further research

Researching through practitioner action enabled the design outcomes from the Blk, Eyewear and MTB Crank Arm case studies to achieve their stated goals. However, as mentioned above, the academic practitioners central to these projects are located within an educational institution that has specific operating requirements. Where industry and practice respond to the forces of commerce, academia is driven by the principal objective to uncover new knowledge.

Contributing to the industrial design body of knowledge with non-traditional outcomes is just as valid and necessary as outcomes originating from traditional forms of research. However, the Blk, Eyewear and MTB Crank Arm case studies were conducted with an emphasis towards identifying and subsequently satisfying concerns primarily related to industrial design outcomes, practice and linked industry partners. This collaborative project model should continue to be supported and maintained, but the structure, procedures and recording functions of the investigation must become fully integrated so that the work of the academic design practitioner, inclusive of the artefact becomes academically verifiable.



*3. MTB Crank Arm, Direct metal laser sintering in stainless steel. Design by Roderick Walden, 2010
Photo by Roderick Walden*

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P5

**Researching and
Making (in) Place**

Native and ordinary

In this paper the work of the Design Research Unit of the Welsh School of Architecture (DRUw) is described and analysed in the context of 'native' and 'ordinary' practice conducted within a research-led UK Russell Group University. This includes over a decade of award winning buildings and innovations accompanied by the ongoing development of a parallel practice based PhD programme and the establishment of a 'Reflective Practitioner' group within local practice.

The account describes and illustrates how the body of design work and completed buildings which was originally founded on well established 'orthodox' research disciplines within the - school – social sciences and architectural science has evolved to find its own ground - from 'romantic pragmatism' and the 'environmental imperative' toward a more culturally and informed and socio-economically responsive approach.

The work of DRUw was and remains deliberately positioned so that it would not be 'abstracted' from real situations but rather so that design and the basis of the research is practices in 'active and complex relations with its whole situation and context'.¹

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Being native

So, the work is 'Native' and 'ordinary' in the sense that the majority of the work has been for cash strapped local authorities serving some of the most impoverished areas of the UK and this is the context we applied ourselves to. This resonates with Fraser's assertion that 'Design Research in architecture thus needs to see itself as being entirely framed by socio-economic and cultural factors....'² as opposed to a perhaps a more authentic, critical and speculative approach from within the Academy where it may be expected that the lack of 'real-life' commercial pressure and expectation of an analytical and innovation-led environment prevails. As Rattenbury observes 'So extremely experimental historical work and recent marginal art-architecture contemporary approaches to space or design have, in this particular type of scholarship, been centre stage. Wider study of 'normal' design practices (and let's face it, they're odd enough) has generally been left to the now dwindling, non-academic, professional press.'³

Contrary to the fact that the contributions of creative practice are now widely acknowledged as diverse, in terms of contributions to knowledge in its many forms (Kjørup 2006), the development of design-based research in this example has been dogged by and had to overcome suspicion, ignorance and degrees of resistance from within the University. Acceptance has been and remains incremental and partial and questions related to risk and uncertainty – both financial and pedagogic, academic respectability and worth remain.

For the purpose of this paper 'native' is defined as being grown, produced, or originating in a particular place or in the vicinity. Just about all the work produced by the Design Research Unit of the Welsh School of Architecture located in Cardiff in South Wales has been in the South Wales region. In fact the majority has been commissioned by various local authorities and the nature of the projects have been for local people to live or work

in, or heal in or to just enjoy.

This paper focuses on a series of building projects completed over a ten year period for just one of these authorities and which may also be describes as ordinary.

In Switzerland, commissioning architects from the locale or even the Canton seems to be the custom. This has long since disappeared in Britain, particularly for public sector projects. As local authority architects' departments have been dissolved and replaced with 'framework agreements' tendered across the whole of the UK the chances of architects and small local practices especially serving there own community is much diminished. This may not matter to the Heads of Procurement but the potential for an architecture grounded in its 'place' and responsive to context is inevitably diminished.

As Fraser states 'an on-going dilemma for any architectural practice is how it sees itself in relation to the context it operates in'. Design research thus needs to see itself as being framed entirely framed by socio-economic and cultural factors. What indeed are the conditions under which architecture is produced? Referring to various polar positions in the critical discourse in architectural practice from Tafuri to Phillip Johnson and 'just get the job' post-critical positioning of US East Coast schools at the millennium through to the post 2008 globalisation of architectural practice centring on cut and paste architecture in the far-east which Fraser describes as the issue as problematical and of 'pressing concern'.

In order for this to take place intellectual and material factors will also need to be arranged in such a manner as to make this possible. It is a crucial point, for it means therefore that design research in architecture has to form its operations around a dialectical engagement between ideas and practice.

Fraser claims what architecture can do is to examine, and experiment, with the conditions under which it is conceived and produced, which means that a very real task for design research is to act as a mechanism for a wider critique of architecture itself. The examples Fraser quotes and those that populate the pages of 'Space Agency'⁴ also quoted by Fraser tend to be situated in extreme conditions – poverty, political strife, resource shortages. But what if conditions are less extraordinary – ordinary in fact?

Context

The more urbanised south of Wales, containing cities such as Cardiff, Newport and Swansea, which was historically home to the coal and steel industries, contrasts with the mostly rural north, where agriculture and slate quarrying were the main industries. The people were Anglophone, culturally diverse, militantly socialist. Although the M4 corridor brings some wealth into south Wales, particularly Cardiff, there is no pronounced economic divide between north and south as in England but there is a high level of deprivation in the post-industrial towns. Neath and Port Talbot are such towns located about 40 miles west of Cardiff. The area stretches from the coast to the borders of the Brecon Beacons National Park. Most of the lower lying flat land is near the coast around Port Talbot. An extensive dune system stretches along much of the coast, broken by river mouths and areas of development. This is a remarkable piece of territory as industrial sites such as steelworks and refineries sit amongst dune systems and the registered landscapes of historic houses.

The Neath area in particular suffered greatly in the early 1980s from the very rapid closure of primary industries - coal, iron and tinplate. Unemployment levels rose as high as 18.3% - almost overnight, resulting in a psychological shock whose repercussions are still evident.

Yet the area continues to sustain a strong manufacturing base with more than twice the UK average employed in the manufacturing sector. The steel industry remains by far the largest industrial employer, with around 3000 people

employed directly at the TATA works in Port Talbot, although rationalisation of the workforce has affected employment, contractors and suppliers both at the steelworks and the adjacent industrial estate at Margam.

A critical phenomenon is the fact that of the 42 wards in the County Borough Council area, 11 rank among the 100 most deprived in the Multiple Indices, and 16 are recorded as being the most deprived in the Health Domain. These unwelcome statistical records influence the contemporary cultural essence of pockets of the Council area, and are reflected to some extent in the modern patterns of settlement development.

It is within this context that our work is situated and it inevitably colours the way it is conducted. On the one hand the local authority is (has to be) economically if not architecturally ambitious on the other hand resources are short and whilst budgets are not impossibly low there can be no extravagant shows of conspicuous consumption. A stringent approach to resources, materials and form are foregrounded whilst at the same time the authority, having been the most polluted area in post-war Britain, is actively in pursuit of low energy, low carbon solutions.

(Fig. 1).

The work of the Design Research Unit of the Welsh School of Architecture (DRUw).

The Design Research Unit Wales (DRUw) was established in 2001 within the Welsh School of Architecture with the aim of founding the creative activities of the design studio on a sound research-based approach. It quickly attracted a number of commissions for buildings and projects all located in the region. The work of DRUw, therefore, attempts to respond to a number of conditions some emerging from the traditions and culture of the School. For Christopher Powell, the Welsh School of Architecture from its beginning in 1923 “[...] build a reputation for design work that favoured balance and [creative] pragmatism above [...] heroics.”⁵

There remains a sympathy in the school for an architecture that resembled ‘Romantic

Pragmatism' as described by Peter Davey as an architecture 'which celebrates the primacy of the individual and particular and, pragmatically, it responds to the exigencies of brief and site...' ⁶

The work has evolved, however, toward what Pallasmaa has argued for - 'Eco-functionalism' - which may be 'more primitive in terms of meeting the most fundamental human needs, with an economy of expression' and may help to re-define 'the architects role between polarities of craft and art'. ⁷

These sentiments embodied in the words 'pragmatic' and 'functional' seem somewhat unfashionable but they remain cornerstones of design work in DRUw. The key is the precise meaning of the words. We define 'pragmatic' as a method of understanding' rather than the political version.

For us this has to be accompanied by some evidence or justification. Yes,- we have the support of the best environmental laboratory in a UK school of architecture and the University promotes the idea of evidence based research, but we would prefer rational in the sense that this implies, if not demands holistic reason. One of the practices featured in that issue of the Architectural Review was Maguire and Murray who had coined the phrase 'nearness to need' used by W. R. Lethaby. This became their motto, as Maguire explained in his lecture at the RIBA in 1971. This lecture was also to become influential as Maguire distinguishes between knowing and understanding in the design process. ⁸

Examination of three projects executed for this authority over a 10 year period reveals, on reflection, a flavour of much of this and we can identify a number of themes. The schemes in chronological order are a 5,000m2 speculative 'Eco' factory at Baglan on the site of a former oil refinery (1998-2001), an Environmental Discovery Centre at Margam Park on a protected historic landscape and 16 unit Centre for Respite on the seafront at Aberafan. They are all with 10 miles of one another.

(Fig. 2).

The unique site and altered landscapes

'There is no such thing as a Welsh Architecture' Jan Morris wrote but conceded that if there was one distinctive hallmark of the building art of Wales it exists in the conciliatory power, the ability to unite a structure with its setting, and make it feel part of nature. ⁹

This coupling of landform and building form was achieved intuitively in much of the vernacular building of Wales. Our approach to site (landscape) is relatively consistent regardless of location or size. We combine some native intuition with a lot of time and effort mapping, drawing, modelling referencing and researching – not always knowing where this will lead or what will come of it. At Margam, the landscape is listed in the Register for Historic Landscapes in Wales.

Places need to be altered to sustain them and Margam's landscape had been 'managed' for over 3000 years. In 'Topographical Stories' David Leatherbarrow refers to the possibility of the building as an elaboration of the terrain and which 'is not substantial in its own terms, nor self sufficient, but dependent, or adjective to its milieu'.¹⁰ We pursue an adjectival architecture, where an analysis of site may 'structure' the project. Under this dispensation, site – or more broadly ambient landscape – is not what surrounds and supplements the building, but what enters into, continues through, emanates from and enlivens it. ¹¹ That is about as close as I can explain what we tried to do on all three schemes – frame, hold, ensure spatial continuity, nestle, sense climate, feel nature...

In the tense days of trying to win over the conservationists in designing Margam a Robert Smithson quote - 'the gardens of history are being replaced by the sites of time' ¹² became important along with the image of his Partially buried Woodshed. When there is no Eco left to discover the site will become something else. To a lesser extent the Eco-Factory and Respite follow these principles although not on such sensitive sites. For the factory siting and orientation was critical for environmental performance whilst for

Respite on a challenging seaside location our concerns were more striking a balance between a desire for controlled exposure to the elements and very real need of the inhabitants who suffer from a range of frailties for refuge. The result is in stark contrast to the other neighbouring care facilities which are hermetic in contrast.

From form to place

In a project review with another mentor, Dean Hawkes, he suggested we were erring toward formalism. It is true that we have become increasingly interested and committed to disciplines in form and composition. There is a certain 'ocd' with measure and composition. This emanates initially from the preliminary studies of site –as reference is also made to the work of artists and makers – Sean Scully in the case of Margam as well as Robert Smithson. But we also know that a certain dimensional logic can improve buildability and help control building costs. Elsewhere, other things like the 'gravitations' of Chillida, geometric 19th c Welsh Quilts and Paul Klee compositions are referenced. These forms tend to be geometrically simple and at Margam the horizontal line and its position relative to a gently sloping ground line and horizon was considered critical. For Respite the abstract and figurative paintings of Richard Diebenkorn and Nicolas de Staël were influential particularly in terms of colour and form.

Things 'must line up' and we are interested in visual 'balance'. A more critical ambition in all this however is the connection between dimension, form and place. At Margam the idea started with three framing devices in echelon. A building a 600mm dimension was worked into a 4.8m x 8.4m module. This was used to order both building and landscape spatially and constructionally. In building terms we knew that the construction process, because of time and cost, would direct and not merely accommodate design strategies. Prefabricated systems were inevitable – not just a nod and a wink to MMC (Modern Methods of Construction) fashionistas. However, the dimensions both externally and internally, are to do with rooms and place – both indoor and outdoor and in particular window

positions related to view. We talked of waking up with a roe deer outside the room (even if was modular). The dimensional discipline is also recognisable at Respite where the grouping of four dwelling around a square court is dimensionally critical. The Factory is also carefully regulated so that aspects of structural design, passive design and economics are carefully optimised.

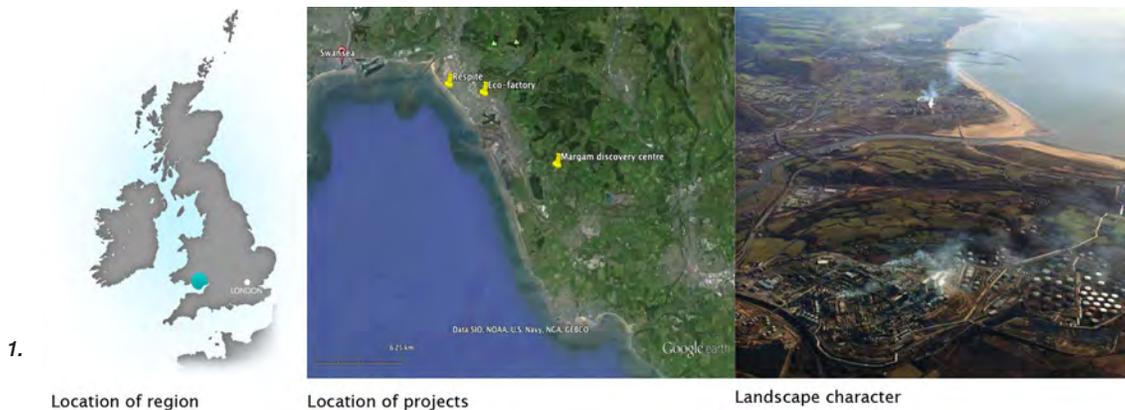
(Fig. 3).

The selective environment and low carbon

Having trained at the WSA it is in our nature to consider the form of the climatically responsive building envelope. All the schemes describe here, in spite of varied building types, have been designed using the principles of passive design and most have been subjected to scientific prediction techniques of the laboratory. We don't use too many numbers or a computer model in this endeavour. Heuristics based on drawn studies and rules of thumb prevail – especially the sectional development - is the sky visible to the occupier, what is the distance from the window wall? Further investigation is conducted with physical models in our Sky. Resulting building form tends to privilege single sided circulation spaces or as at Respite 'punctured' the plan all of which are hard to justify to cost consultants. We wonder do we over-glaze, about the potential of the shadow more than whether we can get a sustainability point for daylight. The building emission rate at Margam was predicted as 9.5kg/m² per annum.

We are in pursuit of environmental delight and user control as much as low energy. We have tried Passivhaus but remain cautious. On all schemes we deliberately try to create 'promenade architecturale' which was right at the boundary of outside and inside – where life is lived although we are for the hearth as well.

Detail and system – craft and the factory



1.

Location of region

Location of projects

Landscape character



2.

Eco-factory - concept model

Margam Environmental Discovery Centre concept sketch

Respite - concept sketch

Paper



3.

Eco-factory

Margam Eco-discovery centre

Respite - sea-front



4.

Eco-factory - frame

Margam - volumetric off-site

Respite - pre-cast concrete panel

This is, perhaps, most difficult to reconcile. How to build? Michael Sorkin says ‘Joinery is always the moment of truth for architecture of gravity’¹³. We say chance would be a fine thing! We have had to create our own opportunities to craft (in a Richard Sennett sense) small buildings. Under the command and control systems of constructing excellence, procurement systems, partnering, certification and compliance is there a chance for authenticity and tactility let alone substance in contemporary construction?

We have become more knowledgeable about building systems rather than detailing because we needed to be. 70% of Margam was pre-fabricated in a former aircraft hangar near Hull. We were able to insist on timber technologies but whilst our initial intention had been to employ locally sourced material (within a 50 mile radius), only the hardwoods were sourced from British forests. Perhaps in the future re-engineered, renewable local materials will be incorporated into local/regional components and systems in resistance to the homogenising and flattening effect of globalised construction. This is as an area in which we continue to work with manufacturers and suppliers – big and small.

(Fig. 4).

Nearness to need and high standard of ordinariness

In this work we have tried to understand the notion of critical in the context of architectural practice. After nearly a decade of activity, during which, schemes and projects have been evaluated and re-evaluated, we are anxious that the critical act (in our case design) does not become abstracted from its real situation and circumstances. For us, this would mean to adopt critical judgement, including as Raymond Williams defined ‘a definite practice, in active and complex relations with its whole situation and context.’¹⁴

The quality of the research outputs (designs) ‘implicitly represent a critical commentary on the production of ordinary practice’. That is all well and good but a number of barriers to the

acceptance of the outcomes of this endeavour as bona-fide research have been encountered. First is the acceptance that these buildings are bona-fide research outputs. On the one hand they are premiated and published. Two of the three are RIBA Award winners and the Factory was shortlisted for the RIBA Sustainable Building of the Year Award. However, when compared to the more orthodox outputs of colleagues in the STEM subjects in our College of Physical Sciences and Engineering they are viewed with suspicion – especially when it comes to Research Assessment exercises. Then there is the whole aspect of risk associated with this work. Whilst the nature of our work has attracted some of our best young graduates the University insists that commissions meet their stringent requirements before people can be appointed – so career progression is risky. The actual indemnification of the work is another thing and the uncertainty of the process is another. Nothing is guaranteed – projects get cancelled, procurement systems eliminate our involvement and sometimes maybe the work is just not good enough. In aiming for a ‘high standard of ordinariness’ in order to meet budgets, build coherently and effectively, re-assure nervous clients (patrons may be a better word) who are committing public funds our critical aims may not always be reached. As Maguire wrote all those years ago ‘It is an imperfect situation. Correctness and certainty have disappeared. The ideal articulation is a mirage. It does not exist except as a concept. But an articulation with a high level of appropriateness can be achieved by accepting the existential realities of the situation in all their apparent imperfection. Our own experience is that it is that acceptance which enables us to become creative in the design process.’¹⁵

Our experience in DRUw reflects this. We have found that in our form of critical practice it is unreasonable to expect perfection in all the values we think we can identify in our work but we are able to get some feeling for a useful hierarchy of critical values that we can articulate for our particular milieu.

Foot Notes

¹ *Williams, Raymond Keywords p36*

² *Fraser, Murray Design Research in Architecture :An Overview Ashgate 2013 ISBN978-1-4094-6217-0 p200*

³ *Rettenbury, Kester http://www.architectural-education.club/revealing_secrets_kester_rattenbury*

⁴ *Fraser, Murray ibid p 218*

⁵ *Powell, C., School Matters, Touchstone Oct.1997, 14.11.0. p.39.*

⁶ *Darley, G. and Davey, P., Sense and Sensibility, Architectural Review 1039, (1983).*

⁷ *Pallasmaa, J. From Metaphorical to Ecological Functionalism, Architectural Review 1156 (1993).*

⁸ *Maguire. Robert. 'Nearness to Need' RIBA Journal April 1971 p 140*

⁹ *Morris. Jan, 'Wales: Epic views from a small country'*

¹⁰ *Leatherbarrow. D, Topographical Stories p20*

¹¹ *Ibid*

¹² *Smithson Robert 'A Sedimentation of the Mind – Earth Projects' 1968*

¹³ *Sorkin, Michael 'For an architecture of reality' New York 1987*

¹⁴ *Maguire. Robert Ibid p 143*

A Fine Arts Practice Based Research

*Research into practice into form; mixed
methods and interdisciplinarity*

I will reflect on the nature of practice based research as it relates to a fine arts practice, drawing on my interdisciplinary arts practice, and a particular body of work concerned with forest environments in the North of Scotland and questions about how you come to know place. This work formed the backbone of an interdisciplinary practice based PhD and is still ongoing. I will use this work to interrogate processes of research in relation to fine art, making and discovery about place, drawing also on anthropological and geographical perspectives that see place as unfinished and ongoing. I will discuss the variety of sources and the methods I used, including ethnographic fieldwork. I will also reflect on a collaborative work created with the writer Elizabeth Reeder. 'I plant a lighthouse here' is a video/sound piece that uses the pulses of selected Scottish lighthouses and language taken from a variety of sources to explore rhythm and sound, vision, syntax and language. I will reflect on how this collaboration created new ways of understanding our source materials, and encouraged different outputs, born from synergies and tensions between our different disciplines and knowledge bases.

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Landscape, Scotland.***

In this paper I will integrate more general thoughts on doing practice led research, with more specific reflections on my own interdisciplinary practice based PhD and ideas and research-led ways of working. I will also reflect on some collaborative work I have done, which gives insights into both the creative research process, and the insights and innovations that come from interdisciplinary and collaborative endeavors. I come into this discussion as a fine artist, originally trained in printmaking but with a practice that incorporates video, sound, prints, sculptural works, artist's books and creative non-fiction. My practice is ideas and research-led, and the forms that it takes are responsive to the ideas that I am investigating. In this paper I refer to a long-standing and multi-stranded collection of works that are centred on some of the forests in the North of Scotland, particularly Abernethy forest, which is the biggest expanse of remnant native pinewood in the country; and a more experimental collaborative work, 'I plant a lighthouse here'.

Figure 1: treescape, Abernethy Forest (Amanda Thomson)

This paper consists more as a series of reflections, questions and perhaps provocations about the creative research process as it pertains to fine art, born from my own experience as a practitioner engaged in research, and my enquiries into the nature of the process of art making.

In the UK, in 2007, the Arts and Humanities Research Council carried out a review of ADA - that is art, design and architecture research. This AHRC review noted that 'the expression "practice-led" does not describe a single set of ideas about research. Its meaning varies with discipline, location and person and it varies with the questions that are being investigated' (AHRC 2007: 10). They go on,

'This is not to say that practice is a method of

research or, as some assert, a methodology. Practice is an activity which can be employed in research, the method or methodology must always include an explicit understanding of how the practice contributes to the inquiry and research is distinguished from other forms of practice by that explicit understanding' (AHRC 2007: 11).

Estelle Barrett succinctly captures the possibilities inherent to arts practice based research when she asks 'What new knowledge/ understandings did the studio enquiry and methodology generate that may not have been revealed through other research approaches?' (Barratt 2010: 1). And this seems a really important aspect of what the potential is for creative practices, and what comes from practice as research - what comes from doing and making, as oppose to thinking about doing.

The nature (and possibilities) of practice based research has been explored in a number of books such as those by Graeme Sullivan (2010) and the volume edited by Estelle Barratt and Barbara Bolt (2010), as well as in countless articles. What is clear is that many of the books about practice-led research fall back on specific examples in order to demonstrate the possibilities of practice based research. While these books are all helpful to varying degrees, there will come a point when the creative researcher will have to move away from any example or template, and find their own path and their own rigour. So while writers like Graeme Sullivan rightly see art as being 'a site for knowledge construction and meaning making' (2010: 83), our methods of research can vary, depending on the questions that we ask, or the circumstances or subject matter we are responding to.

Before I go on, it is instructive to consider how the AHRC has compared the requirements of research in another professional field to that of ADA research. They give a quote by Furlong and Oancea (2005) who are considering the research

in the field of education: 'Research should be believable, plausible and authentic; contribute to knowledge by, for example, adding to what is known by providing greater clarity to the field; being clear in design and dissemination through careful and systematic approaches' (AHRC 2007: 13). However, the AHRC astutely note,

'For the "creative" disciplines such language can be problematic as it implies a degree of pre-determination and precision that does not sit comfortably with the uncertain and open ended nature of creative practice. The expression "The Science of Uncertainty" has been used to describe design, expressing both the need to develop a rigorous framework for knowledge and the principle that designers deal with problems that do not have predictable or optimal solutions and may even resist description. In creative disciplines, practice led research methods must take account of this tension and allow for uncertainty and open-endedness if the practice in the research is to be valid' (2007: 13).

This notion of uncertainty perhaps resonates all the more with artists whose starting points of enquiry are often from personally situated interests, or a simple question. However, ideas of uncertainty also chimes with broader ideas about the nature of the world and knowledge that many disciplines in the social sciences have begun to address the fact that the reality is that the phenomena of the world straddle different disciplinary areas of enquiry. An awareness and an ability to address this is seen as a strength of arts based enquiry, and the speculative, and indeed multidisciplinary nature of arts enquiry is also something which Clive Cazeaux has noted,

'art is uniquely placed to generate research on account of the fact it is inherently interdisciplinary, that is to say, it involves combining different subjects and methods: for example, the interaction between an artist's specialism and the interest they want to explore through their practice, with the research value lying in the negotiation that takes place between them, and what that negotiation produces' (2008: 108).

Many disciplines are attempting to conceptualise the unfinished and ongoing nature of the world. More specifically pertinent to my interests is how such writing has attempted to understand place, and for my own work I have drawn on

anthropology, geography, ecology, social history and literature amongst other subjects, to make sense of the places of my investigations. An engagement with writing from subjects such as geography and anthropology adds layers to how our entanglements with places can be understood. From writers such as Barbara Bender (2001), Tim Ingold (2000, 2011), Nigel Thrift (2007), and John Wylie (2005, 2007) come perspectives that see places as being fluid, constantly shifting and dependent on activity in them, characterised by different atmospheres, ways of coming to know, and subjectively and multisensorially experienced. For example Tim Ingold's long term and wide-ranging explorations of landscape and the 'lifeworld' (2000, 2010, 2011) and how he writes about the ways in which we inhabit and how our lives consist of constant interactions with other people, the 'things' of the world, place and landscape. Such writing deals with the dynamics of places and how we come to know (Ingold 2000, 2011), and the fact that places are made, 'unfinished', ongoing, and always 'becoming' (Ingold 2000, Dewsbury et al. 2002). In the introduction to an edition of Geoforum on 'enacting geographies' that considers 'the unfolding nature of the world' (Dewsbury et al. 2002), the editors note that 'the world is more excessive than we can theorise'. Elsewhere they observe, 'the world does not add-up. The world does not resolve or rest' (2002: 437).

The sociologist John Law also notes that many realities are, in reality, vague and ephemeral. Law considers this 'messiness' specifically in relation to research methods, positing that 'If methods want to know and to help shape the world, then they need to reinvent their practice and their politics in order to deal with mess. That is the challenge. Nothing else will do' (Law 2004: introductory page). He argues that 'simple clear descriptions don't work if what they are describing is not itself very coherent' (Law 2004: 2).

My contention is that by its very nature, art can help address some of these issues and questions of atmosphere, the poetics of place and amorphousness. This is not to say that an arts practice cannot directly address, and answer specific research questions. Some of my work and my creative non fiction writing addresses

facts of working on the land, when carrying out ecological surveys, or the sounds of place, or the activity of bird ringing. But even then, I am more interested in the poetics of place.

Certainly, as an artist, it is often the questions that art evokes in me that are more satisfying than answers, and in my own work, I hope to leave a space for the viewer or listener to find their own way through, and that may come from the memories or experiences they have already, or in a sense of otherness that my work might evoke, as they encounter something that they have not thought about, or encountered before. For example a series of photographs, *Constant Effort*, document a day spent with a bird ringer, and the images raise uncomfortable questions about ideas of conservation and the benefits of monitoring bird movements, with the potential harm caused to individual birds. At the same time, the images allow us to see these tiny birds far closer than we would ordinarily get.

Figure 2: *Constant Effort*. One from a series of digital photographs (Amanda Thomson)

In much of my work, I am concerned with intangibles, more vague questions, and consider the multiple ways that a phenomenon might be addressed. Places can be experienced in a multitude of ways, and our experiences of them can be enhanced by new information which allows us to see different things or perceive certain aspects in new ways. In terms of forests, while many changes are obvious - most noticeable in the changes that take place over the different seasons, other changes are imperceptible, or take place over long periods of time. Other changes, or 'events' are hidden, or invisible to most people's interactions with these places, but are visible, and integral to the work of the foresters, ecologists and scientists that I engaged with and became clearer because of the ethnographic fieldwork element, specifically participant observation which became part of my methodology. Here, concerns with the biodiversity of the area, and approaches to conservation to support and protect endangered species, and consequential actions that are taken in these areas allowed access to information about place which is not always clear or apparent

to 'everyday' walkers and lay people, in relation to what is being done, why it is being done or the significance. This is particularly the case when the outcomes of decisions made now (or 20 years ago) may be only visible or decades, or tens of decades away. At the same time, there can be a poetics and another way of looking and conveying some of these issues - the beauty and delicacy inherent in a bed of lichens, the significance of the standing deadwood to the health of the pine forest; the incredible variety of moths that make up a hugely important part of the ecology of the forest, but who go about their work after dark and their significance to the birdlife, for example. An arts practice such as my own creates a way of melding information gleaned from scientific investigations and conservation work with the inherent aesthetics and poetics of the subjects that they are engaging with, and in the nature of its outputs, suggests different way of conveying this information.

Figure 3: *imago/imagines*: detail from a video, shown on loop (Amanda Thomson)

Law notes, 'if much of reality is ephemeral and elusive' (and I would add complex and multifaceted), 'then we cannot expect single answers' (2004: 2). Similarly much of our subject matter is not singular in nature, but is multi-stranded, multi-faceted, and open to innumerable interpretations. At the same time, there are important methodological issues that have been raised by feminist and other scholars regarding the situatedness of the investigator/ researcher, and ideas of situated knowledge. Writers like Amanda Coffey for example, who writes about ethnographic fieldwork in her book 'the ethnographic self' (1999) and explores the idea of how the researcher actively sees themselves and their choices: she states, 'the sexualised and gendered body affect both our own experiences of fieldwork and the nature of the data we collect' (1999: 60).

Paul Carter, in his book *Material Culture* (2004) sees art-making, and the role of the artist, as involving "a decontextualisation from established or universal discourse to instances of particular experience. In staging itself as an artwork, the particularity of the experience is then returned

to the universal” (2008, 5). Estelle Barrett also echoes this perception, and both take into account the individuality of each artist and their practice, and the relative scope within finding meaning to interpret and find form. Barrett states “the innovative and critical potential of practice-based research lies in its capacity to generate personally situated knowledge and new ways of modelling and externalising such knowledge while at the same time revealing philosophical, social and cultural contexts for the critical intervention and application of knowledge outcomes.” (2009, 2)

So there can't help but be an arbitrariness between personal experience and history, the artist's particular focus and interest, and the 'data' gathered. Beth Greenhough, for example, posited that fieldwork is 'more than a process of data collection; it is an event through which the researcher and the researched are resituated in the world, and thereby are engaged in remaking the world through the process of their encounters' (2010). In a similar vein, Sara Pink, a visual anthropologist, notes, 'Any experience, action, artifact, image or idea is never definitively just one thing but may be redefined differently in different situations, by different individuals and in terms of different discourses' (2007: 23).

It becomes clear that images, texts, objects and artifacts can be situated, interpreted and used in a variety of ways, dependent on the nature of the investigation, the situatedness of the researcher and indeed the skills-sets of the researcher and I will finish with two case studies, the first about my work in the forests of the north of Scotland, and then I will talk about 'I plant a lighthouse here', a collaborative video and sound work with a creative writer, essayist and lecturer, Elizabeth Reeder.

Case study 1

My PhD investigated the ways in which a contemporary arts practice can articulate and communicate aspects and elements of place in ways that, I argued, writing alone is unable to do. Central to its outcomes is the idea that places are multi-layered and ever-changing, absorbing and leaking complex ecological,

sensorial and physical histories and presences. Conceptualisations of landscapes and places that see them as being embodied, active, unfinished and take account of their atmospheres and the role of the affective register in what makes a place raise a challenge as to how the complexities at the heart of what 'place' is, can be addressed. This research involved a contemporary arts practice and an approach that is more-than-written - by which I mean a fusion of styles of writing, and multiple formats within an arts practice, including print, photography, video, sound, bookworks and creative non-fiction. Repeated visits to specific localities, namely the forests of Abernethy and some of the forests of Morayshire, and the inclusion of ethnographic fieldwork (walking with foresters, ecologists and others as they work in these places) and task-based activity (as an RSPB volunteer in Abernethy) was crucial in gathering the raw materials necessary for art production.

Figure 4: Exhibition view, *In the forests* (all work, Amanda Thomson)

My walking and my work engage with the entanglements of life - human interactions with each other and to place, as well as human to non-human relationships. In researching for my work, I have variously followed or looked for people, ideas, birds, the contours of the land, the weather and flora and fauna of place. In many respects, I regard the contribution of an arts based practice as responding to geographers like Hayden Lorimer, who, in acknowledging the complexities, as well as the poetics of place, talks of the need for a language 'sufficient to do fullest justice to the intensities, to the properties and to the rich lore of place' (2008: 182). My research was essentially predicated on the fact that places are unfinished and ongoing, and that those who live and work in them know them in different ways, and I had to find the right way to go about doing this research. My research and subsequent outcomes demonstrate how a multimodal arts practice can help tell different aspects of a complex story and ongoing narrative which takes into account a places ongoingness, and the multisensoriality with which one experiences place.

Case study 2: I plant a lighthouse here

When one looks at a lighthouse, one can consider its historic role in the nature of sea navigation and making sea-travel, and therefore, trade routes, safer and more viable. One can also consider the feats of engineering that it took for the Stevenson lighthouses to be completed. But in the work 'I plant a lighthouse here', lighthouses become something else, more ephemeral, there's a metaphor and an atmosphere they evoke that in the work, we were keen to explore.

Figure 5: still from video/ soundwork, I plant a lighthouse here (Amanda Thomson/ Elizabeth Reeder)

This video project emerged out of a desire to do a longer project about the waters around Scotland, with lighthouses as anchors, something that had been a longstanding discussion between myself and Elizabeth Reeder, and this piece was an initial foray into this. Additionally, we needed a place to start to test out how we might collaborate as an artist and writer, something we'd never done before. We both have longstanding interests in the Scottish landscape, but here, I was interested in the shift of play between darkness and light, and the absent presence of place at night. Perhaps this interest arose because much of my work is based in etching, monochromatic and pulling dark from light, or in mezzotint, the reverse. Elizabeth Reeder took as the starting point for her interest the metaphor of the lighthouse in Virginia Woolf's 'To the lighthouse', the free and indirect narration used, and how that could influence movements between voices. In my initial research, I discovered how each lighthouse had a unique signature and pulse, and idea of pulse and rhythm then became something of interest to me, but it was only in exploratory conversation with Elizabeth Reeder that our interests coalesced and became the singular but multi-faceted piece 'I plant a lighthouse here' which explores both visuals and sound, pulse, light and dark, tone, syntax and breath and uses fragments of text, original and from Virginia Woolf and Gertrude Stein among others.



1.



2.

Paper



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Paper

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I plant a lighthouse here

This video and soundwork is the result of a collaboration between the visual artist, Amanda Thomson, who lectures at Glasgow School of Art, and creative writer Elizabeth Reeder, lecturer in Creative Writing at the University of Glasgow. This video project emerged out of a shared desire to do a longer project about the waters around Scotland, with lighthouses as anchors. This video also became a place to start to test out how we might collaborate as an artist and writer, something we had never done before. The collaboration was originally shown at the 21st annual International Virginia Woolf conference at the University of Glasgow. This exhibition forms an addendum to the paper given by Amanda Thomson, should anyone wish to see and hear the video discussed in this paper in full.

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A description of the video is as follows:

Lighthouses are islands of light. Their bright-sweep-beacons are regular and individual - each lighthouse has its own rhythm and syntactical structure influenced not only by its unique light-signature but by the landscape and environment in which it pulses. Lighthouses help give travellers direction and, in Woolf's novel, the lighthouse becomes the goal, unachieved, then, in its own way, achieved ('it is finished'). The lighthouse can provide guidance and safe passage to those who witness and understand its coded information, but each lighthouse also implicitly acknowledges the danger and risk all travellers face. At night, when lighthouses come into their own, they become points of safety surrounded by the unknown and through the hours they persistently engage in quiet dialogue with other sources of light. Using the pulses of selected Scottish lighthouses, videoed and photographed, and language taken

from Woolf's writing as well as original text, we (an artist and a writer) use the possibilities of lighthouses in a work that navigates rhythm and sound, syntax and vision. The final product, projected or screened explores the ebb and flow of dark to light, known to unknown, witnessed to conjectured.



Collective city-making in Brussels

'to think as doing'

This paper is the result of a joint study emerging from a practice-based PhD and the Brussels Selfcityproject. Through the PhD an urban practice is developing – action-research – that aims at gaining a better understanding of collective tactical and grassroots city-making processes. For this, a constructive research collaboration with Piet Van Meerbeek and his Selfcityproject has been set up. Together we aimed to unravel, develop and empower collective city-making initiatives in the Brussels context. A case study has been made of five carefully selected projects – amongst which the action-case of the PhD. This has been done through a framework for ‘features of civic making’ which focuses on the critical aspects of the role and position of the actors, activism, ad hoc/organisation, openness and commoning. In this paper, followed by a brief review of the growing movement of citizen initiatives, we will describe the outlined framework and give an overview of the studied cases using this structure. In the final chapter we will present our conclusions and speculate on how these findings can inspire the making and advancement of the own practice and similar future initiatives.

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Since the economic crisis in 2008/9, processes of tactical and grassroots city-making are becoming more apparent in several cities around the globe like Berlin (Oswalt, Overmeyer, & Misselwitz, 2013), Bogota (Ortega Hermida, 2014), Istanbul (Tan, 2013) and San Francisco (Rebar, 2014). Citizens self-organise to generate creative processes that provide an alternative for the neoliberal systems, which bring the value of money over the economic and the social (Commons Josaphat, 2015). In cities like Madrid and Berlin plenty of civic projects – after the participatory movement of the 70/80's – rethink their own urban environment. However, it is uncertain if this multitude of very local interventions can have a major impact on the scale of our cities and their societies. It is in this context we will focus on the preliminary results of a selection of initiatives that – like the own practice case of the PhD – aim to provide an alternative to these criticised system in Brussels. For this it is desired to gain a better understanding of their ways of making that situate themselves in the margins of our urban environment.

In the particular, superdiverse and strongly polarised context of Brussels, the practice-based PhD research (Van Reusel, 2015) aims to gain a better understanding of these collective tactical and grassroots city-making processes. By actively participating in one of these collectives, the architect-researcher aims to gain more insight in these practices that manage to provide an alternative for the dominant and conventional urbanism systems. The combination of personal experience and research aims to bring a valuable contribution to the recognition, development and multiplication of these practices. A similar concern is addressed through the Selfcity project that is set up by BRAL vzw, an established NGO that supports residents of Brussels in their struggle for a more liveable city. This paper is the result of a joint study in which a share of these emerging city-making processes are identified and explored in a relational dialogue with the involved actors. One of the five selected cases is Commons

Josaphat, wherein the architect-researcher is one of the drivers. Following questions are addressed in this paper:

- What are the key features that contribute to collective city-making processes in Brussels?
- What can we learn when we look at the own practice in relation to a selection of cases, through this framework of 'features of civic making'?

After this brief introduction a more elaborated chapter on the context will follow. This part will outline the particularity of the Brussels cases and describe the involved PhD research and the Selfcity project more in detail. Subsequently this paper will make a case study of five initiatives, among which Commons Josaphat which is the focus of the first author's PhD. Informed by local practices and interviews we will construct a framework for 'features of civic making' to then discuss the selected cases. We will conclude with a brief reflection on how this study can support the architect-researcher in her own practice as well as how it can enable the making of future initiatives and their empowerment.

1. A Background on Civic-making Practices and the Local Context

The link between the above described growing movement of citizen groups that take up initiative and the global crisis is addressed by the international 'We-Traders' exhibition (Fitz & Epple, 2015). This travelling exposition widens the notion of urbanism by highlighting a broad range of citizen initiatives as a reaction to a both economic and social crisis that touches upon several aspects of the urban life. These processes of civic making rethink the city on a social, economic and ecological level (Duero, 2014).

In 'Make_Shift City: the Renegotiation of the urban commons', Francesca Ferguson (2014) addresses these civic platforms as a meaningful alternative for the conventional urban planning practices. This very hand-on way of 'making' works on a concrete (spatial) utopia and experiments creative and novel practices by intervening besides the established codes and regulations. These 'ground up' civic activities generate a process of self-governance in the local commons (Petrescu & Petcou, 2014). By working in the gaps of the dominant systems these 'margin' practices want to superimpose social relationships and common sense over ownership and individuality.

A significant movement of citizen initiatives is also at work in the Brussels context. This super-diverse city has a reputable history of strong citizen resistance to bigger infrastructural (re) development plans. From the late 70's, these 'luttons urbaines' (urban struggles) led to a relatively open consultancy mechanisms for urban planning (Doucet, 2010). Together with the rise of NGO's like BRAL a strong foothold was created for citizens to block or delay contested building projects. However, this did not stop a growing sense of disagreement with how the city is governed. Whereas in the past citizens gathered and got on the street to protest against a concrete threat, citizens now take on a positive approach of 'can do'. A wide network of collectives is aiming to make the Brussels city themselves, each within their own theme of concern. The recently organised series of 'Ateliers Selfcity' (Brussels Academy; Crosstalks; BRAL, 2015) brought several of these Brussels initiatives in the spotlight. It is in this context both the PhD research and the Selfcity project found a fertile ground for a collaborative study that researches these forms of civic making. The PhD conducts an action-research to explore alternative and creative practices that empower communities to imagine, explore and construct more liveable cities from an architectural perspective. This liveability is based on the production of relational goods like trust, solidarity, care, collaboration, safety, ... etc. over the design of finished and material products (Manzini, 2015). The architect-researcher joined the Commons Josaphat collective and recently co-created the setup of temporary use (Kohoutek & Kamleithner, 2013). The existing citizen collective

is active since more or less two years and is working in a collaborative manner debating and envisioning an alternative for the way the Brussels Josaphat Ancienne Gare site will be developed. They are about to finalise a collectively written charter and recently initiated temporary use in this urban fringe land. It is this practice of tactical urbanism (Baraona & Gonzalez, 2011) (De Smet, 2014) that is the base for the understanding, development and enforcing of these collective processes of city-making. The action-research methodology aims to make the study itself more accessible and includes involved actors as full participants.

In parallel to this PhD research, BRAL vzw initiated the Selfcity project with the goal to further unravel and support alternative practices of making city that emerge from the bottom-up. As a strongly embedded Brussels NGO, BRAL supports residents in their struggles to improve the liveability of their city for 40 years. After investing a lot in the setting of examples for participatory processes, their focus is now directed to support citizens that get self-organised and act instead of waiting for actions to be taken by the authorities, private companies or established NGO's. More concrete, the Selfcity project offers a digital platform to provide an overview and analysis of bottom-up initiatives and experiences of 'commons' in and around Brussels. Simultaneously it functions as a meeting place to collect and share insights and experiences about these initiatives in an open and accessible manner. The final part is the conception of a more solid network and narrative through a dialogue with involved actors.

The Selfcity project methodology is developed by Piet Van Meerbeek, executive member of BRAL vzw. It targets a cooperation with the studied collectives that goes beyond the simple observation of and reflection on their actions. As a first phase, interviews took place with 10 selected collectives, chosen for their engagement in positive action, their willingness to collaborate with other groups and the variety of cases they represent all together. The methodology of the interviews varies according to the characteristics of the collective (number of persons involved, thematic focus, etc.). The second phase consists of a collective meeting, exchange and reflection

moment with these 10 collectives. The different projects are presented by their own initiators after which an open discussion follows. As a third and final phase, a collective exhibition is built together. For this paper the Make Your Own City research and the Selfcity project made a selection of the citizen collectives they study, amongst which the action-research case of the PhD is represented. All studied cases are situated in the Brussels context and have been selected on basis of the researchers' experience and interpretation of them. The five chosen projects enhance a variety in addressed public, background of drivers, goals, themes and ways of organising and working as basis for the comparative study. It is the goal to provide a diverse selection of the Brussels initiatives.

2. Practicing the Commons: a Case Study

Within this research a framework for 'features of civic making' is built. This frame is developed in collaboration by both researchers and brings together key issues that are being explored in the own practice with features that are in the interest of the Selfcity project. In this way the own Commons Josaphat case can be positioned within the wider context of other Brussels collective city-making initiatives. The Selfcity project initiator gives a significant contribution through his more objective perspective in understanding and reflecting upon the selected cases in an equal manner. In the same way, the architect-researcher, through her experience as participating agent, might contribute to the exploration, development and creation of other (future) initiatives.

- As a first feature both research projects are highly interested in the role and position of the **actors**. The position of the selected civic initiatives is related to the official institutions by the notions of top-down and bottom-up. Simultaneously this theme questions the profiles of both the users and drivers within these collectives. It looks at the role 'professionals' play in these city-making processes. This involves a reflection on the empowering capacity and/or the disadvantages of involvement by social workers and researchers.

The actors theme addresses the described issues by their level of self-organisation.

- The dual theme of **ad hoc/organised**, as a second feature, looks at the reflexivity of the emerging actions. These concepts focus more on the swiftness in which an initiative manages to respond to certain conditions or changes. Based on the idea of 'open form' (Hansen, 1961), this theme relates to the architectural metaphor of an open infrastructure. In this theory the initiative of the individual is welcomed and perceived as a constructive, organic and indispensable element for the collective. The ad hoc/organised characteristics aim to research the responsiveness of citizen initiatives for new ideas and alternative approaches. Is there enough flexibility to nimbly respond to new ideas and opportunities or is the organisation structure – mostly horizontal and informal – rather cumbersome? On the other hand a certain level of organisation can bring on a more solid base for long term engagement.

- As a third characteristic the aspect of **activism** is represented in the framework. It questions the potential of these civic initiatives to support democratisation and empowerment. It reflects on their militancy to heighten political consciousness and their willingness to situate their initiative in a broader debate, questioning established practices and choices in society. A lack of criticism and awareness is linked to the notion of indifference.

- The fourth theme of **openness**, studies how open civic collectives are to new people entering the core group. Is it possible for users or outsiders to easily infiltrate towards a central position in the collective? This feature of civic making looks at the inclusiveness and closeness of the collectives in mind-set and de facto.

- As a final enabler, the concept of **commoning** is studied. Each case has a particular way to deal with the 'ownership' and appropriation of a space and/or other common resources. Where the notion of 'commons' brings up an alternative use of resources – moving away from the private-public dichotomy – commoning focusses on the collective act of taking care of collective resources as the central issue. This

issue both addresses the actual management and regulation of collective goods as well as the collective's awareness on this matter.

These features of civic making are brought in relation to the five selected collectives that are derived from the citizen groups studied in the Selfcity project and the Make Your Own City PhD – amongst which the own action case of Commons Josaphat. The following Brussels collectives are researched:

- a. Commons Josaphat (Figure 1.)
- b. Communa asbl (Figure 2.)
- c. Dewey asbl (Figure 3.)
- d. le Grenier des Casseuse de Crise (Figure 4.)
- e. PLOEF (Figure 5.)

3. Discussion and reflection on (future) practices

The study of the five selected cases through the framework for 'features of civic making' contributes to the insight on these kind of self-organised practices of making city.

From the actors theme it is clear that a great deal of the citizens – like architect-researchers – who are actively engaged in these projects have a related professional or artistic background. These 'professionals' – being civic volunteers – recognise the broader meaning of their actions. Photographers, researchers, anthropologists, ecological engineers, etc. and their personal network are therefore - as civic agents - often the drivers behind the collectives. The civic initiative of Dewey is initiated by a core group that has experience in the field of media, photography or the digital. They encourages others to join the action and to contribute with their own talents or support them in improving skills. On the other hand the case of Communa asbl illustrates a disconnection between those active actors that are aware of a transformative potential and those who do not look beyond the concrete advantages of the provided alternative.

Most of the studied initiatives have difficulties to go beyond the main group of strong drivers and users and to reach people in more precarious conditions. An exception to this is the case of Le Grenier. The collective brings together a wide diversity of ladies mostly from a precarious stratum. Most projects are in one way or another receiving support from the top-down; in the case of Commons Josaphat the collective has managed to gain some small funding from the Region and collaborates with the middle field. Though Le Grenier, more than the other initiatives, receives strong support of the civil society. These latter play a significant empowering role, as such Le Grenier is considerably less self-organised.

For the own practice in Commons Josaphat the actors feature brings up the importance of the own professional background as participating agent. Not only the skills as architect and researcher contribute, but also the awareness on the potential of temporary use and the city scale can do so. The architect-researcher can learn from civil society organisations to empower less strong actors to self-organise and initiate new initiatives of collective city-making on the Josaphat site.

The study of the ad hoc/organised feature affirmed the importance of flexibility. A very responsive attitude towards existing and changing conditions appears to be crucial. The case of PLOEF is a strong example of a collective that is aware of this necessity to be responsive. Their program explicitly leaves space for unexpected additions. This openness for new options allows improvisation, (self-)improvement and the rise of new initiatives. PLOEF illustrates this by having launched a SEL (local exchange system), a GASAP (group of consumers directly in contact with organic farmers) and several other new actions. In contrary Le Grenier, which has a more solid organisation structure with fixed opening moments, does not receive much new ideas on the expansion of the concept. As another main finding on this feature it is noted that a more ad hoc approach can adapt to the fluctuating level of commitment and energy of both the drivers and users. This makes a long term commitment relying on voluntary input feasible. Even in the case of Le Grenier, where the shop is opened at fixed hours, the need is expressed to flexibly

B. Communa asbl

This non-profit organisation got launched by students. Communa asbl aims to make the housing market in Brussels more accessible for young citizens, artists and people who are in precarious conditions. For this, its members form a community in the occupation of vacant buildings. Simultaneously they organise social events for the neighbourhood.



© Communa asbl



Actors



The project responds to a basic and personal need. It got initiated by (law) students and now consists out of a rather diverse community. Through the professional knowledge of some members, the organisation became an institutionalised entity.

Ad hoc / organised



Although, the group has a rather solid structure - being an official non-profit - their consistency and concept have to be adaptive. There is no guarantee on how long they can reside in a certain location, which requires a high level of flexibility.

Activism



An individual need is translated to the broader issue on the insufficient provision of accessible housing in Brussels. The collective, with their partners, organises info sessions to empower others in the legal occupation of empty buildings.

Openness



Although the community organises public events and actively invites their neighbours, the group is rather closed. Having to live together within a limited space, new member need to be agreed upon by the community.

Commoning



The initiative is driven by an awareness on the scarcity of housing resources. The way in which Communa reframes the idea of 'living together' is a strong example of commoning. However within the group there are conflicts on the sharing of this vision.

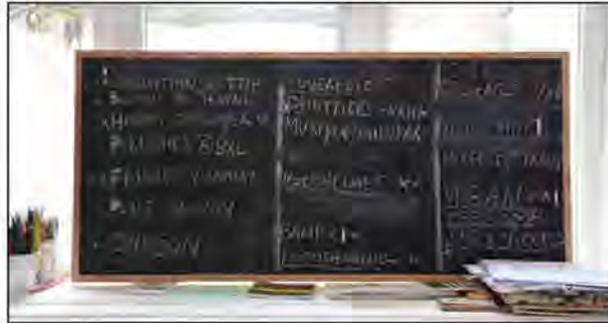
2. Case study of Communa asbl.

C. Dewey asbl

Backboned by a core group, this non-profit is open to anyone who wants to contribute to the local life in one of the Brussels municipalities. The organisation aims to empower citizens in the making and sharing of news / opinions / initiatives / ... through the creation and support of local newspapers.



© Dewey asbl



© Dewey asbl

Actors



Dewey asbl has a strong core group with drivers that often have a professional background linked to media, photography or the digital. The image of the initiative is determined by its key members and the two municipalities in which they are active.

Ad hoc / organised



Due to its strong team and official constellations, the organisation is quite solid. Dewey manages to be responsive to opportunities and entails a rather quick decision-making process. Though an uncertainty on funding interrupts a long term perspective.

Activism



Although the main focus is rather simple and practical - to create local ties and encounters - the collective has a significant, yet inexplicit, activist motivation. The collective sharing of information is seen as a tool to give voice to the citizens of Brussels.

Openness



The collective pursues to be open to anyone who wants to contribute to the newspaper. Though, at this point only 2 out of 19 municipalities are active. The strong, but unintended, ownership of the project by its team tackles the accessibility for newcomers.

Commoning



The drivers explicitly recognise information as a common resource. In an open and participatory manner they aim to manage and distribute this local-based information on an autonomous, and in that sense protected, platform.

3. Case study of Dewey asbl.

E. PLOEF - PLus on Est de Fous

The project is initiated by two key figures who opened up their private house in Jette to create a space for unexpected encounters. The place can be best described as a fuzzy and highly bottom-up cultural centre. Film, theatre, percussion sessions, workshops, ... almost anything is possible as long as exchange, reflection and sharing are part of it.



© PLOEF



© PLOEF

Actors



The official owners of the place and their personal network (of artists) form the core. PLOEF allows others to develop their own independent ideas and thus manages to empower new initiatives. Though the sense of collective ownership is weak.

Ad hoc / organised



The project is deliberately very vague with a broad and open defined theme. The program is partially left open to leave space for interaction and incorporation of new ideas. You should only not expect others to realise your suggestions.

Activism



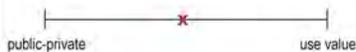
Although their website states to have 'no political ambition' a level of activism is present. The participants explicitly state they explore alternatives to respond to the mainly social crisis of our society. They criticise the current conventional practices.

Openness



It is a clear goal to attract a diverse public. Even though they attract a broad public due to the varying program, the reality is not as inclusive as the intentions. The official private ownership of the place blocks the potential for appropriation.

Commoning



The owners distance themselves from the private ownership of this space and aim to make it common. There is no high awareness, but in practice they strongly intend for commoning. Though the lack / fragility of the community does not entirely allow this.

5. Case study of PLOEF.

handle this timing. As a negative side-effect, an extremely open organisation structure demands significantly more energy to fix moments to meet or to get some concrete actions organised. Looking at the case of Commons Josaphat, which is very adaptive, a lot of energy and time is invested in processes of decision-making and the planning of new events or debates. Recently the group has started to install a dynamic by monthly organising a picnic on the Josaphat site. With this action, the collective also aims to become more open towards newcomers.

From this theme the action-research can learn from PLOEF how to empower new initiatives by explicitly welcoming the unexpected. The partially not planning of the program or interventions leaves space for other citizens to contribute in their own way and to set up more initiatives. During the initiation of the temporary use a need to install a rhythm of actions has already been felt. Time will tell if a 'présence architecturale' (Hugron, 2013) will succeed to stimulate a recurring interaction and commitment by newcomers.

An activist stake is recognised in all five of the cases. Although in most cases the initiatives appear to have a higher level of activism than the members are aware of themselves. All collectives claim that they work outside the conventional system, but only few of these 'margin activities' go beyond legal restrictions. While PLOEF questions the borders of their own private ownership, they did not deliberately cross any official rules. They rebel – in their own way – against conventional practices of individual property ownership and alienation, but in doing so they intensely avoid conflict and they aim to make their actions to be officially approved.

The collective of Commons Josaphat, on the other hand, states to be prepared to go against official restrictions if this would be necessary to fight their cause. Even though the implementation of their ideas is still in a preliminary phase, their aim to provide an alternative to existing, criticised situations is far more explicit. Even if Commons Josaphat only manages to create a discourse on the addressed topic – and not to actually realise it on the chosen site – it is possible their actions have reached further. For the activist approach

of the practice within Commons Josaphat, it is clear this has a lot of potential. Most of all there is a strong mind-set to develop an alternative for the convention neo-liberal ways of dealing with the development of the city in Brussels. This, however, has been advanced on a more theoretical level. Since the initiation of temporary use on the Josaphat site, this activist stake has been translated more directly to physical – yet humble – actions.

From the own experience as architect-researcher a hesitation is felt to actually cross boundaries too frankly. Although this often demands significant extra effort, all actors prefer to build up a constructive relationship with the official government. As an illustration, the construction of a shelter for water recuperation (a cooperation between Commons Josaphat and Dewey asbl) is designed in this way that no foundations have to enter in the soil. Following the urban regulations it then can be labelled as a 'temporary construction', thus not in need to request a building permit. Even though, none of the actors has an official permission to build structures on the site, they still – in trespassing – respect the official regulations. On the other hand there is high level of manoeuvrability to intervene as it is clearly stated by both drivers and users that they will give their full support when the collective would get in a conflict with the administrations or decision-makers.

All studied initiatives share an openness in mind set. They all aim to superimpose equal social relationships over ownership or individual leadership. Anyone who wants to contribute is welcome and inclusiveness is highly appreciated. All studied initiatives embrace the superdiverse character of Brussels. Le Grenier manages to bring together drivers and users that come from a more fragile social stratum than those of the other initiatives. Though their actors - being immigrants from a precarious background – also do not mix with other socio-economic groups. The other initiatives that have strong drivers more explicitly want to welcome newcomers and, like PLOEF, deliberately reflect on the topic of inclusiveness. This illustrates a duality between this mind set and the actual realised level of openness at this point. To become entirely inclusive and enhance new

members – preferably from diverse backgrounds – demands far-reaching energy and resources. This is very difficult to achieve for these self-organised citizen initiatives. The most bottom-up initiated projects lack to be entirely inclusive towards citizens from a more precarious social stratum.

As a following finding the case study reveals limitations in openness due to a too strong identity of the main drivers. Although all collectives aim for a horizontal organisation structure they appear to be enabled by non-hierarchical but strong leaders. Both in the cases of Dewey and PLOEF, the initiators' identity is strongly linked with the initiative. This has a disruptive effect on the accessibility for new members. In a collective like Commons Josaphat this issue is a little weaker as there is a multitude of key drivers who also exchange responsibilities. In this case it is clear that a wide range of drivers also impedes the decision-making and lowers the effectiveness of the organisation.

As basic element of their vision, Commons Josaphat aims to be inclusive. Even though, efforts have been made to involve a broader public, this has shown to be not evident. With the temporary use a more diverse public is reached but the majority of users and certainly drivers remain to be strong citizens who are already in one way or another concerned about the topic of the commons. From this study, the architect-researcher can learn to reflect on her own role as actor. Although it is the intention to have a significant contribution to the interventions, a too dominant identity should be avoided in order to not block the openness. There is a duality between enforcing the actions by taking action yourself and empowering others to take up initiative themselves.

This provides new insights for the architect-researcher in the context of the Recup'Kitchen project she initiated within the temporary use on the Josaphat site. The idea of a container kitchen that is linked to the collective garden is part of the practice to enforce the current interventions. Several other actors have been involved and contributed to this design concept. Though this study brings awareness on the fact the idea is

strongly linked to the identity of the architect-researcher.

The final feature of civic making addresses the collectives' awareness on a need to share common resources. All of them respond to an occurring tactical need – like a lack of accessible housing - and show creativity in the making of alternatives. Urban commons – ranging from a free second hand shop in an attic to an area of 25 hectares – are renegotiated through the actions of the five initiatives. In the aspect of commoning the realisation of the act as a community is crucial. PLOEF is open to unexpected interventions in their program, though they clearly state that initiators of this new initiative also have the responsibility to actively take part in its realisation.

For Commons Josaphat, respecting our urban commons is their starting point. Though in the practice, it is not always that evident to realise this commoning. Following this feature it is crucial that the just described Recup'Kitchen idea is perceived as a collective venture. The architect-researcher will have to be aware that this container kitchen is realised and managed with respect to the site and that it, related to the other interventions, positions itself as an urban common.

As an overall finding several cases illustrate that the selected features can multiply each other's effect. When a collective like PLOEF has a more adaptive organisation structure this can improve the openness and the range of actors that take part or even empower newcomers to self-organise their own initiatives. In the same sense Commons Josaphat has several strong and/or professional actors – like an authority in the discourse on the commons or an ecological engineer – that not only contribute to the self-organisation but also can boost the awareness on activism or the need to take care of common resources. This case study and the joint research contributed to the action-research and provided inspiration for new initiatives of city-making.

Regarding the joint research it can be concluded that the case study provided a more elaborate insight, though it is too soon to make statements on the transformative potential of these initiatives. The framework brought up an awareness on the five listed features and made it possible to learn

from other civic initiatives. Also the positioning of the own practice within a wider context provided more insight. This knowledge did not only bring an added value to the own practice but can also support further city-making initiatives. The need to learn from other initiatives and their strengths and weaknesses has been revealed in the Selfcity projects' collective meeting moment (BRAL vzw, 2015). The drivers of several of the studied initiatives (Commons Josaphat, Dewey asbl, Le Grenier and PLOEF) interacted with each other and other collectives in this setting. Multiple participants expressed a need for more visibility, interaction and collective reflection. The making of tools that empower these initiatives and the formation of networks - like a participatory digital platform (Pak and Verbeke, 2014) that gives an oversight of several collective city-making initiatives in Brussels - is a relevant future direction to meet this goal.

(Fig. 6).

As for the own interventions within the practice of the first author, the comparative study created the opportunity to take a step back to reflect. The objective perspective that has been offered through the Selfcity project and its initiator contributed to a more rich and defined framework of 'features for civic making' and addressed topics – like openness – that have not been strongly elaborated on before in the own practice. This perspective brought up critical reflections that have been described in the beginning of this chapter. The cooperation with and noteworthy contribution of people in the field has been a significant support to position the temporary use practice amongst similar initiatives. The exploration of features for civic making allowed positioning of the PhD research among similar cases and contributed to the gaining of deeper insight.

As a solid result the five key issues that have been addressed through this paper are incorporated in the design process of an informative intervention at the Josaphat site. The first feature should explore the potential of being open. A more theatre-like construction (see Figure 6.) to facilitate a multitude of social encounter and dialogues is aimed to be appropriated by people who are not

part of the collective. In the sense of commoning it will be important to realise a collective creation and construction process that is open to the intervening of new ideas and opportunities. An ad hoc making process in situ is desired and could facilitate interaction with newcomers while encouraging actors to contribute with their skills and experience. Finally an intervention on the street can potentially increase the awareness on the emerging occupation and the activist goals of Commons Josaphat.

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6. An imaginary collage of the open informative structure at the Josaphat site.

Probing and Occupying the Hot Dog-Kiosk

Another glance: By-passing the usual hierarchies of perception through making.

The exhibited installation explores the often unregarded and ‘infraordinary’ function of the classic Danish hot dog-kiosk – currently disappearing due to processes of gentrification – through a two-fold spatial implant: one that inhabits a hot dog-kiosk bar in Aarhus and another the exhibition. The hot dog-kiosk forms a vital place for everyday informal interaction and social coexistence between people. It has functions besides its practical use: through events in real-time and depositions over time it articulates relationships between familiar strangers and creates a sense of collective being.

The practice of making is used as a vehicle for generating and unfolding knowledge and giving shape to theories and ideas. The parallel critical spatial practice and theoretical parts informs each other, acting as ‘relays’ to move forward to new understandings. It points inwards, but at the same time in a multitude of directions, being fragmented and maintaining a productive ambiguity. The knowledge produced along the way, the output and the architectural installations themselves envisions a potential recalibration of the social dimension of the city.

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Keywords:

Infraordinary, Frameworks of Perception, Social Dimension, City as Archive, Making, Urbanism.

Overall scope:

In *Invisible Cities* (Calvino, 1972) two ways of understanding the city are put forward: that of the cartographer, who knows the city in numbers and overall features, and the one of the camel driver, who knows the city through its physical, everyday appearance and encounters through lived experience.

As with the camel driver, I am exploring other ways of understanding the 'infraordinary' (Perec, 1973) socio-spatial dimension of the city than the diagrammatic and reductive macro-views often favoured by planners and architects. This is conducted through a series of 'urban biopsies' into the actual fabric of the city, utilizing artistic and critical spatial practices.

Probing and occupying the hot dog-kiosk:

One of these biopsies explores the often unregarded function of the classic Danish hot dog-kiosk, currently disappearing due to processes of gentrification. The hot dog kiosk is hybrid typology between the mobile hot dog stands, which emerged around at the streets in the 1920'ies, and the much more recent and fixed grill-bar restaurant. Despite its unassuming appearance it is a vital place for everyday social interaction and coexistence on an informal basis. Its architecture, often referred to as 'undesigned', it is in fact a precise composition of spatial situations and artefacts, which has functions besides their utilitarian one: through events in real-time and depositions over time it articulates relationships, remembers and creates a sense of collective being. It mediates social interactions between familiar strangers (Simmel, 1950) of the neighbourhood dropping by for a quick meal and, perhaps, a small conversation with the proprietor or other customers – or just to read the daily paper while monitoring the life of the street. It presents a rich diversity of people, unlike many of

the modern cafés around. However, this typology is expelled by processes of gentrification and not included in new urban areas, since it is considered lower-class and that its social function is not appreciated or acknowledged by most politicians and planners (who operate on a macro-view, with grand master plans etc.).

The project is a two-fold spatial implant: one that inhabits a hot dog-kiosk bar¹ in Aarhus and another the exhibition:

1. At the kiosk the implant frames, captures and measures the occupation. It favours the partial and constrained gaze, such as photographing only the shoes of the users coming there (to explore the diversity of people) and thus engage with imagination rather than giving the full account. Whenever food is handed over the desk a printed-out thermal receipt accompanies it – although in this case it includes a photograph of someone else's shoe, which occupied the hot dog-kiosk previously, alongside a text fragment. This develops the latent relations between people, stage encounters and re-introduces the space to its users.

2. At the conference exhibition an 'Archiving Instrument' stages the occupation in real-time, offering a framed and re-composed view of this seemingly banal space through a strictly curated set of elements: the main element being a continuous roll of thermal paper onto which photographs are printed in real-time in-between historical images, quotes and statistics. Simultaneously, it works as a piece of communication and a device for archiving and collecting the fragments of occupation captured from day to day - and infinitely piling it up on the floor.

This exhibition offers to not only be able to engage with the exhibited part at the conference, but also the physical site of enquiry being the hot-dog kiosk.

By-passing the usual hierarchies of perception through making:

This is currently work in progress, where working with the prostheses is more an active thought process, than about the final design. Even though proceeding from an initial central idea, the project constantly changes and unfolds itself while working with the actual matter. The making process becomes a vehicle: Ideas not only percolate through the imagination but are also touched and given shape (Machover, 2007). In order to do this one needs to master – or at least understand – the tools and techniques used to ‘sketch’, explore and experiment with. In this case a conglomerate of architecture, ethnography, art and technology: and hence constantly shift between drawing, crafting, programming, writing, soldering, fact-finding, etc. The errors, mistakes, detours and unexpected findings occurring along the way can themselves lead to previously unseen potentials and become instrumental in the production of new knowledge. Being at once the generalist and the specialist offers a plurality of frameworks from which to approach, understand and develop insights.²

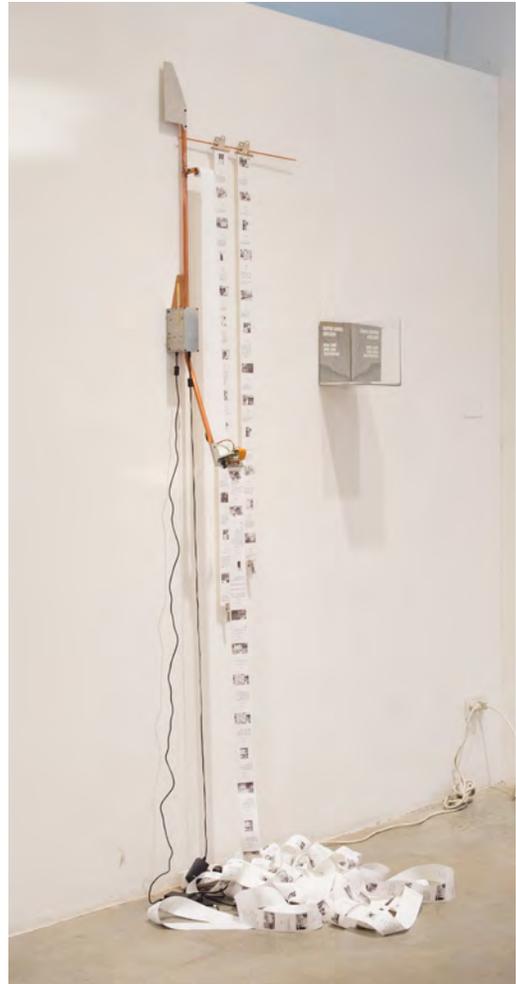
The knowledge production emerges in the field between the four main parts of the project (see figure):

1. Being situated within the physical space of the hot dog-kiosk and gathering data.
2. Reflecting and processing through making at a distance.
3. The hot dog-kiosk implant, re-introducing the space to people and starting conversations.
4. The archiving instrument engaged in dissemination on a meta-level.

In-between these sites and non-sites (Smithson, 1969) various insights are gained and encounters are made with both the spatial, historical, urban and social dimension of the city. Hence, the usual hierarchies of perception are by-passed. The parallel critical spatial practice and theoretical

parts informs each other, acting as ‘relays’ to move forward (Foucault/Deleuze, 1977. Rendell, 2006). It points inwards, but at the same time in a multitude of directions, being fragmented and maintaining a productive ambiguity. Unlike the cartographer, it does not try to over-simplify the world into a map, but rather navigates the complexity of it, like the camel driver – or perhaps closer to the ethnographer. The knowledge produced along the way, the output and the spatial prostheses themselves envisions a potential architecture and recalibration of the social dimension of the city.

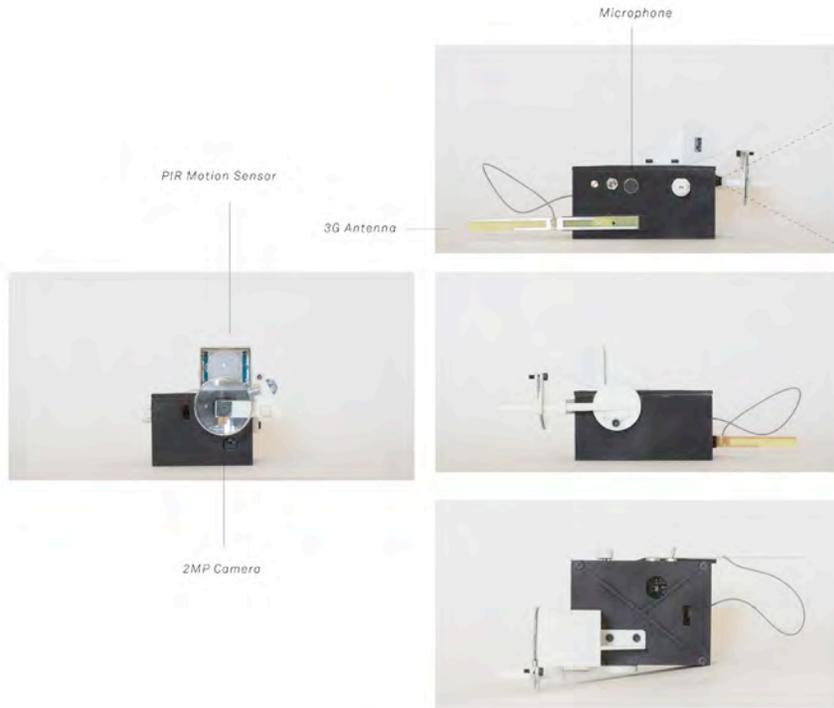
1.





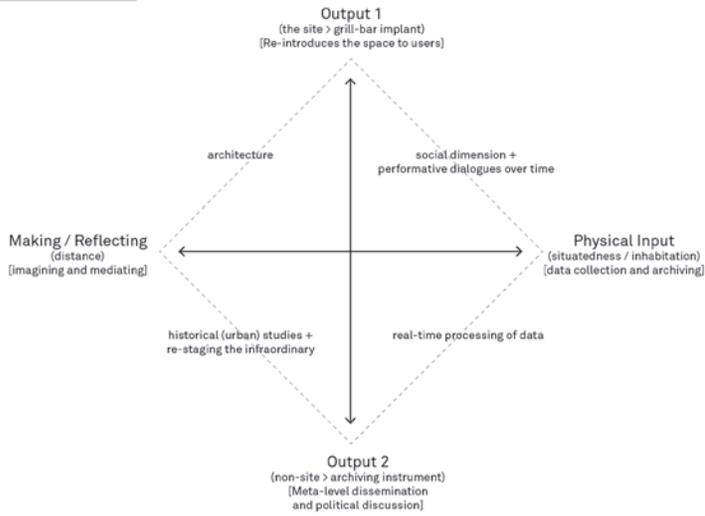
Exhibition

2.



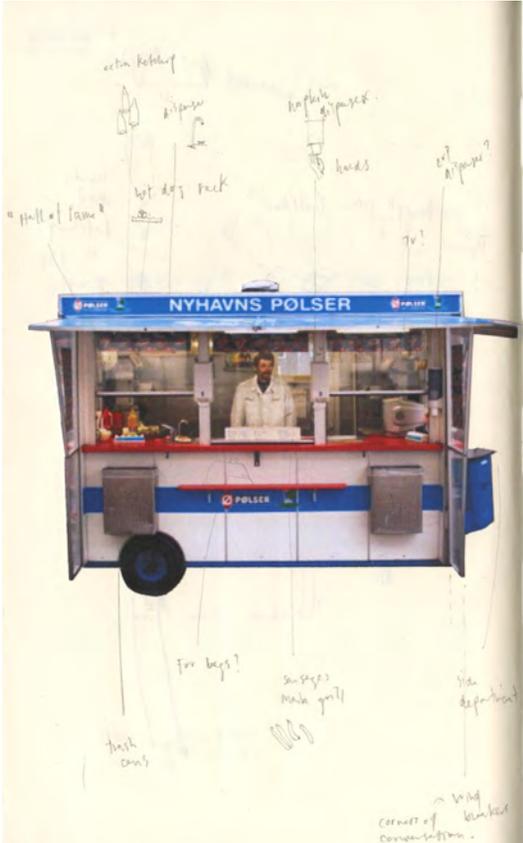
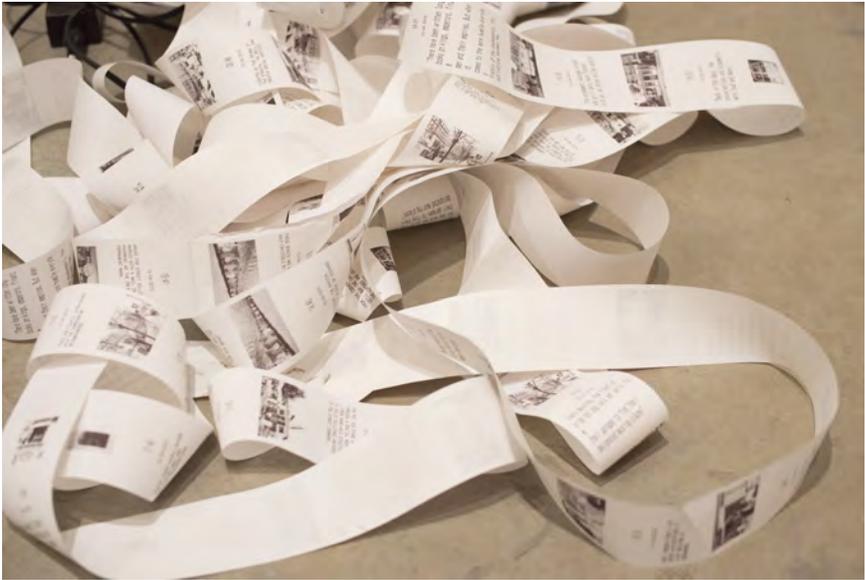
3.

Knowledge Production



4.

5.



6.



Footnotes

¹*I must credit the proprietor of the hot dog-kiosk, Qmar, as co-author of this. He was the one suggesting that shoes told a lot about his customers: from men's working shoes to high-heels.*

²*However, it is, of course, important also to consult expert knowledge at times, since architecture is the cross-road between so many disciplines (Verbeke, 2013)*

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P6

**Drawing as Research -
Drawing as Practice**

The multiplicities of X as a visual/ material critique of graphic design

This paper develops my PhD argument for a critical mode of graphic design practice, facilitated by the space of ambiguity, which is illustrated in two ways here. First, in the form of a research diary (fig.01, left) *Ambiguity: A Design Process*, which illuminates the key role of ambiguity in the design process: X forms its most visible component. Secondly, evidence of ambiguity is visualised in the multiplicities of X and embodied in a printed book (fig.01, right) *The A to Z of X*. Both design artefacts are framed as a material critique of ambiguity (Seago & Dunne, 1999: 16) in this paper and my research. This research forms an intersection between theory and critical design practice: a mode of thinking through making that seeks to pose questions about the discipline through practice (Dunne & Raby, 2005).

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Frayling's (1993: 5) three classifications of design research, which comprise research for, research into, and research through design, theoretically underpin the relationship between the aims and outcomes of design research. Research into design refers to broad explorations of design praxis itself as the object of study in relation to design's civic, cultural, material and commercial roles. This may lead to new artefacts or paradigms of practice situated both within and beyond the conventions of the discipline as propositions. Research for design is described as an act of gathering and evaluating historical and/or critical references from visual and material sources with the purpose of reflecting on design. Research through design primarily concerns customising materials and technology for new uses: a form of action research in which the research diary itself embodies knowledge as a process of investigation. Yet, in studies of the design process little critical attention has been given to the value of ambiguity¹ in the transformation of a concept into a material outcome or message.

(Fig. 1).

Ambiguity is defined, here, as a component in the research process, visual statement or conceptual resource that offers a multiplicity of options, simultaneously, to the maker and receiver of design. Conventional problem-solving approaches to design seek to reduce this plurality through the elimination of ambiguity, in order to facilitate the clear communication of a message. Yet, graphic design is a predominantly social activity operating in a multi-modal and culturally complex world. Thus, on the one hand, graphic design has traditionally sought to make sense of an uncertain world through scientific systems and rational order and a minimal aesthetic. On the other hand, for the viewer or end-user of design, intentional ambiguity enables multiple interpretations of a message, increasing richness of meaning whilst gaining pleasure through uncertainty and surprise.

In disciplines such as poetry and fine art, ambiguity is perceived as not only desirable, but inherent to the value of the art/work and its interpretation in the mind of the viewer or reader. In advertising, ambiguity is strategically deployed to form deeper relationships between the consumer and product in which understanding emerges through a reciprocal game of meaning. In the everyday social realm, ambiguity augments communication in the form of conversations, joke-telling and punning newspaper headlines, mediated by wit and humour. Pleasure, in this context, is derived from the process of interpretation – getting the joke – and the richness of meaning gained as a result: qualities that are embodied in ambiguity. As a discipline continuously in flux, graphic design (necessarily) responds to the changing conditions of communication in the contemporary socio-cultural landscape, responding to economic, technological, political, social and cultural shift in visual and material terms. Therefore, this paper argues that the methods, mechanisms and tools of graphic design are the most appropriate modes of critically evaluating the discipline's current roles and future possibilities. In graphic design, the tools (word and image) and vehicles (book, poster, website, app) that embody messages can be used to form critical design strategies. For instance, technology has already transformed the way we produce and perceive visual information: its rapid development and industry focus demand critical reflection to propose alternative visions (Dunne & Raby, 2005). From my first thoughts on ambiguity to the development of designed responses this paper seeks to make explicit through practice what often remains tacit: that ambiguity and indeterminacy are fundamental to all (graphic) design problems or tasks (Buchanan, 1995: 14).

2. Ambiguity in the design research process

As a research model, the design process is explorative, playful, purposeful, cognitive and intuitive, open-ended and precise: its versatility enables new modes of production and thinking to be encompassed as it evolves to meet diverse audience needs. The design process I refer to in this paper draws on the Design Council's (2007) Double Diamond: a flexible yet structured model of design research, developed through practice. Although constructed with business in mind, the Double Diamond embodies a set of common principles identified in four progressive stages comprising discover, define, develop and deliver that are adaptable to pedagogic and academic research activities. This is a practice-based mode of design research in which "doing and thinking are complimentary. Doing extends thinking in the tests, moves and probes of experimental action, and reflection feeds on doing and its results. Each feeds the other, and each sets boundaries for the other," according to Donald Schön (1983: 280). While ambiguity represents a valuable gap where new ideas and creative possibilities can be formed, it is acknowledged that culture, context, client and cost are some of the key components of visual communication.

Often referred to as the fuzzy front end of design research, the objective of the discover stage of the Double Diamond is to draw on a wide range of resources, within the context of a problem, in this case the ambiguous potential of X. The Design Council (2007: 10) defines the discover phase of the design process as the most critical, exploiting each designer's knowledge and skills through design thinking and creative expression. Inherently open-ended, this stage allows for diverse ideas and insights to inform a greater understanding of the project's boundaries and the methods appropriate to the task: a mode of asking questions, identifying patterns or anomalies through which to propose productive directions.

(Fig. 2).

In the context of my research project, this stage included the collection of everyday visual matter (fig.02) contributing to an evaluation of official and vernacular signs in the public domain. Discovery of overlooked and also ubiquitous manifestations of graphic design, such as X

in the everyday, informs an ongoing reflective analysis of contemporary visual mechanisms. The observation, documentation and classification of heterogeneous X-related objects and ideas, thus forms a body of knowledge drawn from the everyday sign-orientated cultural landscape as a form of bricolage. The observed ambiguities of visual communication in the public domain are interpreted not as a loss of control by the designer, but as an opportunity to embrace new possibilities of visual meaning. In a transformative process everyday signs (incidental marks and intentional signs) can be exploited in this design process as adaptable (semiotic) resources through which to formulate new meanings. Incorporated into this study as an analytical framework rather than a recipe to follow, semiotic ideas (from Barthes, Eco and Peirce, for example) are employed to help analyse how visual tools operate as conveyors of meaning in graphic design. In a social semiotic framework (Hodge & Kress, 1988), meaning is not pre-destined but can (continuously) be made anew by all sign-makers, whether children or professional designers. Each sign-maker creates his/her 'own' representational resources as a part of a constant production of visual meaning.

What the discover stage helped reveal through primary research was the unanticipated scope and ubiquity of X as a marginal, though loaded signifier in visual culture. The next stage of my design research sought to identify appropriate material contexts in which to embody ideas of ambiguity, articulated in the multiple instances of X. This is described as a critical approach to design, and research is a core motivation in this context.

3. Ambiguity as a critical design approach in practice

For Dunne & Raby (2013) critical design tools help push research discourse in new directions, challenging perceptions of the discipline's roles in contemporary contexts. They define critical design as, "critical thought translated into materiality. It is about thinking through design rather than through words and using the language and structure of design to engage people" (Dunne & Raby, 2013: 35). While Dunne & Raby's work concerns the social, cultural and ethical implications of

existing and emerging technologies from the perspective of industrial and interactive design, the critical 'attitude' is applicable to several design disciplines, including graphic design.

Tools such as typeface design, page layout, photography and image-text relationships have been strategically exploited to embody new (utopian) ideas in graphic design since the Bauhaus. A more critical evaluation emerged during the years at Ulm in an effort to form scientific models of practice and production in relation to industry. The stylistic sterility that emerged as a consequence of corporate modernism was subsequently rejected in favour of a more expressive and reflexive critique of graphic design in the latter part of the 20th century. This shift was inspired by a combination of post-structuralist theory and an architectural critique of the contemporary (vernacular) cultural landscape. In US colleges, such as the Cranbrook Academy of Art, ambiguity was identified as inherent to the human condition and deployed as a philosophical component in pedagogic design strategies. The experimental possibilities of design's new theoretical basis were integrated into the curriculum at Cranbrook, facilitated by new technologies and expressed in a complex aesthetic code. In this operation designed artefacts were used to explore "the possibilities of destabilized 'open' meaning, which provokes the audience to actively consider multiple interpretations of the piece's meaning... and reconsider preconceptions" (McCoy, 1990: 16).

(Fig. 3).

The resources encompassed in my research process form a synthesis of the material and theoretical to provide critical insights and guide progress. Sketchbooks (fig.03), design journals and notebooks form repositories of ideas and, through the physical act of notational drawing and writing, help clarify an idea (Noble & Bestley, 2011: 51). Schön (1992: 8) identifies sketching as significant, if not essential, to design thinking, facilitating changes of direction and content just as external factors alter interpretations of the task (design problem). Drawing's conceptual scope forms an integral part of my visual thinking process, is infused with possibilities, and is

employed for this purpose in making research: an iterative form of visual thinking.

4. Ambiguity as a critical design tool

X is not presented as the only method of analysing ambiguity in graphic design but it is proposed as a new way: its newness resides in its continuous reinvention as a graphic icon in divergent contexts of meaning, transcending design disciplines and contexts of use. Its critical value in my research is derived from the multi-disciplinary perspectives on design ambiguity that the multiplicities of X reveal. Unlike the visual tropes of modernist and post-modern design, X is not tied to any period in design's history: it operates beyond aesthetic form, or technological contexts. Its fluid status continuously unties the symbol from socio-political associations, such as the Nazi appropriation of the swastika, for example. X is (simultaneously) precise yet elusive, universal² and particular; it marks the spot on a map that anticipates buried treasure but also signifies love and maybe death. X occupies a borderline territory on the margins of diverse disciplines: in this research X represents a liminal space in which meaning is negotiated with an audience.

As an example of paradoxical tensions being embodied in graphic form as a design strategy to expose notions of the collective, anonymity, protest, an individual voter's positive choice, I created a visual identity using X. Framed in a political context this symbol of choice poses questions about design's neutrality and the commercial strategies employed by political parties in a democratic system funded by private interests. For semiotician Marcel Danesi (2009:8), contemporary manifestations of X disrupt traditional dualities of the sacred and profane in visual culture, using X in the film classification 'X' rating as an example: a "shibboleth³ of pop culture" that embodies connotations of danger, violence and sexual extremes. For Danesi (2009: 7) X embodies all that pop culture represents: "youth, danger, sexual excitement, mystery, and technological savvy all wrapped into one." Yet, as a placeholder sign, unknown constant, or unidentified person, X occupies a valuable status

in visual communication as perpetually fluid, precise yet elusive.

5. Ambiguity embodied in a designed artefact

The conceptual scope of X and the concrete form of the book converge in the context of The A to Z of X. The digital domain has altered behavioural attitudes towards communication as trans-disciplinary and interactive experience. The social and commercial implications of the digital sphere are still contested, so I chose to exploit conventional design artefacts as the contexts for proposing new ideas. As a traditional graphic design vehicle in mass-production the printed book still has much to offer, despite the emergence of screen-based reading, print-on-demand and issues of sustainability. In this artefact, a deeper, less prescribed relationship with the design object and message contained therein is offered. One key attribute of print-based platforms is the material moment of production, which places it in time (history): the static nature of the printed book enables a certain amount of control over the narrative potential of X as an ambiguous sign. This is an intentional exploitation of design mechanisms: meaning cannot be fixed, but it can be captured in time through design objects.

The printed book is, thus, presented as an object of design discourse in which the multiplicities of X are employed as an exemplar of ambiguity in graphic design.

The A to Z of X opens with a quote from an anonymous member of the public: "What's the point of X? It just sits there at the end of the alphabet and does nothing." The content of the book endeavours to disprove this statement. Ambiguity, framed as multiple interpretations of the sign in this context, is facilitated by cross-referencing ideas relating to X backwards and forwards through the book. Design devices, such as footnotes, sidebars and coloured text serve to draw attention to significant tangential ideas illustrating layers of the sign's (ambiguous) meanings. The A to Z of X is as an index of inspiration: a rhizomatic sourcebook in which several perspectives on X as an ambiguous sign are provided in a synthesis of the factual and fictional. As a design object with

multi-layered meaning, the book's format infuses a combination of logic, creative play, historical fact and popular anecdote to embody the sign's ambiguous 'character' (fig.04). As an example of how the alphabetic structure and design layout aids multiple readings of the sign, 'Character Assassination' leads to ideas on 'Anonymous X' drawing the reader's attention to the positive and negative perceptions of X as a placeholder sign: a blanked out identity. From this page key terms or conceptual threads drawn from the main body of text are then identified at the base of the page in the form of a footnote, leading to further page headings and subject themes, such as 'Uniformity' or 'Multiplicity'. This physical and conceptual space is situated centrally under 'N' for Notes rather than in the conventional place for notes at the end of a book.

(Fig. 4).

In similar terms to the experiments of the postmodern era of design, reconfiguring traditional design artefacts is employed as an intentional strategy to urge the reader to consider his/her role in the act of reading and visual communication as a mediation of meaning. By extending the possibilities of the book, an open-ended mode of reading is created through which the reader constructs his/her own narrative of the sign. In this way, "incompleteness becomes a stimulant, driving the reader to inquiry and research" (Drucker, 2009: 72). The familiarity of X helps to anchor more explorative and experimental ideas of ambiguity in graphic design while space is left in the book for the reader to add their own examples and interpretations.

6. Summary

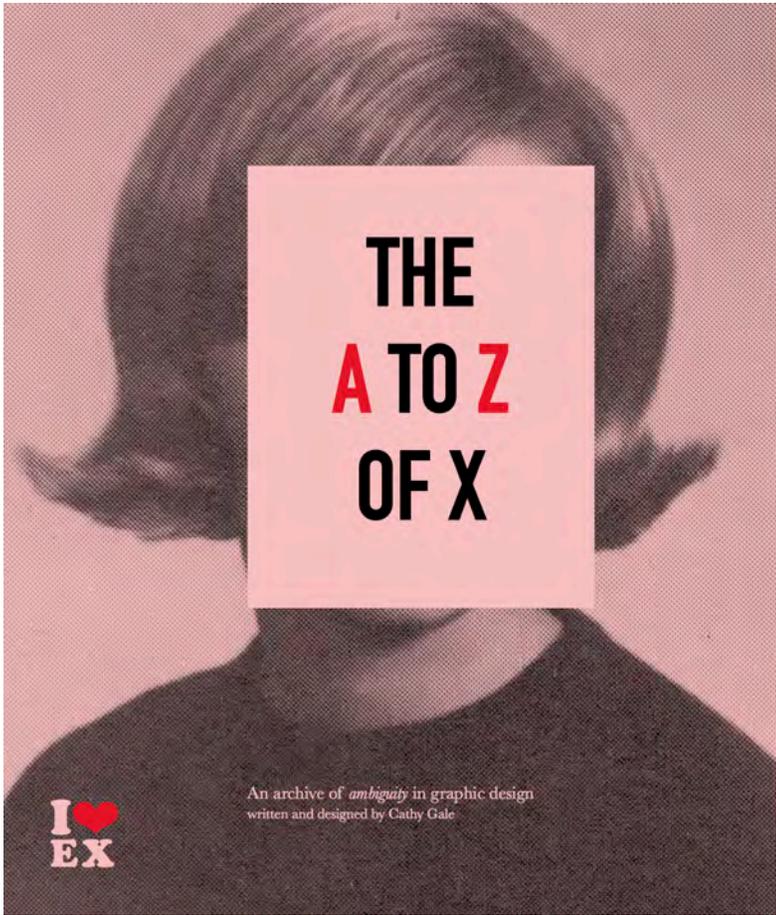
This practice-based research has set out to develop a reflective and critical mode of graphic design that asks questions about the value of ambiguity in the contemporary contexts of graphic design. Design research, which embraces logical systems, chance encounters and unexpected applications, is a core mode of discovering new knowledge: the Double Diamond has been adapted to my research process to provide structure and flexibility. Ambiguity has been

framed in this study as an untapped resource that enables new possibilities of the discipline to be envisioned. X was introduced as the new critical tool for this purpose and employed to identify and illuminate these ideas through practice. The tools used to develop this argument focused on the multiplicities of X as a new visual, critical and conceptual tool, while the design process was employed as a practice-based research methodology. The multiplicities of this sign and symbol have been applied to a printed book structured in an accessible alphabetic sequence exploiting the familiarity of conventional design vehicles to introduce new ideas.

With no absolute conceptual beginning or end, the alphabetic structure of The A to Z of X is framed as a representative scope of the ambiguities of X, literally layered within the material constraints of a printed book. The printed book captures a concept in time, a significant component of a discipline continuously in flux. From a critical perspective these design objects have sought to demonstrate how ambiguity offers the discipline richness of meaning: a deeper relationship between design products, the concept and the consumer. Ambiguity enables a new space for more participatory discourse aiding memory and encompassing notions of surprise, humour and mystery in the construction and interpretation of design practice. Drawn predominantly from the everyday cultural landscape, the wide-ranging evidence of X demonstrates that ambiguity is already prevalent and inherently and valuable in everyday visual communication. In this research, the book forms a material critique of ambiguity, conceived and illustrated as multiple layers of meaning infused in one graphic artefact.

The aim of this study was to re-envision ambiguity as an attribute, which adds conceptual richness, delight and mystery to the discipline of (graphic) design, as it does in the arts, literature and advertising. Design's role in the civic and corporate spheres requires consistent critical attention while advances in technology change the way we experience the world and define our place in it. If the design audience more regularly encounters richness of meaning through ambiguity they may be more inclined to push for greater depths of meaning and to challenge

boundaries leading to a more extended notion of the discipline in the future. My key aim has been to employ the multiplicities of X as a new critical tool through which to interrogate the value of ambiguity in graphic design and propose new possibilities for the discipline. It is in the space of indeterminacy, where X remains undefined in absolute terms, that ambiguity can augment design's role in contemporary culture and its relevance to technological, political, economic and social change. By challenging the status quo of contemporary design, ambiguity forms a mode of productive uncertainty: a space for new meaning in a reciprocal exchange of research ideas.



1 (top left and right)
*Ambiguity: A Design
 Process; The A to Z of X*



2 (bottom left and right)
*photographic archive and
 graphic ephemera form a
 body of knowledge*

3. sketchbooks as spaces for visual thinking



sketch (1) 383



sketch (2) 394

Foot Notes

¹ *The disciplines included in the studies of the design process have tended to focus on industrial design and engineering (from the Bauhaus onwards) in which design planning and production represent more distinct elements than in the creative, intellectual, and transformative activities of graphic design. The Design Council (2007b: 3-6) suggests that the available literature is mostly inconclusive and abstract in nature citing criticism of the linear process of problem-solving in design as “a problem [that] could be solved in one go” in the Desk Report.*

² *In the sense that X is found as a sign and symbol around the world.*

³ *A shibboleth is defined as a word, sound or custom that identifies a foreigner or outsider due to its difficult pronunciation or unfamiliar use (OED).*

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A Window on Drawing

This paper is an intermediary report of my ongoing research, and an attempt to benefit from peer review at an international conference, whilst embarking on the new Studio Anatomy at KULeuven Faculty of Architecture Sint-Lucas.

Studio Anatomy is an 'Academic Design Studio' (see below), that is meant to create new environments where research, education and practice merge in order to 'contaminate' each other, generate new qualities in their in between spaces and find new horizons for the discipline.

The importance of anatomy in architecture is comparable with its importance in medical science: knowledge about the human anatomy is indispensable for the medical doctor in making a diagnosis and proposing a therapy. Equally it is indispensable for the master builder who requires the knowledge of the anatomy of 'the stone' and of the masses and spaces for a better understanding of existing architecture and the creation of new architecture.

In this framework, the paper focuses on new formats of architectural drawing in design, research and education processes.

Through the explanation of Chronological Drawing and X-Ray-Drawing (Van Den Berghe, 2012) this paper aspires to be a first attempt to pinpoint the Anatomical Drawing as one central tool in Studio Anatomy.

Keywords:

Anatomy, Drawing, Material, Physical, Vertical Section.

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1. Previously, and in the meantime

In his Ph.D the author has traced and investigated the concepts of Chronological Drawing and X-Ray-Drawing (Van Den Berghe, 2012).

In his ongoing research the author is refining and further developing these concepts (Van Den Berghe, 2013a, 2013b, 2014).

In the Chronological Drawing elements of a building are drawn according to the chronology of construction. One can hardly do this in a plan. It takes the vertical section to get a grip on this chronology, that is mostly vertical because of the vertical vectorial nature of gravity itself. Gravity is the real commander of the chronology of building, and the master builder has to obey to this aspect of time.

As Louis Kahn argues,

"In Gothic times, architects built in solid stones (...) If we would train ourselves to draw as we build, from the bottom up, when we do, stopping our pencil to make a mark at the joints of pouring or erecting, ornament would grow out of our love for the expression of method (...) The desire to express how it is done would filter through the entire society of building, to architect, engineer, builder and draftsman" (Frampton, 198, p. 244).

(Fig. 1).

The author has been pondering on this quote by Louis Kahn only later on, but at the time the author was designing House VDV-C (1990) he was a young and unexperienced architect who needed to make this drawing (see image 1) because he was looking for a better understanding of the construction process. He has made this drawing from the bottom up, as Kahn suggests, in order to understand the unique sequence of steps of the construction process.

Simultaneously, he has drawn thin horizontal lines through every junction in the drawing that needs a separate decision or action by the draughtsman-as-master-builder, so as to indicate the moments that he was trying to grasp. On these lines he

has annotated the action itself for his better understanding.

So doing the concept of annotated drawing is inserted into the concept of Chronological Drawing.

(Fig. 2).

With the concept of X-Ray-Drawing the author has extended the concept of Chronological Drawing in that he started to overlay different vertical sections and elevations in one drawing.

Whereas the Chronological Drawing started as an attempt to gain insight in one section of the building, the X-Ray-Drawing was aiming at both a coherent understanding of a multitude of sections as well as their mutual connections, and their connections with the elevations (facades) of the building, banking on the understanding that everything has to fit with everything if one wants to produce a consistent piece of architecture.

Through the emerging insight that the understanding of the chronology of building is served much better by the section than by the plan when making the Chronological Drawing and the X-Ray-Drawing, it becomes clear that the section is the foremost important instrument for the draughtsman-as-master-builder, whereas the plan is only the derivative from the section.

A sense of 'cutting' began to run through the author's body and to occupy his mind.

2. Now, and upcoming

Studio Anatomy is an Academic Design Studio. This is a new studio concept that will be installed at KULeuven Faculty of Architecture Campus Sint-Lucas. It is an environment where research in/on architecture, architectural education and architectural practice coexist.

Together with Mira Sanders the author had the opportunity to test elements of this new concept in the master 1 experimental studio at Sint-Lucas in the spring of 2015, and snippets of this method in the two previous years.

Starting from the academic year 2015-2016, this new studio concept will fully run together with Mira Sanders and Dr. Ir. Laurens Luyten.

Studio Anatomy traces (see below) socio-historical layers, starting from the topography (geology, the vertical section) and stretching as far as the full scale architectural (constructive) detail (the section, again), incorporating structural concerns from the very beginning of the design-research process, hence the close collaboration with a structural engineer.

This process starts with ‘tracing’, which has to be understood both as ‘finding a trace’ and ‘leaving a trace’ (see doctoral investigations of Mira Sanders).

In ‘leaving a trace’, another ‘finding a trace’ may appear, or the trace at stake may deepen, etc... Studio Anatomy intends to critically question the too speedy nature at the surface of things we see (in architecture)—the superficiality of the world—by cutting into and under the skin of things (architecture).

Alberto Pérez-Gòmez elaborates on the importance of the perspective and the section in the architect’s work, when he refers to Vitruvius and Francesco di Giorgio, who elaborate on the *icnografia* (the plan), *ortografia* (the elevation) and “most significantly” (Pérez-Gòmez, 2006a) *scenografia* (the section and the perspective) as a prediction on the casting of shadows, pointing at the anatomic nature of the section that, applied by the architect “break[s] the skin of things in order to show” (Pérez-Gòmez, 2006b), completing his argument with Merleau-Ponty, “how the things become things, how the world becomes a world” (Merleau-Ponty 1964). This cutting into substance is hard and resistant, hence it slows down one’s thinking and acting. ‘Slowing’ instead of speeding. Because ‘slowing’ permits one to look longer, better, deeper.

Through this act of cutting, the investigated subject (architecture) is being anatomised.

3. The Method

This ‘cutting’—anatomising—is done by means of drawing vertical sections and making scale models as sections.

Methodically, this concept of section, coming forth from the author’s previous investigations (Van Den Berghe, 2012), occupies the central position as a research, education and design instrument in Studio Anatomy, because the section not only offers a more direct access to a readable and makeable spatiality (see above) than the plan is able to do, but also because it permits the draughtsman to draw, investigate and understand the anatomy of the architecture in all its physical and material aspects (to anatomise).

Next to the production of vertical sections and scale models as sections, two more sets of design-research actions belong to the method of Studio Anatomy.

Firstly, material exercises that elicit mental reflections. These intermediary exercises are situated at strategic places/moments in the design-research process.

In a first exercise this anatomising goes as far as sawing open well selected every day objects, like old photo cameras, and taking these objects apart to their smallest parts, laying out these parts carefully, observing these parts and making a record of them by precisely drawing and photographing them. This exercise has already been experimented with over the past three academic years.

In a second exercise live model drawing will be re-introduced in the curriculum: having a live person in the Studio Anatomy and drawing this human body anatomically in the way Michelangelo Buonarotti would have done. It is our belief that making architecture more humane so as to serve mankind not only belongs to the ideological realm but also requires close observation of the physical traces—finding a trace—of the woman and the man, and making anatomical drawings as observations—leaving a trace. This empirical research goes back to the Renaissance understanding of the human body and its anatomy as a necessary base to better understand and make an architecture reminiscent to the human body and the human

being as a whole (Humanism). So this physical human anatomy is most important for Studio Anatomy.

4. The coherence of drawing concepts

This new concept, the Anatomical Drawing, is taking a start now as a hands-on preparation for Studio Anatomy. This paper is a part of this preparation, as a way to structure the thinking process and to produce a more precise discourse.

In the Anatomical Drawing the X-Ray-Drawing, that had several sections and elevations in one drawing, merges with the Chronological Drawing, that only had one section and no elevations, but that on the other hand was extended with text (annotated drawing)(see above).

These combinations are enriched with the concept of the central perspective.

Notify that all the drawing concepts mentioned here have to be vertical sections, or have to start from them.

5. The central perspective

Two elements matter a lot in Studio Anatomy.

Firstly, to gain insights in the anatomy of the architectural body, it takes a better understanding of the physical-material nature of architecture: the steel H, L and T lines, the wooden window sections, the dimensions of the beam and how it meets the head of a column.

For these investigations, vertical sections will mostly do. The vertical section immerses the designer-researcher into the substance, and brings him/her face to face with the world's physicality. This substance, in its cut open appearance (section, profile, stonecut), becomes more visible, understandable, hence becomes more efficiently and effectively applicable in new creation processes in architectural education, architectural practice and (through) research in

architecture.

Secondly, in order to combine these insights in the anatomy of the architectural body with the anatomy of space, a better understanding of how these material and technical issues constitute architectural space itself, and how space evolves from and between the physical (constructive) masses, is at stake.

For these investigations, and in order to better see the anatomy of space, the vertical sections should be extended with the central perspective, and with scale models as sections in which central perspectives can be photographed and observed. So this is both about the anatomy of the (parts of) the architectural body and the anatomy of space. To situate the central perspective properly, two parameters have to be carefully situated.

Firstly, the vertical section needs to be strategically positioned in the architecture, and be made on a carefully chosen scale according to the necessities of the investigated subject in order to create, see and understand the physical-material anatomy of the architecture (the architectural detail) and its interplay with the anatomy of space.

Secondly, the eye level—one of the most important parameters in perspective drawing (and in architecture!)—has to be situated at the most appropriate place, that is the place from where the end user will see and experience the architecture that is in the making. One seriously needs good reasons to situate the eye level elsewhere.

Two important remarks:

One: the vertical section is measurable and quantifiable, being on a scale. The central perspective coming forth from it in most cases will need perspectival foreshortenings that are less or even not measurable. This aspect needs further research.

Two: it is important to keep the whole-fragment-detail line and the indispensable coherence between these levels in mind. Notwithstanding the fact that Mira Sanders and the author already could try this level navigation quite extensively over the past academic years with students, the proper navigation between these levels still can be better instrumentalised and needs further research.

6. Start drawing!

There already are a number of projects in the author's research and practice onto which this Anatomical Drawing is applicable.

WoSHo-Architecture (1986-2015) and the Haystack Gallery (2011-2013) are research cases in the author's Ph.D, and so is WoSho-Fashion (2004-2007) that has been split up into DriveThru and The Big WorkHouse in the meantime.

ChickenShed (2015) and House DM-V (2014-2015)(I do this project together with Architect Hanne Van Den Biesen) are coming into the author's actual research through his ongoing practice. **(Fig. 3).**

Out of these cases the Haystack Gallery has been selected, preliminary designed in 2011-2013, to extend this research into the Anatomical Drawing, because it offers the best conditions for the application of the aforementioned ensemble of drawing principles, and because it has come forth from the construction site of House B (2005-2007), more specifically a set of photographs from that site that kept haunting me ever since. These photographs show the whole anatomy of the architecture, and suggest that every piece of architecture should stay like this, with its tectonic principles fully readable.

The Haystack Gallery refers to the St.Petri Church by Sigurd Lewerentz (Lewerentz, 1962-1966), to Jensen-Klint's Grundvig's Church (Jensen-Klint,1921-1940), to Ludwig Mies van der Rohe's Brick House (van der Rohe, 1923), and his Monument for Karl Liebknecht and Rosa Luxemburg (van der Rohe, 1926). In all these cases, the genuine drawings made by their architects are as informative for this research as their architecture itself is.

While making this drawing, the topics from the conference call remain in the scope, and the author is making a record of some thoughts that come to his mind while testing the process of drawing against those topics and vice versa. While doing this, it becomes clear that these topics can only be slightly touched and need further research.

The author will briefly describe this thinking while

drawing—an empirical process—in the four upcoming paragraphs.

Topic one: 'Knowing How'

Making the Anatomical Drawing of the Haystack Gallery learns how embodiment goes beyond tacit (embodied) knowledge in two ways.

Firstly, embodiment is deeper and goes through the body—in the case of hand made drawings even literally—whereas tacit (embodied) knowledge is what we mentally derive from and communicate about embodiment.

Secondly (and perhaps most importantly), embodiment happens in the moment of the physical-mental action (of drawing) itself, whereas tacit (embodied) knowledge only comes forth from it, hence later.

This 'nowness' of embodiment is essential, and it is the sphere in which places and moments converge into one 'solid moment' of intense concentration and physical-mental understanding. The author is looking for that 'solid moment', and he will search it until he knows where and when 'it is'.

Since a set of brains as the seat of the mind is a part of the human body first and foremost, one might contend that what happens in the brain is something physical. Suppose that this is so—neuro scientists are still puzzled and divided about this—this is a physicality of the second order then, because the brain receives, collects and records physical impulses after they come in from the other parts of the body, i.e. the drawing hand.

The physical experience of the drawing hand that emerges through pencil drawing incorporates the sense of 'touch, that is the pencil that touches the paper and transmits this 'touch' to the fingers and the hand of the draughtsman who 'feels'. What happens in the point of the pencil, where and when it touches the paper, is physicality of the first order. Subsequently, this is sent to the brain that deciphers it.

Then, the dimensional experience of drawing, built around the concept of scale, especially

through full scale architectural drawing, acts as a 'body check' or quality control based on 'scale knowledge' that works through the body of the draughtsman. Every time this happens, embodiment takes place, and layer by layer embodied knowledge is being produced.

This 'body check' continuously travels along an invisible line that has to be actively installed by the draughtsman and passes by three overlapping scales: the whole, the fragment and the detail (see above). It is the scale of the fragment that is most fascinating, because it simultaneously penetrates into the whole and into the (architectural) detail, connecting these, and ensuring the flow of architectural meaning, coherence and consistency.

Topic two: 'Experiment and Surprise'

For now, the author would rather investigate the 'intercourse' between himself and his drawing, than to look at the drawing as an interface between him and the world. He looks closely at the drawing as 'his world'.

In the drawing process an error occurs. In most cases it is something that the draughtsman would like to do differently. The author has decided to actively apply these moments of error as necessary research steps and not to erase them out of the drawing because they are essential in the callibrating process towards more precision in the experiment, hence they are embraced as intermediary knowledge production that should remain traceable in the drawing.

The draughtsman can even go back to 'error versions', because further in the process they appear to be the better versions to go on with. Their proximity in the drawing is very informing and inspiring then.

One element of surprise, though, is the emerging opportunity the author re-finds in computer drawing. Despite the physical and dimensional experience (see above) as an indispensable directness and a deeper understanding of the material and dimensional nature of the drawn subject (that the author as a draughtsman most often misses while drawing in Vectorworks), CAD offers a range of opportunities that are rather

difficult to reach through handmade drawing, that is: the lean ways to reproduce and create variables and variants of the research subject. This aspect deserves further research.

Topic 3: 'Contributions'

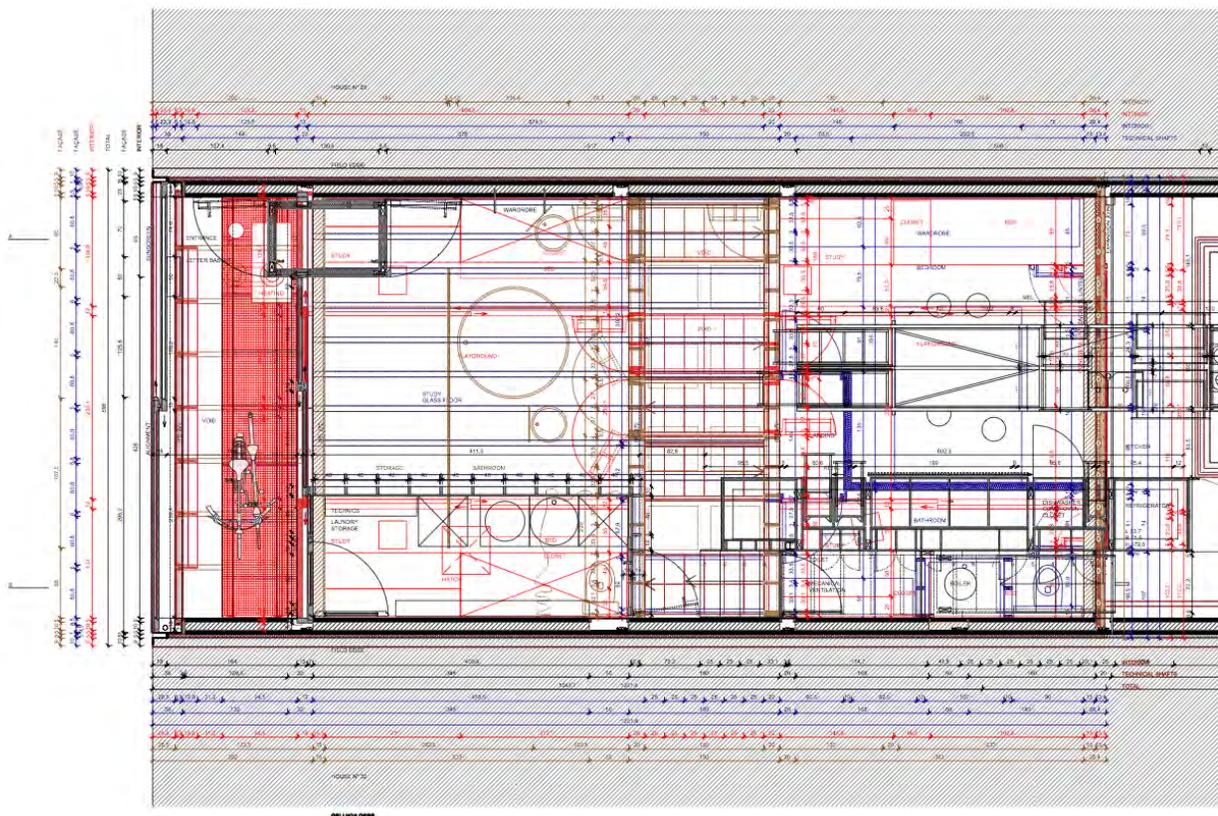
The investigations of the Anatomical Drawing (and its predecessors) contribute to different (research) publics, starting from architectural education, where master 1 students in the experimental studio (over the past years) and in Studio Anatomy (starting in the spring of 2016) are closely involved. In the chain from architectural research over architectural education into architectural practice, architectural education occupies a strategic place. From architectural education content infiltrates into the discipline and architectural practice, and in architectural education architectural research finds an environment liberated from economic pressure and an immediate application of newly found knowledge. Architectural practice is not always open enough to the application of new knowledge from research because of the economic pressure, its dependence on the commissioner's agreement, time and planning constraints, etc...

How this works is not a main topic of this paper and deserves a separate in depth description in another location.

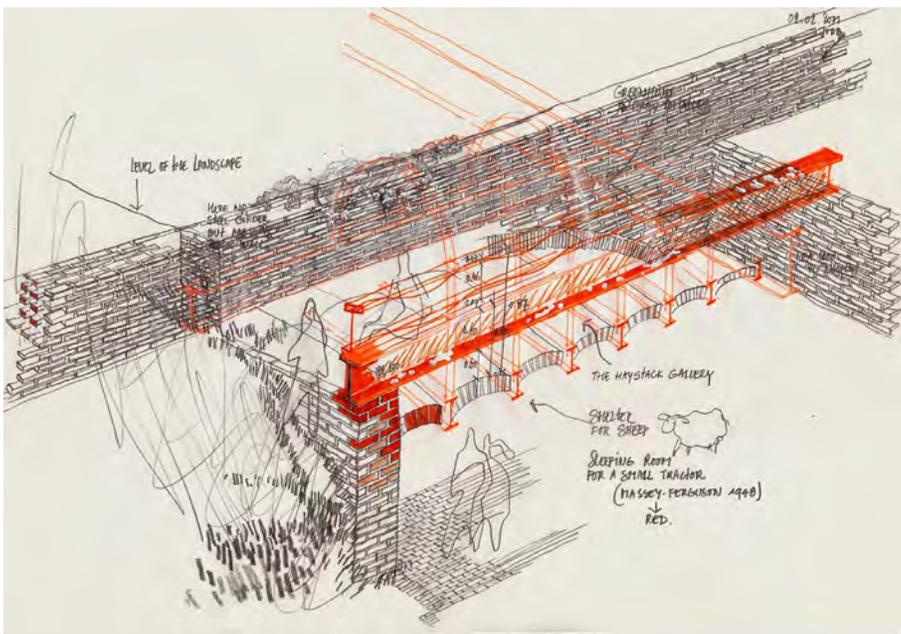
Topic 4: 'Sites'

As for the sites in which this paper and this drawing concept can come into being, the following elements constitute the necessary conditions for it. The familiarity of the draughtman's drawing table is crucial, like the music instrument is to the musician. Furthermore, it needs a set of 'preferred proximities' (I will elaborate further on this concept later this year): a library with books and materials that feed the researcher's fascinations. It also needs the limited access for other people to the drawing studio, and the silence of the working space in order to transgress the boundaries between the 'me, myself and I' of the draughtsman-as-researcher, which is the inward boundary one crosses to celebrate his participation in the monologue intérieur', the co-existence of cerebral and physical depths.

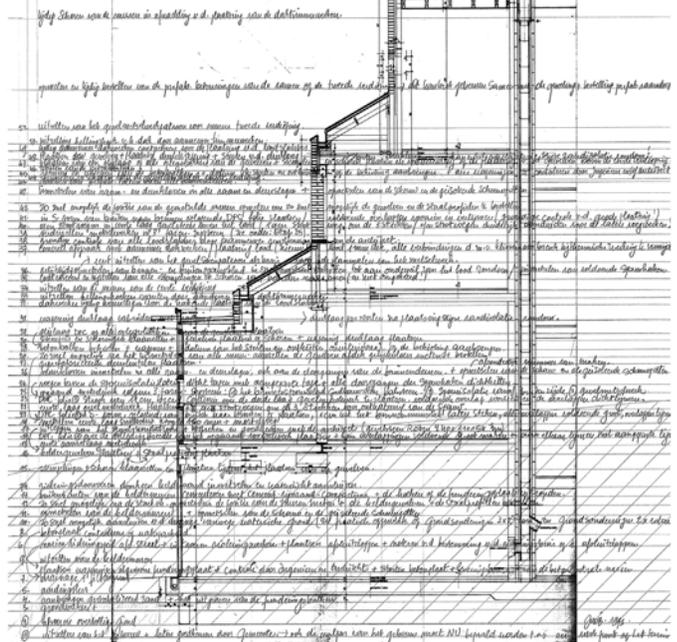
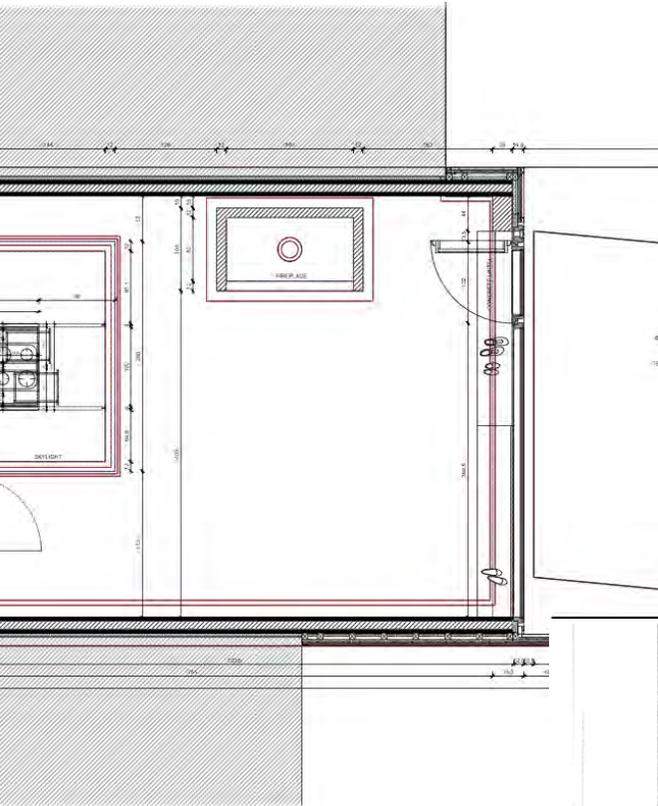
But isn't this true for any research, after all?



CELLULOSE
REINFORCED
CONCRETE
MASONRY



2. House DG-DR,
X-Ray-Drawing



1. VDV-C,
Chronological
Drawing

Paper

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Acknowledgements

Drs. Mira Sanders is a visual artist. In her ongoing Ph.D she investigates topographies and boundaries through close observation and meticulous graphic registration. Her work is mainly about looking closely and drawing precisely.

Dr. Laurens Luyten has both been trained as a structural engineer and an engineer-architect. His Ph.D elaborates on the co-presence and intense collaboration of the engineer and the architect in design processes.

From Scratch

An Early Childhood Education Centre

A couple of years ago we were contacted by the Salama Bint Hamdan Al Nahyan Foundation based in The United Arab Emirates and asked to submit application documents for a competitive interview along with 20 other architecture practices from around the world. Out the 20, four teams including CEBRA were invited to Abu Dhabi to present initial thoughts and references on architecture for children. In the end, we were trusted with the commission to design an early childhood development centre on Al Reem Island, Abu Dhabi – a day care facility as well as an education hub, a knowledge centre and a place for communicating and promoting modern childcare.

At the time, I knew very little if anything about the UAE and I realized that what I did “know” was mostly wrong. Most commissions undertaken by CEBRA kicks off with systematic analysis in order to increase knowledge that will ultimately help us develop quality designs. Nevertheless, for a commission in a foreign country of which we knew very little research was absolutely essential. Designing in your own country, you go in with a lifelong experience and even if you haven't deliberately researched on climate, social topics and so on you have valuable insight.

Mikkel Frost

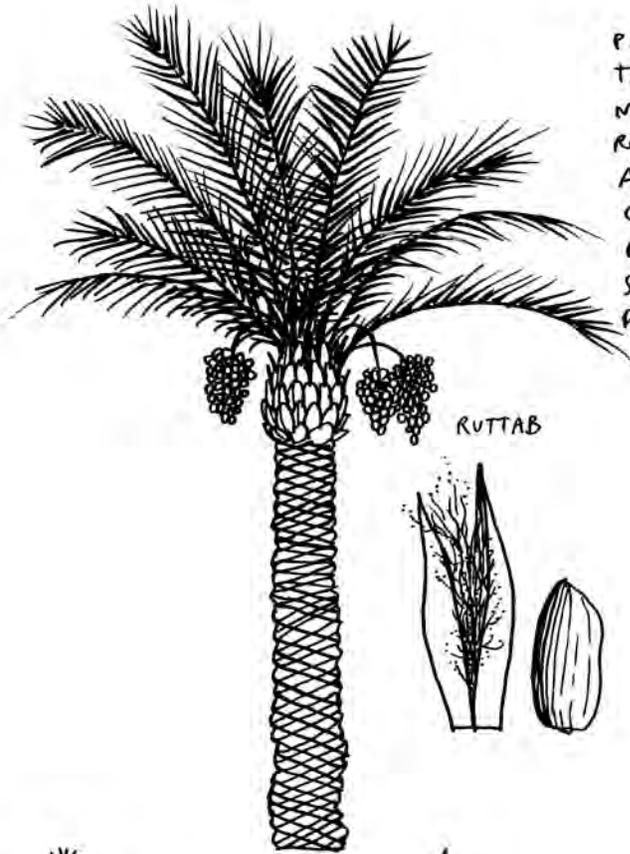
CEBRA, Denmark

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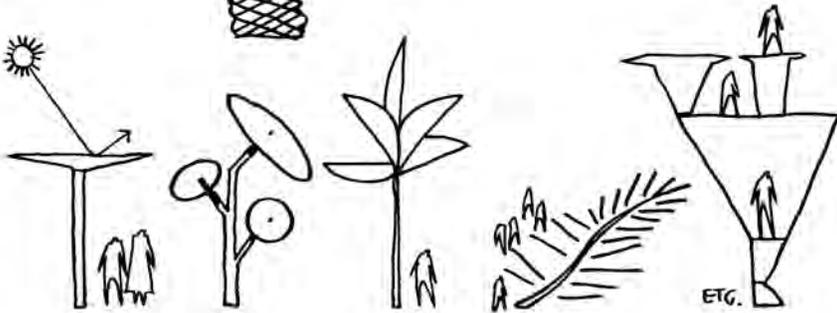
#4

NAKHLAH

PALM TREE
THE MOST PREDOMINANT TREE IN THE REGION OF A.P.
A STICK WITH A CROWN AN UMBRELLA IN THE SANDS GIVING OF DATES AND SHADE...



RUTTAB



Exhibition

Obviously, I started reading a lot. The first book, a UAE must and bestseller, called: “From Rags to Riches” I bought in the airport and read on the flight back home. More books followed, but I believe that the majority of things I know today, about the local climate, the culture and the people, I learned in less academic ways. I have spoken with numerous people, both expats and locals, and everybody has been surprisingly eager to share knowledge – presumably, because the UAE is such a young nation right in the process of building an identity. Over the last decades, the main focus understandably has been developing the country but the young generation is also seeking to both preserve Emirati culture and formulate a modern identity including a contemporary local architecture.

After the initial studies, I drew a number of sketches summing up the discoveries and themes with the biggest architectural design potential. Drawings with short texts that would eventually drive our quest for an Emirati architecture and fuel the work process. The sketches suggested architectural forms and narrative ways to reflect important Emirati elements as well as dealing with the extreme climate of the region. (Fig. 1).

While studying the Emirati culture and making notes, we worked on a list of rooms and potential functional layouts in close collaboration with Walter Gilliam from Yale University who was on board to develop a pedagogical strategy for the centre. We worked with simple functional dots – moving them around in our search for possible organisational patterns. We were looking for a layout with separate pods for children of different ages still working as a unified centre for early childhood development. (Fig. 2).

After the initial research and dialog with Yale, we drew up a number of building concepts combining pedagogical strategies and thoughts with our early findings of Emirati references and knowledge of the climate. Many of the building concepts were inspired by tents or dunes and most of them were designed to create drafts that would cool the outside playgrounds without energy consumption. In the end, we presented eight concepts to our client, which we discussed and evaluated together. Obviously, this dialog was

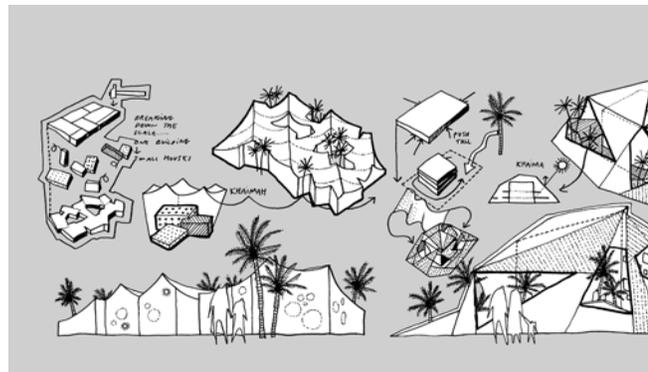
very educational all of us. (Fig. 3).

The scheme we decided on is based on a traditional building typology from Abu Dhabi: Bait Al Sahel – The Coast People’s House mostly made from date palm fronds. Before Abu Dhabi grew into a modern metropolis these building were scattered along the coast. They consist of an enclosing perimeter wall shielding a number of smaller huts or covers from the outside. Often a Ghaf tree stands in the centre of the square wall perimeter to provide shade while a barajeel (wind tower) drags air into the enclosure to cool the inner courtyard. Our early childhood development centre has three courtyards surrounded by a perimeter of classrooms. Each courtyard has a super tree – a combined wind tower and playing device for the children. The facades to the outside world are rather closed and clad with louvres in different depths. In many ways, the building is a hybrid between a concrete tent and palm frond perimeter hut. It is not immediately obvious, but the idea behind these structures is present.

(Fig. 4).

In the end, we managed to obtain the commission for the FF&E project and once again, we “dipped our buckets in the well of ideas” and observations we made at first. Classrooms were decorated with local animals, the main staircase was shaped like a snake in a well and the whole centre was invaded by circular geometries representing pearls. From overall concept to detailed design, we repeatedly drew on our initial observations and research sketches. Very soon, the project will go into construction. (Fig. 5).

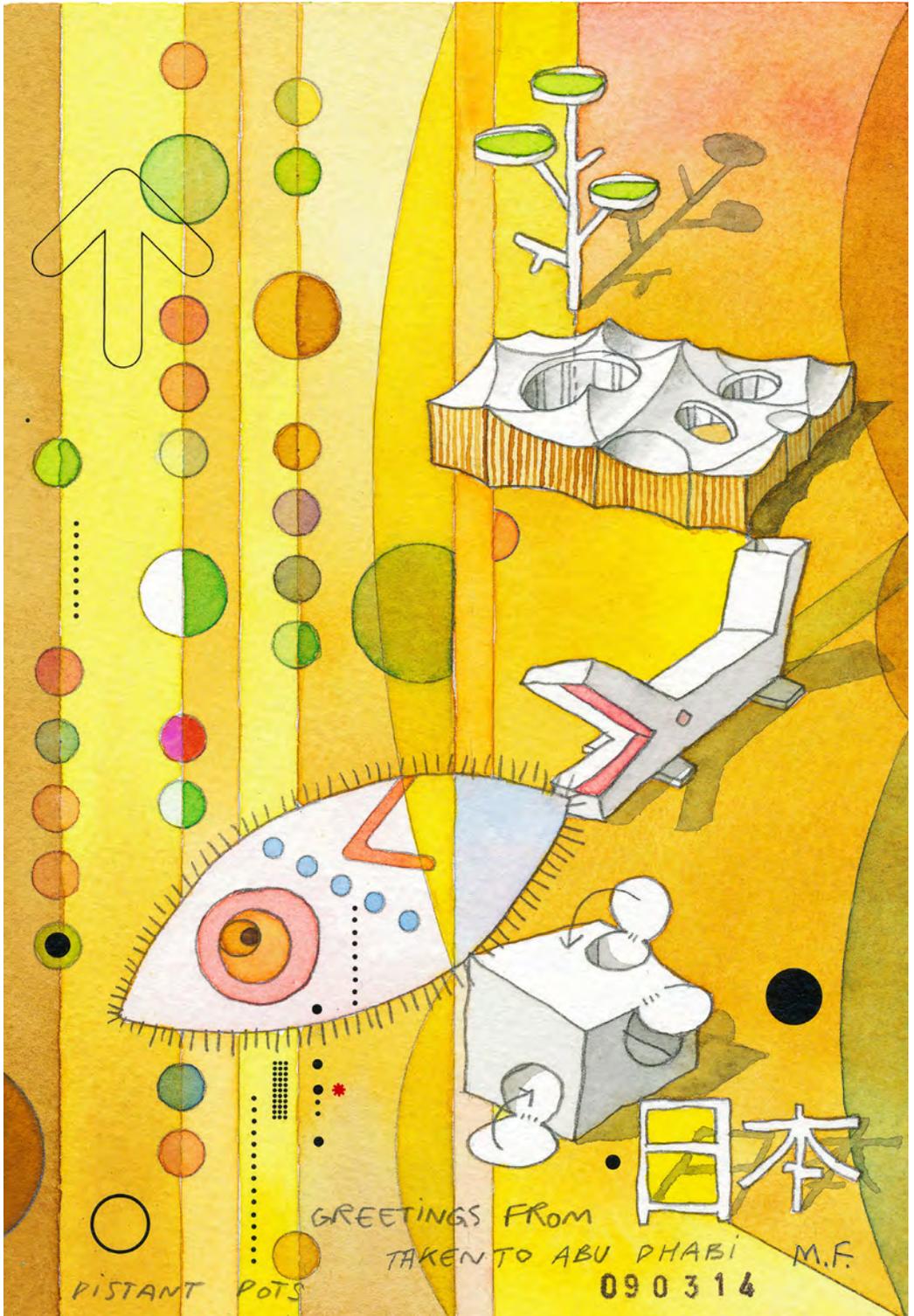
3.



Besides getting to know the Emirati culture doing this project reminded me that research is an important design driver. Often, when designing in our native country architects tend to forget this because we feel that we already know everything – that we are experts in the culture and climate. First of all this is not necessarily true and even if it was, I now believe that focussed local research would elevate our architecture with relevant content. The process also reminded me how crucial climate is to architecture – something architects of today seem to have forgotten. The Danish climate is not extreme and therefore one might argue that it is less relevant for our building culture than for instance the ones in arctic or tropical climates. But our experience in Abu Dhabi has somehow made me reconsider Danish architecture and climate and lately we have begun reinventing for instance the eave. I think the increasing number of international commissions we are taking on will somehow influence our domestic work specifically in relation to research and climate.



5.



Exhibition

Mapping Research

A Tool for Design Practice

Mapping is a process that directs my research in the understanding of a topic, community, or basic inquiry. This activity takes place in the analysis state of the problem solving process and works as an evaluation tool to externalize concepts. The process starts in a rough analog state with simple sketches, lists, and post-it notes, but as the information gathered for the research grows more complex, I find that evolving the content into a formal artifact forces another level of decisions. Working in this way requires more research into the content. Decisions of importance, priority, sequence, categories, and organization come forth when bringing all the components together to make a visual artifact. The completed map artifact aids in visually representing complex ideas and information, breaking down parts of a greater system. They are an effective way for revealing misconceptions, organizing meanings for negotiation, and suggesting new knowledge to the viewer and creator. Maps work to show how concepts connect and link, suggesting a narrative or a sequence to be understood.

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Interaction Design.***

As children, we learned about the geography of the world through maps. From a birds-eye perspective we studied the way the land was shaped and divided by water and were fascinated by how all the small parts created a much larger whole: the earth. As we grew older we began to use the visual language of maps through school assignments that asked us to make a map of our yard or neighborhood, such as this map example of my childhood home. We became mapmakers.

(Fig. 1).

The earliest maps, created by primitive people, weren't too far off from the school assignment results most of us had. Ancient tribes would sketch a map on the sand or snow, paper of birch bark in response to a traveler asking directions to a specific location. This graphic approach seemed to be more helpful than verbal guidance. (de Hutorowicz, H. and Adler, B. F., 1911, pg. 669) These early maps represented geographic spaces and several resulted in the charting of stars. Both map styles were for the purpose of navigating the physical environment or for understanding and documenting the discoveries of explorers in order to generate new knowledge. Our current use of maps and the activity of mapping remain to be connected closely to this original purpose.

1. Mapping as a Tool

Maps are no longer limited to cartography, the study of maps and map-making, or to primarily communicate geography of the physical environment. Instead, the mapping domain has become a tool for use across many disciplines related to the humanities and the sciences. In the sciences, maps serve as a visual for displaying large amounts of data in order to identify outliers, clusters, and common trends for the purpose of communicating scholarly activity and scientific progress on a global scale.

The “Places & Spaces: Mapping Science Exhibit” is a curated collection of science maps sponsored by the Cyberinfrastructure for Network Science Center at Indiana University. On their website, they make the following statement that is applicable to the current use of maps as a tool across many disciplines in generating knowledge about abstract spaces of knowledge:

For centuries, cartographic maps of earth and water have guided human exploration. They have marked the border between the known and the unknown, firing the imagination and fueling the desire for new knowledge and new experience. Over time, geographic maps became more accurate, more sophisticated, but the thirst for discovery, along with the need for maps to guide our travels, remains undiminished. Today, our opportunities for discovery reside less in physical places than in abstract spaces. (What is a Science Map?)

In disciplines related to the humanities, mapping has become a tool widely used due to the abundance of digital means and data collected about human behaviors via social media. New digital tools mixed the vast growth of data beg for ways to make information visual in some way. Maps are used as a structure into which this information can be plotted in order to reveal new narratives otherwise not made evident in the world.

In our discipline of Design, maps have been an effective way for revealing misconceptions, organizing meanings for negotiation, and suggesting new knowledge to the viewer and creator. Designers typically use mapping in the analysis stage of the problem solving process and as an evaluation tool to externalize concepts. My role in the greater Design discipline falls within the areas of graphic design and interaction design. Through my work, I've come to understand maps in a variety of ways, as an artifact, as a process, and even as a mental structure. As an artifact, a map is an object made by a creator. In this digital time the creator could be a person or a computer.

Maps are also understood as the object made as a result of the mapping process, which is the activity of making a map. In some uses, the mapping process is a priority over the final map artifact. And finally, mapping has been understood as a mental construct we use to navigate and find our place in the world. Although these three ways of understanding maps are different, they all function as a tool used to navigate a range of territories that expand beyond physical spaces.

In the following three case studies I highlight projects that explore the use of maps as a tool in these three ways. In case study one, the map is used as an artifact in communicating the social and historical implications of Detroit, Michigan's urban renewal of the 1950s and 60s. Case study two utilizes the concept mapping process to analyze parents of autistic children as a learning community, which led to the design of an online environment for these parents to connect with experts and advocates in their community. The final case study serves as an example of how Kevin Lynch's theory of imageability was used as a mapping mental structure in the development of an interactive garden experience.

2. Mapping as an Artifact: Case Study #1

This particular project was the result of my participation in DesignInquiry: DesignCity: Detroit (DI:DCD). DesignInquiry is a non-profit educational organization devoted to researching design issues in intensive team-based gatherings. DI:DCD was a brief expedition by a small group of designers into the design landscape of Detroit. As a group we were invited to participate in a three-month long residency at MOCAD, the Museum of Contemporary Art Detroit, as part of their Department of Education and Public Engagement's residency program.

Prior to my DesignInquiry experience, I was researching the history of Detroit, specifically, the communities that were displaced during the urban renewal of the 1950s and 1960s. This interest was

sparked by the active renewal that is currently taking place in the city. Through my project and participation, I sought to bring awareness to museum visitors (current Detroit residents) about these communities, primarily their existence and impact on Detroit's history.

This map installation reveals boundaries of the three communities prior to the urban renewal projects that took place in the 50s and 60s through clear plexi-shapes. Paradise Valley and the Black Bottom Neighborhood no longer exist; however, a small portion of Corktown remains in existence today, which is marked on the plexi-shape representing that community. Detroit's highway system is revealed through a map to show the abrupt interruption of these boundaries. Supporting text in the installation is sourced from the Detroit Historical Society's website and highlights short phrases that quickly point to what impacted the loss of that community.

(Fig. 2, 3).

I chose to use the map artifact as a tool for creating awareness of these lost communities. By layering information related to anthropology, history, time, and social issues onto a familiar map visual of the Detroit highway system, visitors were able to quickly identify the physical space being represented. This map as an artifact example illustrates its use as a cultural artifact, enriching the typical geographical map in ways that humanizes it.

3. Mapping as a Process: Case Study #2

The mapping process directs my research in the understanding of a topic, community, or basic inquiry. This process method can serve as a jumping point from which to build from. When designing an interactive experience for parents of autistic children the first step I needed to take was to gain a better understanding of the community I was to design for. To begin this process of understanding, I utilized the concept mapping process. Concept maps are tools used to make meaningful relationships between concepts, creating a visual map to be read as a

narrative. Concepts are linked by a framework of propositions and should be arranged according to a hierarchy, moving from specific to general information, just as this concept map is structured.

(Fig. 4).

Concept maps aid in visually representing complex ideas and information, breaking down parts of a greater system. Concepts can be represented as words or symbols, connected through a visual language that shows relationships. According to Joseph Novak in *Learning How to Learn* (1984), language plays a key role in how a concept map functions: “it is central to understanding the value and purpose of concept mapping” (p. 17).

(Fig. 5).

The mapping process for this project started in a rough analog state with simple sketches, lists, and post-it notes, but as I gathered more information the research grew more complex and finding a core organization structure to categorize all of the information into became the challenge at this phase. Early sketches shown here, display the various structures for organization I was working through.

After deciding on a structure that would yield the most results, I increased the fidelity and complexity of the visual representation bringing about decisions pertaining to typography, color, scale, position, etc. Working in this way required more research into the content. Decisions of importance, priority, sequence, categories, and organization come forth when this layer of complexity was added.

(Fig. 6).

The final concept map outlines information needed by a parent of an autistic child during the different phases of learning as their child ages. Information is further categorized by who they need to connect with in order to get the information; peers, experts, and family. I uncovered that what matters most to the parents of an autistic individual is to understand how their child experiences the world so that they can provide the best possible life.

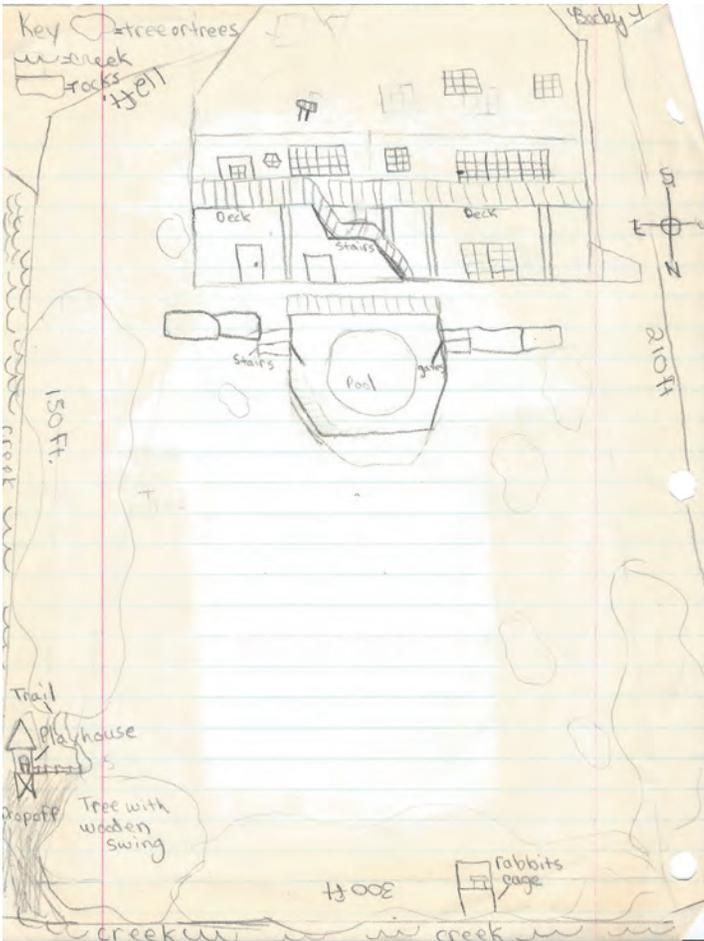
The concept mapping process and its final result provided a broad landscape of this specific learning community. It functioned as a tool in number of ways, such as enabling me to identify opportunities for future possible design interventions. These interventions are aimed at sharing information with parents in a manageable sequence, connecting them with other support roles in the community, and giving them the ability to control and participate in their own learning process. For example, in a speculative prototype for an online environment, experienced parents are advocates and offer valuable information to other parents in the learning community. Parents can view the advocate stories and choose to schedule face-to-face chats with an advocate, to further discuss the topic and related issues or experiences. In a scheduled chat, the parent and the advocate review files and information together. In another intervention concept, parents collaborate with an occupational therapist to plan and implement a sensory diet. This gives parents a great deal of responsibility in choosing, conducting, recording, and analyzing the daily activities over a span of several weeks, thus, eliminating the need to visit an occupational therapist on a weekly basis.

(Fig. 7, 8).

Throughout the development of these speculative prototypes, the concept map also functioned as a means through which I could continuously check my logic and confirm content decisions. In this way, the mapping process and the artifact outcome became a tool for me as the designer—its intent wasn't to communicate information to others.

4. Mapping as a Mental Structure: Case Study #3

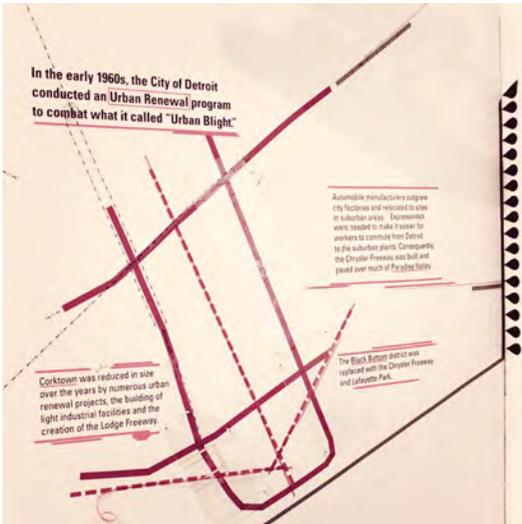
All cities comprise a certain structure that maintains their imageable quality, despite the particular features that construct the city's overall identity. Kevin Lynch's theory of city imageability is supported by the organizational elements of landmarks, districts, nodes, edges, and paths. These elements construct an underlying structure in any environment that is approached with little difficulty, forming an environment that is legible.



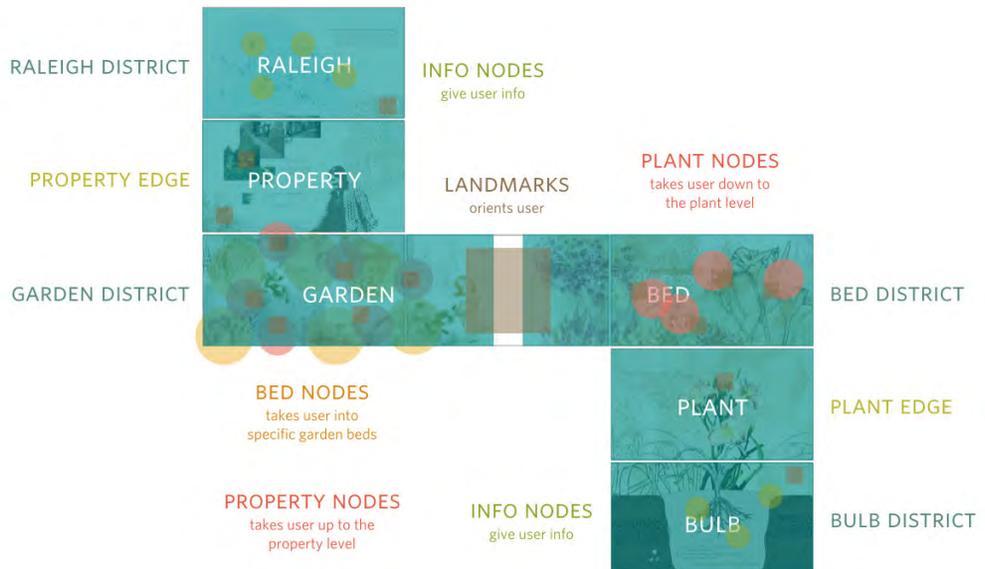
1. Drawn Map of House (Tegtmeier).

2. (bottom left). Rise/Fall (Tegtmeier).

3. (bottom right) Rise/Fall Detail (Tegtmeier).



16. Environment Structure with Lynch Elements (Bean-Smith, Kim, Tegtmeier, Waugh).



A legible environment is one that is made up of parts that are easily recognizable, that has clarity, and can be organized into patterns. We naturally use this organization system as a mental structure in order to orient ourselves, recognize places of interest, and choose from a variety of paths connecting to locations and people. It involves the daily occurrence of getting from one place to another as we continually interact within our physical environment. This interaction can form either positive or negative 'environmental' images, all filled with meaning. Lynch describes an environmental image as the "result of a two-way process between the [audience] and its environment. The environment suggests distinctions and relations, and the [audience] selects, organizes, and endows with meaning what [they] see" (Lynch, 1960, p. 6). Our collection of environmental images varies due to our individual cognitive differences and situated context.

Elements of Imageability

landmark: external to the user, cannot go into, prominence in location, use in orientation, may be isolated, not integrated.

district: can be linked together, observer can go inside of, identifiable from the inside but visible from the outside.

nodes: small points in the city, user can enter, can be several nodes, can carry a theme, focus of a district, can be dominant feature.

edges: boundaries between two kinds of areas or content can have directional qualities.

paths: may not be identifiable or continuous, user moves along a path through his/her interaction within an environment. (Lynch, 1960, p. 46–48).

This theory of a map as a mental structure was used as a tool in the development of a speculative interactive environment for a garden in Raleigh, North Carolina. As a group of four designers, we used Lynch's organizational elements of navigating a city to organize the spatial navigation within the online environment. While the map as a mental

structure led all the decisions for navigation, the project used mapping as a process throughout its entirety.

The task at hand was to design an interactive environment to represent the garden and property of an artist, lily expert, gardener, and poet, Mrs. Henderson. Currently, her property wasn't intact as it once was during the 1950s and 60s, the prime time for her major contributions as a garden expert in the community. The property was overgrown and split with two roads running through the main portions. The garden as-it-once-was is now a piece of history that only remains through images, maps, and writings about Mrs. Henderson and her garden. We were challenged to represent her garden in the digital environment, reinventing the physical through the digital.

We began by using Lynch's organizational elements as a way to think about how one might navigate the property. The sketch here shows a map of this process and how we were defining the elements of navigation.

(Fig. 9).

Using the concept mapping process, we mapped our potential users and their motivation for visiting the site; this allowed for us to further define the purpose of the site and select information needed by the various users.

We initiated this method with post-it notes and a white board. Working collaboratively to create the concept map allowed for discussion and negotiation to take place during the mapping process. Each decision made throughout the development of this map was made as a group.

(Fig. 10, 11).

After completion of the analog map, we captured an image of it and made it digital for our documentation purposes.

(Fig. 12).

Next we outlined all of the possible content needed and organized it into the categories of time, place, and gardener. This method represents

the diagramming process, as we were simply categorizing information into lists, no further connections were being made at this point.

(Fig. 13).

Using the content elements from the previous exercise, we began to form ways a user may move through the content, generating what we called a “behavior map”. We identified a system moving through macro to mecro to micro, “mecro” being our group’s shorthand phrase for a mid-point between macro and micro. From this exercise, we concluded that the user paths through the content was very linear and sought a different approach to the organization of the structure.

(Fig. 14).

We then rearranged the content to create a cyclical movement by the user and situated them at the mecro level. Continuing to think about Lynch’s theory, we determined that the mecro level was necessary to function as an “edge” and enabled a way for the user to get to the micro and macro levels. This cyclical map prompted us to think about our digital environment through a spatial and visual lens.

(Fig. 15).

Analog scene cards were sketched in an attempt to visualize the narrative we wanted the user to move through. The cards became a map that functioned as a structure for us to use in building out the entire online system. We plotted the organizational elements and further defined their functions, decisions of language and voice were made, the visual aesthetic was crafted, and we identified two user paths all within the use of this map structure.

(Fig. 16, 17, 18, 19).

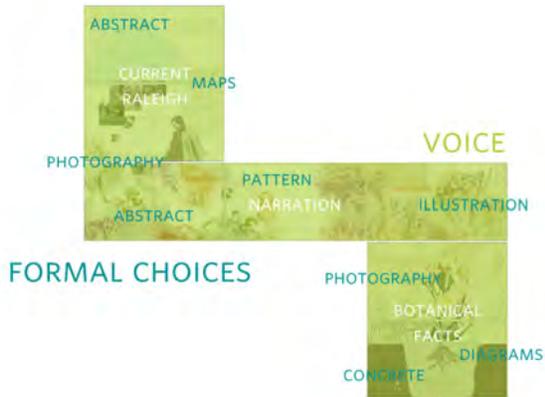
The multiple mapping processes used in this project yielded a greater understanding of the possible users for the site. The map as a mental structure served as a structure which guided many design decisions at various levels of the project. The end result was a speculative prototype for a digital environment that would be navigated with

sense of discovery, much like one would approach a garden in the physical environment.

5. Conclusion

As outlined by the three case studies, there are varying levels of complexity in which graphic designers respond to the design problems of contemporary society. At one level of this complexity is the practice of making traditional artifacts of logos, booklets, posters, etc. The creation of these forms involves research, but not at a scale as complex as when being asked to design for systems, communities, and experiences. Christopher Jones explains this in his book *Design Methods* (1981) and further illustrates the notion that the design problems of post-industrial society exist at the levels of systems and communities. To better understand these systems and communities, graphic designers practicing at this level of complexity need a different set of processes to drive and inform their research.

Although the outcomes and the end goals are different for using maps as a tool, there are some commonalities that make the tool so useful. Maps seek to organize complex information in ways that promote interpretation, generate new knowledge, show the parts of a greater whole, make abstract ideas concrete, and visa versa, make the concrete abstract. What varies is the intent of a map or the mapping process. In some cases it can be to inform, to offer multiple perspectives, to persuade or to direct. Who the map is intended for can vary as well; the map could serve as a tool for a specific audience, or be used as a tool for the mapmaker.



Paper



17. Environment Structure with Voice and Visual (Bean-Smith, Kim, Tegtmeyer, Waugh).

18. Environment Structure with Aesthetic (Bean-Smith, Kim, Tegtmeyer, Waugh).

19. Environment Structure with User Paths (Bean-Smith, Kim, Tegtmeyer, Waugh).

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Material Matter and Ephemeral Light:

Architectural Section Drawings as Research

This paper sites the architectural section drawing as an act of research, positioning it as a productive interplay between questions of invention and convention encountered when giving measure to the phenomenal and intangible architectural qualities of material as revealed by light. It situates line and linearity as having the power to think. In addition to controlling the means and methods of registering relative location, thickness, and measurement, the section drawing records the constructive imagination as tempered by weight and gravity, and declares measure to kinds of empirical knowledge derived through material, spatial occupation, perception, and the mutable presence of light. Findings are based on analytical section drawings of the ephemeral qualities of light recorded in photograms of three-dimensional objects. Through the direct interaction with light, these objects were transfigured producing a material image on photographic paper, generating a context for the development of an architectural section drawing. The subsequent transformation of the “inherently neutral straight line” (Albers, 1971, p 24.) is evidenced in the works of drawing as products of observation and active research.

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1. Research: Drawing as Demonstration

Drawn architectural sections are artifacts existing as a primary site of the constructive imagination, and emerge by declaring meter and measure to both the physical presence of material, the phenomenal existence of light, and the kinds of knowledge derived through spatial occupation. The specificity of a section drawing is revealed by an imaginative cut through an object, place, quality, or material construction that defines a profile line which, in turn, examines the inside relative to the outside environment. The section is a proposition that can be read and re-read as the construction of line proceeds, and instigates thought by continually revealing acts of exchange in interior and exterior perceptions. With this knowledge it may declare its own conventions and rules, yet maintain the impetus to demand the imaginative experience of perception. Here architectural drawing is an active record of thought and conjecture informed by Hubert Damish's beautiful question "What does it mean for a painter to think?" (Bois, 1990, p 245.) In this environment, sectional drawing is posited as a form of research into the interactions between the ephemeral qualities of light and the more permanent presence of material.

As research in practice conducted in the academic architecture studio, sets of line and tone sectional drawings are produced investigating photograms made from the transparent, translucent and refractive properties of materials interacting with light. Photograms are direct records on photosensitive paper of the behavior of light as it engages a material. As such, these photographic records are demonstrative examples of the significant, yet transitory, relationship between architectural material and light. The drawings and photograms presented operate as research vessels into architectural imagination and practice, and declare measure to kinds of empirical knowledge derived through spatial occupation, perception, and the mutable presence of light.

Leftowich and Pindell Figures 1 and 2_M

The general intention of the exercise is to teach beginning architecture students to construct architectural section drawings as specific research into observable behaviors of architectural material matter and light. Specifically, the work presents conditions where the sectional line encounters its palpable or non-technical nature and may be apprehended as a generative act of the constructive imagination. Here linearity is recognized for its qualitative power to observe, explore, speculate, think, reason and theorize.

The act of sectional drawing acknowledges its own logic as a type of recording that carries the intellectual products of both the verity of explanation and the act of discovery. In seeking exhibited structures within the activity of making, a certain consciousness is given to the work in terms of the times of production and of reflection. In these works, the demonstration of drawing is at question, not that which it demonstrates, and the activity of thought is framed as a duality of action and reflection upon action. The nature of drawing is at question, not the result. These fixed points mark the boundaries of making as a play of tensions between action and response to action, speculation, and imaginative construction. A critical distinction of the drawing of lines as records of tension in active thought is not restricted to the depiction or construction of things which are pre-existing. As an apparatus of ideas, drawing can afford a complex of thought to marks as made and marks as understood. It is this possibility for the line to be at once a carrier of form and a carrier of position that distinguish its dual functions of behavior and thought.

2. Architectural Section Drawing: Contingency, Specificity and Conjecture

The line is the most basic component of architectural thought, architectural production, and the conveyance of architectural propositions.

It simultaneously exists at the scale of the visible world and in contingent realm of the unseen yet imagined. If the act of architectural production is understood as both the first mark on the page and that which is brought forth from the first mark to the page, the agencies of specificity and contingency are constantly vacillating. What is known and what can be seen directly is informed by what is not yet known or seen. This is particularly so in the section drawing, a fundamental architectonic construction whose particular specificity establishes relationships of profile and extent, conditions of exteriority and interiority, and further develops material interactions both visible and invisible. In this environment of conjecture, section drawing is posited as a form of research into the interactions between the ephemeral qualities of light and the more permanent presence of material and its position and dimension. By assuming the possibilities of projection, reflection, and prescience, drawing develops through the recognition of any mark drawn as both speculative and fixed. In particular, architectural section drawings are fields of active relationships that frame transitory formations of thought and action. Hubert Damisch's study centers on the perspective drawing as a document of invention tempered by a spatially reflexive set of relationships and accompanied by the concurrent development of both thought and artistic record. His primary interest in both the facts and developmental theories that inform the acts of making drawings set questions in motion. These questions do not ask, in an attempt to verify prior knowledge, 'What does the artist know?'; or, in an attempt to ground accordance with historic patterns in stylistic representation, 'Why does the artist paint in this way?' As in the search for the functional reference of a model, Damisch's primary concern becomes "What is the mode of thought for which painting is the stake?" (Bois, 1990, p 245.) Within this frame, the nature of painting is at stake, not the result. The demonstration of painting is at question, not solely that which is produced. The activity of thought as a totality of action is to be addressed, not the resultant work seen as a progress toward a pre-described solution. These are the concurrent endeavors of drawing as research based practice.

Martin_Figure 3_L

3. Photograms: Revealing Material Means

Principles of photogrammetry mine geometric properties from photographic records and project them as formal gestures. In these artifacts, the photogram's direct transposition of a three-dimensional object onto a surface engages light as a tectonic object that produces a field of inquiry rich in spatial consequence.

These drawings are made with graphite and light, and propose that there are laws discovered in the acts of forming and the acts of seeing which create new knowledge. Here drawing exists as an emergent condition activated by its own means, where the nature and demonstration of form-making determine each drawing's existence, and behaviors both specific and contingent to production manifest an ability to build a particular presence. As a basic condition of their production, these artifacts are derived within a fundamental tenet of Plastic Art, where work is problematically constructed, as opposed to artistically composed, and is not fixed. Having been activated by an origin located solely within the works' own means of production, and by absolute or elemental terms, it arose directly out of its own being (van Doesburg, 1966). The photograms and subsequent drawings recognize movement within the plane, find density and dynamism through material means, celebrate the internal logic of a given material, and record the ability of matter to receive and express transformation. These are essential ideas developed by Theo van Doesburg in the forms, inquiries, and works he termed Plasticism. (van Doesburg, 1966). Within and between these artifacts, basic conditions are made plain. The reciprocity between line and light exists as a kind of alloy. Just as material and light become intimately fused in the occupiable world, the material qualities and formal behaviors in the photogram merge to produce an analogue of presence, and the translation into drawing is rich with possibility.

Godfrey_Figures 4 and 5_M
 Hummel_Figures 6 and 7_M
 Chang_Figures 8 and 9_M

Drawing sectionally through photogrammatic

space produces a result that does not attempt to verify the preceding object's original or transformed material dimensions or qualities; instead, it seeks to re-recognize material form and potential. Each mark is wholly three dimensional in its spatial occupation of the plane of the page, and directly produces the thickness of shape. Shape is revealed as more than perimeter, and it becomes a surface that can be occupied. A new aspect of drawing is made where light records the consequence of sectional space prior to material existence. The aspect is a relic of light where the original object is latent and simultaneously perceived in the work. Both the existence and memory of the initial object used to produce the photogram, and the photogram itself are instrumental in the construction of the section drawing and its subsequent perception.

Richard Wollheim recognizes this activity as a perceptual state, and imbues this "simultaneous attention" (Wollheim 1980, p 213.) with the ability to perceive object and medium as coexistent within a work. The photographically recorded interaction of light and object merges the imaginative properties of conjecture and invention with the factual properties of dimension and proximity - both of which are necessary in equal measure to the construction of a section drawing.

4. Demonstration: Drawing as Research

This exercise is predicated on the belief that drawing itself is a form of research. The artist and educator Josef Albers' investigations into the syntax of line were preceded by his comprehension of a line as a "tectonic" object. (Albers, 1971, p10.) The existence of this object was beholden to the fact of its construction by mechanical means and its possibility as an active form of research. This research implicated both the making of the line and the studied effect of the line as things which were to be considered equally significant. His insistence on the line existing as a form of participation between the instrument, the material, and the thought constructed a field where actions could be simultaneously made, read, and

re-read in relation to a total environment. As the "inherently neutral straight line" (Albers, 1971, p 24.) is drawn, its reference is repositioned and constantly in motion. This readjustment relies on the logic of an evaluative construct. Throughout the work and writings of Albers, the element of a line is investigated as a carrier of activity, and the resultant construction of lithographic prints is titled "Graphic Tectonic" (Albers, 1971, p 10.) The act of drawing itself he frequently described as a form of research involving individual components of lines that had a relationship to syntactical structures. With this knowledge, Albers studied the line in relation to itself.

In the examples presented here, the photograms instigate drawings where the anatomy of a line functions as a comparative relation; measuring the limits and bounds of states of relatedness and readiness of a line and its impact as a proposal, and explanation, a description of fundamental form, and a carrier of qualities and phenomenal presence. Given as the initial exercise introducing the section drawing to beginning architecture students, the prospect of the ordering of these kinetic relations as acquisitions of constructive imagination serve to present the beautiful difficulty of delineating the immeasurable qualities of material as revealed by light, and understanding the ground of the work itself as an act of research. This exercise presents an attempt to position the research of drawing to confront and answer these questions:

How might one learn to draw in section? To see in section? To think in section? How might we better see material qualities? How might one constructively imagine a material that is made mutable by light? What are the conditions of immeasurable solidity or fluidity in a material, and how might drawing capture this quality? What are possible preconditions of the architectural section drawing? How can the subsequent translation of a photogrammatic presence into sectional line drawings serve as a research model for propositions on the basic condition of a drawing as a form of prescient knowledge?

Dax_Figures 10 and 11_L

References

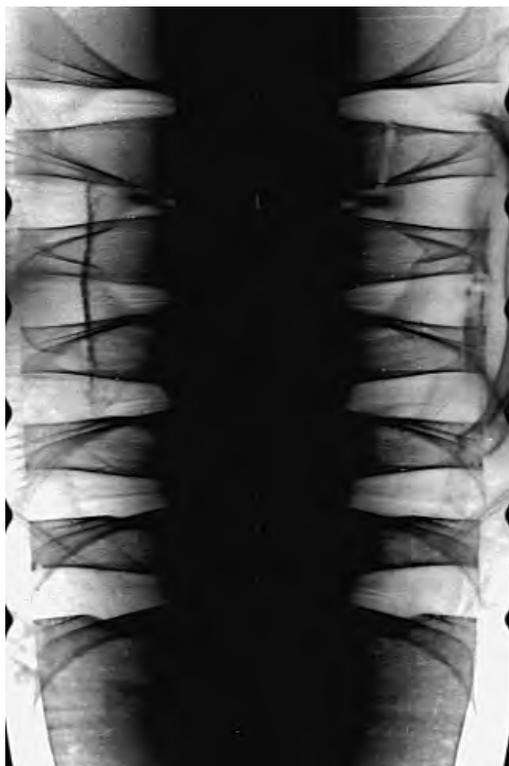
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Paper



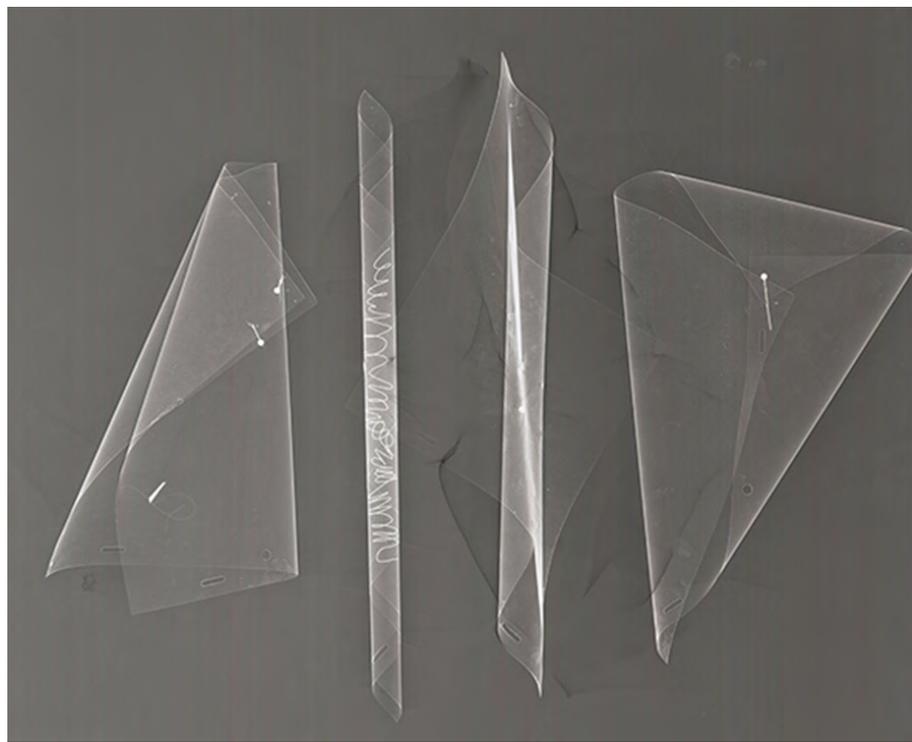
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(right). Pindell_Figure 2_M

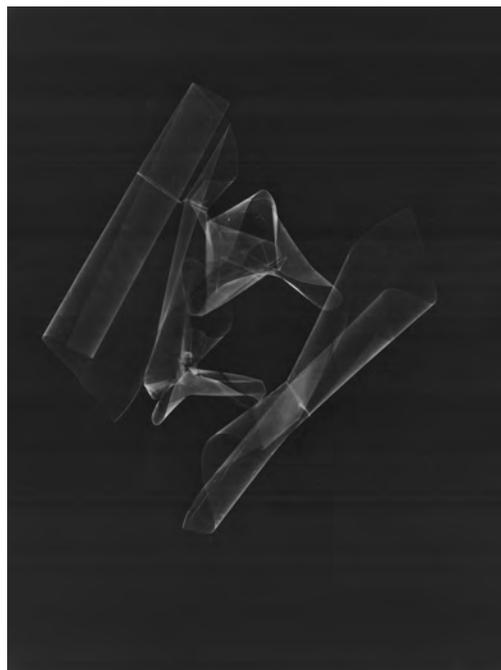
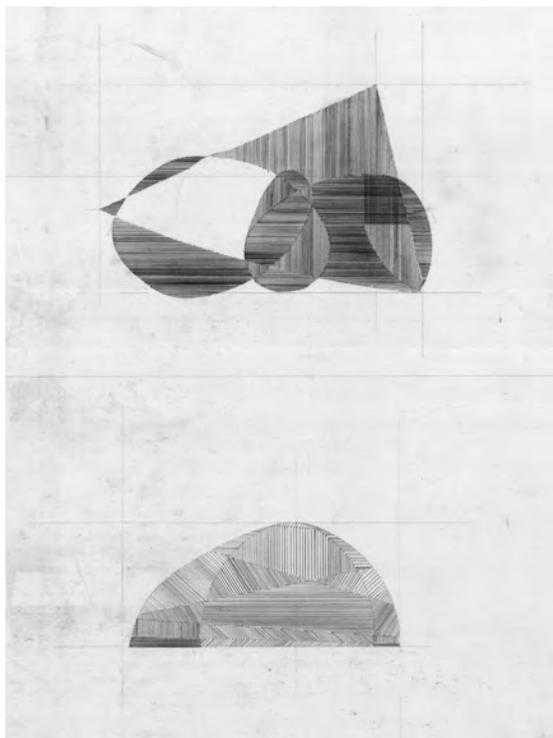


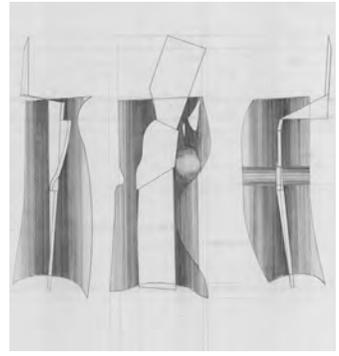
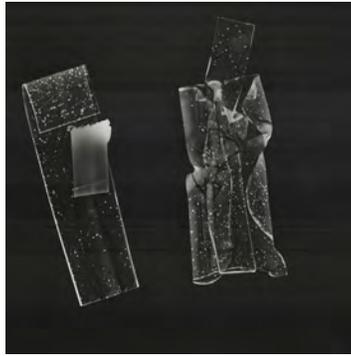
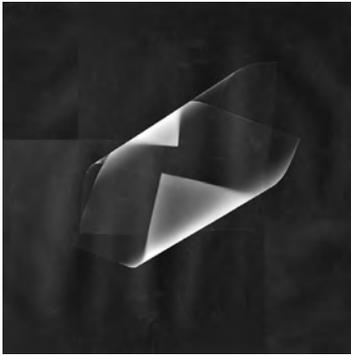
(top).
Martin_Figure
3_L

(bottom).
Godfrey_
Figures 4 and
5_M



Paper



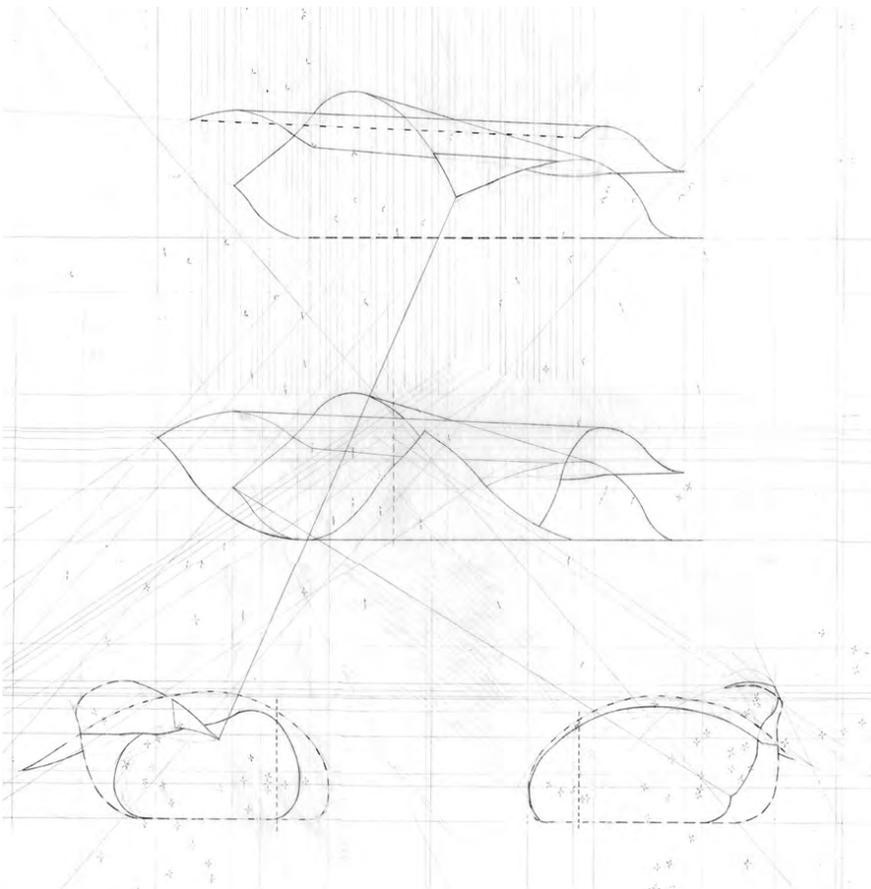


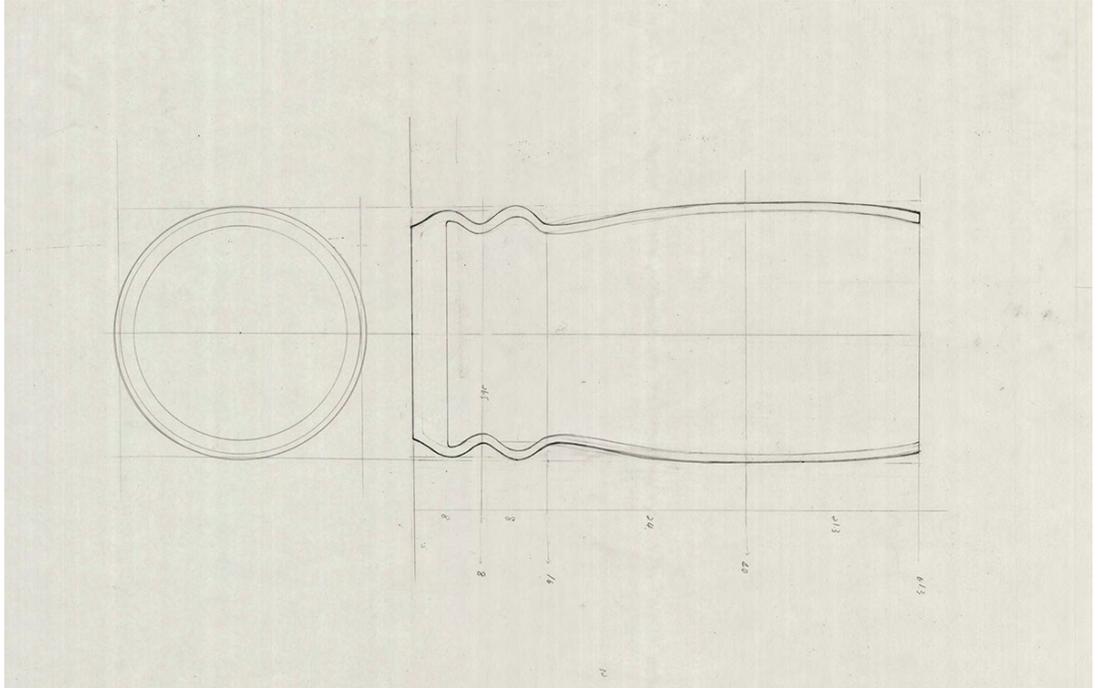
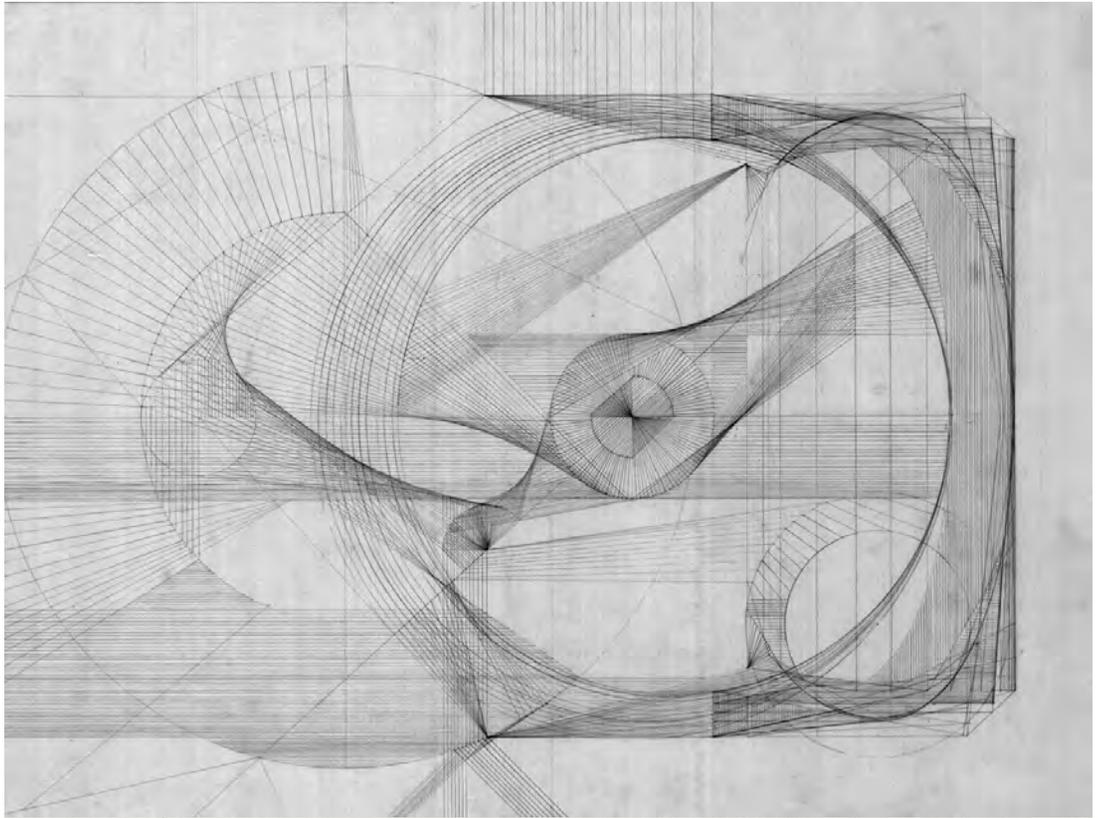
*(top left & bottom).
Hummel_Figures 6 and 7_M*

*(top middle & right).
Chang_Figures 8 and 9_M*

*(right top & bottom).
Dax_Figures 10 and 11_L*

Paper





Paper

P7

**Concepts and
Practices of Creativity**

Conditions of Creativity

*Researching Creation Through Creation:
Nothing is Hidden*

**Nature gives all with generosity and
benevolence.
She has no pit
Or shell.
She is all at once.**

(Goethe)

This paper aims to evaluate the claim that 'nothing is hidden' in relation to our understanding of creative practice research which exhibits a startling reluctance to investigate creativity as such in its own terms. A constellational analysis of the conditions of creativity allows for a new understanding of the dynamics which unfold in the force-fields that are the hallmark of all creation, for the idea of creative openings and the hindsight causality that characterizes creative works. It also provides a new vantage point from where to critique an array of persistent bigotries connected with the notion of creativity. Rather than nature veiling herself, it is false assumptions about creativity and the creative process which veil nature or the Goddess Isis, preventing novel ways of understanding creativity to emerge.

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Since Heraclitus supposedly uttered the cryptic words: 'nature tends to hide' the quest for creativity has been hauntingly misunderstood as an epistemological quest to confront the veiled goddess Isis and disclose what creativity really is. It has set forth a plethora of experimental questing propelled by the idea of the discovery of the hidden – of finally tearing the veil from nature.¹

It is our claim against this tradition and its empiricist purport that creative practice research should not seek to develop devices for discovery in any obsolete sense – aim at removing layers and walls that obstruct the view and allegedly conceal the object; rather, it should aim to see what is actually in front of one's eyes and nevertheless missed altogether: Nothing is hidden – Isis has no veils.² We may fail to see things properly not because we do not know where to look, but because we do not know how or when to look. What we wished to see was either there all along or not there as a given in the first place.

Quietism towards Creativity

Inquiries into creative laboratories, understood as research into specific practices, have methodologically matured; they employ increasingly sophisticated strategies that explore a wide spectrum of topics: Nevertheless, they only rarely lead to an explicit articulation of propositions about creativity as such, let alone to novel insights in this field on inquiry. It appears as if the 'highway' towards understanding creativity is blocked and the notion stigmatized to some extent by the dictates of what are regarded as the permissible contemporary nomenclatures. Practice-based research, when it comes to creativity as such, seems to move forward only on by-ways: it puts forth interrogations about processes, modes, aims and protocols of practicing and value creation, yet it seeks to avoid, sometimes at pains, the topic of creativity - as if the notion's once upon a time

mantric currency was now regarded as altogether obsolete.

One reason for the practitioner's reservedness towards the subject of creativity is arguably connected to a subconscious acknowledgement that misleading clichés, abstractions and stipulations do inevitably gear the investigation in a specific direction and are likely to pervert the outcome of any serious creative practice research. A feeling of un-easiness triggers caution, if not abstinence: Sensitive practitioners turn quiet when it comes to the epithet creative which otherwise so readily accompanies artistic practice.

So pervasive is this quietism towards creativity in practice research that it seems not to rest primarily on a strategically cautious and reflected refraining from a topic with a stigma. Rather, it is probably because 'reality strikes back' constantly in the 'experiments' of the creative laboratory that the practitioner will at some stage dismiss received common notions of 'creativity' as actually irrelevant for the creative endeavour. What drives the practice is hardly ever a creative abstract mission based on an understanding of creativity as such. Conceptions of creativity, whether flawed or not, seem most often immaterial to the creative practice and its actual dynamic.

In research terms, however, to concede such quietism marks a desideratum: A startling predicament consists in the fact that the interrogations and inquiries of a significant number of alleged creative practitioners do tacitly rest on misguided implicit assumptions and extraordinary misconceptions about what creativity is, and where and how it may manifest itself. Hidden premises stir 'behaviour' in particular ways, sometimes more forcefully than explicit ones. They may result in a resistance to address or investigate the topic because the practitioner does sense that the ordinary stock of 'lenses' and 'tools' to investigate creativity need to be viewed with suspicion. The

intuitively scrupulous practitioner could well 'know' that his individual, at times vague notions of creativity are problematic or contentious at best: In turn, creative practice research tends to engage in a spectrum of meaningful interrogations that altogether bypass any explicit engagement with the subject of creativity. A smug and speculative, if not complacent version of this position would argue that 'creativity' is a compacted term³ which cannot possibly be researched directly as it obfuscates the real object of inquiry (vulgo: the practice). The term needs to be de-compacted and broken down in order to allow for access to an otherwise impenetrable complexity: according to this view, the only way to address the halo topic of creativity is through measured and controlled indirect pathways which do not investigate creativity, but subsidiary topics.

In the wake of the practice turn creative practice research in particular will nonetheless eventually unleash a fundamentally new understanding of creativity and its role in the universe. As we have argued elsewhere, such creative practice research should call forth for a new understanding of the situated and concrete as well as for the evidential force of singularities⁴. While the aim is to relate creativity in social and cultural worlds to creativity tout court, it provides a powerful tool in order to reference into creative practice research and the formative effects of design practice. The radically new way of understanding embedded research, i.e. providing a practice-based critique (not: criticism) of design practice, in which the creative practitioner elevates interrogations into unfolding actual practice, is action-based rather than theory-driven: The interrogating of what practitioners actually do when they practice results in shedding stock pre-conceptions as well as in transforming seemingly oblique strategies and by-ways into genuine creativity research. A new creative phenomenology is thus starting to appear – understood as a voyage to the more fully concrete in which each 'action' is enmeshed. Practice research at large provides a criticism of barren research abstractions and uncovers cognitive biases, conceptual traps and misleading thinking styles. Nature does not hide, rather the researcher obfuscates nature and veils the goddess Isis through wrong notions and false assumptions, which in turn give birth to veils of

wrong questions being asked.

One of the most generic veils in practice research resides with the orthodox distinction between theory⁵ and practice, a distinction that needs to be absorbed into a rich new understanding of 'theorising by making'. Creative works are not inquiries into materials but rather, material inquiries.

Whilst 'theory' formerly suggested stepping out of and away from practice in order to speculate 'theoretically' about the practical realm, to superimpose theoretical layers onto the practice in an attempt to organise and order the field, creativity research can only be carried out meaningfully if one steps into the very practice. The same directionality applies to the use of the term 'research': Against the reigning threat of researching yourself out of the practice in a process of abstraction, practice based research provides the unique opportunity to research yourself into the practice – or, even more poignantly, back into a practice from which you may have become distanced by degrees. It is a gateway through which to potentially re-immense in the genuine realm of inquiry.

The type of mastery aimed at by the 'research in the medium of practice'- environment' with its distinctive processes requires of the researcher a degree of immersion into his field that is necessary for him to be able to transcend the very boundaries of his field. This capacity to transcend the horizon of a given field is without doubt a hallmark of any potential mastery. However, it must be exhibited from within, from a position of saturation and immersion rather than from the external vantage point of the theoretician. In a variant of the mantra of the 'transcendence through immanence', virtuosity and complete command of one's field that allows to step beyond it.

Constellational Conditions of Creativity

Constellation research is the response to the diagnosis of the explanatory gap that pervades creative practice research when it focuses on the notion of creativity – it aims to track the emergence

and behaviour of a creative force-field.

Alexander Calder's 1955 mobile represents as an instructive manifestation and figuration of the complex forces of placement and interplay to be observed and understood in any setting that foregrounds creative endeavour: the mobile represents a constellation.

Our claim is that in the act of creation practitioners negotiate and play with positions under constellational conditions. Creative practice research is the research into the deliberate orchestration of positions and a specific quality of 'balance' that is manifest in a mobile such as Calder's. The idea of constellations exploits the positional aspects of the notion: individuals take positions, e.g. in a debate. The notion of constellating the elements, nodes or poles of a structure such as is the mobile can be transposed into also constellating e.g. also agents, i.e. individuals, with specific profiles – that is, 'characters' ⁶. It can also be transposed into the research heuristic of constellating questions. Creative practice - similar perhaps only to the

way in which philosophy proceeds - does not necessarily seek answers to questions but aims to replace initial first-order-questions by hopefully better ones. The balancing response to a first order question is a new, perhaps more refined second question. Creative practices in their purest form, we would claim, do not aim to answer any question at all.

The assumption which rests upon a generic problem-solving approach that a creative practitioner would aim to find a solution to a problem veils the practice and creativity alike. Creative practice research conducted as a inquiry into the constellation of questions aims to track and understand how a practitioner transforms initial questions into a different set of problems and questions. The creation as such fundamentally appears in an interrogative mode. ⁷ The sequel and trajectory of the questions in play are encapsulated in the creative work as such. If we further assume that a creative work might be regarded as autonomous and is therefore able to spell out its own rules in a realm of self-legislation, than the grammar book that the creative



STAMM FIGURE Calder

A. Calder 1955

work actually is consists not of grammatical propositions in prescriptive terms; the grammar books of practitioners consist of questions

The mobile captures a particular feature of creative constellations through balancing arms, irrespective of what constitutes the elements of the mobile: individuals or agents of constellations exhibit an antagonistic polarity towards each other. Such polarity in the mobile does not imply mutual annihilation, but rather the acknowledgement of the mutual dependence of two agents on one another – in terms of the Calder mobile, a delicately attuned balancing act. What is required for such an attainment, just as for tension (which is its noetic twin or opposite) are agon (force) and ant-agon (counter-force).

The mere interplay of positions in creative process therefore does not already qualify as a constellation: Constellations are distinguished from mere position-taking through a specific intrinsic connection between the positions taken: The positions necessitate each other, and acknowledge their mutual constitutive dependency on each other. The structural element of the arm in the mobile is a representation of this internal relation between them. The constellational insight of the agents or position-takes into the mutual necessitation of each other is all the more striking if the initial perception in the debate is one of opposition, of plain contradiction or at least adversarial tension.

Constellations move beyond the one-dimensionality suggested by a (self-) misinterpretation of antagonistic axial forces as mutually destructive. The strength, depth and quality of one agent's position is understood as depending fundamentally on the strength and quality of the counter- position. One of the tasks of creativity research is to advance Randall Collins' generic modelling in his sociology of cognitive structures⁹ much further: Genuine breakthroughs occur where constellations aggregate or scaffold in dialectic space. It is the signature of the master to understand his position as counterbalanced, not threatened. Only through such counterbalance is his own position in the constellation stable or indeed possible at all. If one pendent is removed, the mobile is on the floor.

Creative force-fields

The mobile provides material, concrete evidence for the fact that the 'dialectic' in question occurs in a force-field: A dimension is added to the linearity of the axial line along which agon and ant-agon operate. The shift from axial one-dimensionality to triangulated force-field is a dimensional shift. The relation of polarity is 'mediated', it is 'suspended' through a 'third' through which the triangular force-field is enacted.

In the wake of constellation research so-called figuration theory (or: figuration analysis) has emphatically embraced the notion of the 'third' and the qualitative opening that it provides within the triangulation process as opposed to a formulaic closing down in a problematic sense of synthetic fusion.⁹ The starting point of any creative dynamic is a controlled, orchestrated seeming paradox, its basic aim and driving principle however is to elevate its paradoxical nature.

The quest for mastery in creative practice-based research and the project of evidencing mastery require – as we argue here – a constellational approach also insofar as this particular type of research presupposes the capability of the immersed and saturated master who has complete command over his field,¹⁰ to sense and 'know' with neither inhibition nor intimidation of the essential necessity of 'the other'. Masters invariably constellate, emerging masters seek to constellate.

Each balancing figuration of the kind of Calder's work, each 'arm' of the mobile, represents structurally a proto-constellation. The mobile shows one macro-constellation with each pole consisting of a series of embedded 'micro'-constellations – a complex operation of blended force-fields. What masters have mastered is such complex arrangements of constellational dimensions and layers.

'Constellational triangulation' as the central mode of constellating creativity in a dynamic force-field is not an analytic tool in order to formalise or engineer creative settings. The creation of constellations cannot be forced. However, the

awareness and understanding of its dynamics can be coaxed, fostered and deepened.¹¹ In every single constellation, each project and its respective masteries will become evident in their unique profile.

In his analysis of what he calls the natural history of the creative agent, Howard Gardner highlights that creative agent's sense of marginality, occupying a niche, a sense of transcendence, the breaking down of barriers, the idea of a breakthrough, and the sense of risk: of unfamiliarity while stepping out of the familiar into the unfamiliar territory (the idea of a pioneering exploration).¹²

The very idea of a meaningful transcendence presupposes the state of immersion into what has been called a noetic nest, a saturation regarding its workings, its 'grammar', i.e. the rules that govern its 'logic'. The fundamental creative process occurs invariably where two (or more) noetic nests that have hitherto not been in contact with each other 'make contact'. The 'contact' metaphor indicates: Moves routinised and habitualised to saturation in one domain or nest are being 'contaminated', infiltrated or swayed by moves stemming from a foreign grammatical space. They may start to exhibit an influence on each other, one may enrich the other and break open new pathways. Or it may be that moves deemed possible in the pre-collision situation are now blocked. The constellational axial antagonism, however, that manifests itself in the premonition of the clash or intended interaction of more than one 'grammatical domains' is possible where we are able to transcend a given dimension.

Creative Openings

A creative constellation actualizes and yields a manifest outcome which could not have been predicted; the 'result' has no possible analytic justification or necessity in advance. However, this lack of a rationale *ex ante* - which would, if obtainable, render a creative outcome construable - must not be regarded as a weakness of the process. Rather, indeterminacy must be understood an elementary condition of creativity through at all levels of operation.

Creative works are particular manifestation of creativity. Unpredictability and indeterminacy in the creative process must not be mistaken for chance and coincidence. As abundant a factor as chance may be, it is immaterial to creative constellational processes. There can be few or no justifications in advance of the outcome because the conditions which make a synthetic response unavoidable are generated by a carefully calibrated interplay of antagonistic forces, impulses or tendencies. While a particular force (agon) is counter-balanced by an 'emerging' counter-force (anti-agon), the success and quality of this elementary antagonistic setting is not determined by the measure of the counter-force, but rather, and more fundamentally, by the opposition of the two forces in play. Measure is secondary. It concerns the degree of tension created by the antagonism, not the tension as such.

An act of creation in constellational terms rests upon the fact that the setting bears and executes an intrinsic open dialectic. Creativity of this kind presupposes an antagonism of forces which are no longer viewed as the contingent yet transient conflict of interests or tendencies which might be overcome by emphasising some over others. An antagonism may duly be called dialectical only if it is recognized that the forces which *prima facie* oppose each other at the level of conflict necessitate each other in terms of conditioning the tension in the first place. The agon can fully actualize itself only through the anti-agon, by means of the force that, as much as it seems to annihilate it, brings about the tension in the first place.

Genuinely creative processes rest without exception on such a dialectic. The history of the design process regularly features the dynamics of this dialectic as crisis. Crisis is the acknowledgement of conflicting and antagonistic forces; it is furthermore the experience of the paralysis instigated by the dialectic. However, whereas its seemingly aporetic character threatens the design or model(s) considered up to the point of creative seizure, their dismissal is the first step of an opening which marks a genuinely creative response. Indeed, only antagonisms carried to the extreme - antinomies - allow the emergence of new conceptual space. It follows that the opening

in and through the crisis is not the uncovering of something hitherto secluded and hidden, but rather the creation and development of something not hitherto present. Wittgenstein's formula that 'nothing is hidden' applies here because nothing is there in the first instance – nature has no veil because there is nothing to be veiled. No hidden game could be discovered – rather: a grammar book is being written, consisting of new rules of a new game.¹³

There is a strong temptation to regard the creative work as the outcome as the first instance or application of the new rule(s) set out by the object. This category mistake, which persists equally in the philosophical tradition⁴, is difficult to eradicate. The material sample which is used to establish a rule is not at the same time its first example; while the application must allow for the possibility of error, this is excluded at the level where the rule itself is established. The crisis in the creative process is therefore a normative crisis: it foregrounds the normative character of the aporetic climax which precedes the opening towards the emerging object – the set of rules: (vulgo: the grammar book) - and enhances the leap towards the specific morphology of the creative dynamic.⁵

An essential feature of creative processes is that their 'outcome' can only be justified afterwards; the result cannot be anticipated. At the same time, the outcome of the process bears a doubtless necessity, a 'just so' character, in its concrete forms and morphological features. The result is not contingent, not the accidental choice from numerous options. The realization in hindsight of the necessity of the creative work, the objects, their 'just so' character, is a hallmark of all creation proper. The constitution of morphological and creative reality entails a category leap. In philosophical terms, the categorial leap is from knowledge and truth to ability and agency. In this sense, creative works are not objects, a material entity, but rather: the human action of setting rules, of formulating a grammar. Creativity can therefore not be understood in terms of theories of culture, styles, aesthetics but rather in terms of a theory of action and normativity. Instead of depicting, representing and symbolizing, creative outcome conditions reality and morphology emerges.

Matter becomes an integral part of the creative normative process. Creativity is a normative action which uses the material object in the rule-giving process. Therefore talk of the necessity, in retrospect, of the resulting morphology has to be understood in relation to the grammar of action and requires a normative analysis.

Un-veiling Creativity

Genuine creativity development and creativity research at large is confronted with many hermeneutic spells: It is arguably impeded by pervasive modernist bigotries such as the claim that creativity is to be linked to imagination and invention, wrongly implying the primacy of human activity, capability and even authorship as such. It becomes rather dubious whether creativity should be investigated in those terms at all. Why would creativity at all be linked so readily to the origination of the novel, but with value?

It goes well beyond the scope of this essay to start to unfold the consequences of creative practice research that such a question seriously. Nonetheless, research into practice through practice should ultimately yield a revisionist account of creativity that debunks generic flat responses to the quest for creativity which stem from fashionable contexts of innovation: To do so would also mean to expose the delusion of the importance of absolute genesis. It is becoming evident that facilitating creativity and orchestrating superficial conditions of creativity has nothing to do with explaining and understanding creativity as such in a profound way. To furthermore muddle the creative with the new can lead to the deliberate orchestration of category errors such as conflating the study of 'creative people' with the question of how to implement e.g. creativity education and 'making people more creative'.

Creativity turns out to be one of the most veiled notions in practice research at large – veiled not by nature itself, but by the investigator. There is a sequence of particularly instructive approaches to understand the origins and dynamics of creativity that aim to remove that self-imposed tutelage - attempts from Schopenhauer, through Nicolai

Berdjajew and Henri Bergson, to Arthur Koestler, all concerned with a non-formulaic reconstruction of creative processes.

Creativity wrongly purports a positive value proposition, as if being creative had an intrinsic positive value. As soon as creative practice research starts to meaningfully capture our manifestations of resonance and participation with 'nature', such value attributions cease to have any significance. For and in such nature, creativity is not necessarily good: what is creative about something is different from what is good or valuable about it. Creative practice research, we claim, is a participatory account of creativity that addresses the question how to control, contain and manage creativity successfully for human purposes.

The practice turn in research is about to unleash novel ways of thinking about creativity: Creative practice research is developing innovative discursive fora and institutionalised formats for a new type of meta-reflections, carried out as an integral part of the ongoing productivity of the creative practitioner and researcher where the creative process is fore-grounded and in which future generations can participate instructively.

Our epoch is based on the cognitive and noetic vulgarity of the creation of futures, as if creativity was the motor – based on a human capacity or 'generic skill' - that adds novel realities to fading or hindsight realities. As a consequence, seeming progressivism which in effect is only a culturalist derivate of its ideological nephew called innovationism prevents the human being from grasping the kind of universe he is in and thus leads him to misconstrue the quest for creativity in response to it.

The 'practice discourse' – a discourse through practice itself - foreshadows a paradigm shift in our understanding of creativity, dispensing with all tendencies toward hermeticism or mythologising. They shed novel light on the alleged processes of creation and discovery alike, on the modelling of creativity as an integration process of 'disparate tendencies' in the evolutionary process, which aims at ongoing dynamic transformations rather than mere fusions¹⁴ to which the creative activities

of art and discovery equally are traced.¹⁵

Creative practice research ultimately opens up novel ways of stating a constellational understanding of ongoing dynamic transformations in new metaphysical terms: As a quest for the boundaries of our world(s), the means of transgressing those boundaries, and the eventual question regarding the ultimate horizon within which our creative lives take place.

Footnotes

¹ Pierre Hadot, in his commanding *The Veil of Isis – An Essay on the History of the Idea of Nature*, Harvard University Press, Cambridge Mass., 2009, distinguishes between a Promethean and an Orphic approach to nature (pp. 101 passim), where the Orphic ‘Unveiling Secrets through Discourse, Poetry and Art’ (pp. 155-211) is of central relevance to the understanding of the basic premise of creative practice research as research in the

² See Norman Malcolm’s title formula Wittgenstein: *Nothing is Hidden*, Blackwell, Oxford 1988, which alludes to Wittgenstein, *Philosophical Investigations*, Blackwell, Oxford 1953, §435 (20013, p. 109e) and Hadot’s “Isis has No Veils”, in Hadot (2009), loc. cit., pp. 247-261.

³ Niklas Luhmann coined the term ‘Kompaktbegriff’ (compact(ed) tem/concept) in a systems-theoretical approach to society well outside this contemporary practice research.

⁴ See Marcelo Stamm: ‘Reflecting reflection(s) - epistemologies of creativity in creative practice research’ in J. Verbeke and B. Pak (ed.) *Knowing (by) Designing*, LUCA, Sint-Lucas School of Architecture, Ghent, Belgium, 2013, pp. 33-39, esp. p. 38.

⁵ Theories are basically sets of rules clustered together for a range of purposes. Theorising through concretion rather than through abstraction is the most pronounced signature of creative practice research - in the mode of practice itself.

⁶ Note that the concept of ‘character’ here does not refer to psychological traits and specific features, but rather to the ‘Aristotelian’ notion of character as a complex, fully-developed personality and moral agent capable of integration at large.

⁷ The source is a set of first order questions, and the result of the creative process is a new, second order set of interrogations.

⁸ Cf. Randall Collins: *Sociology of Philosophies: A Global Theory of Intellectual Change*, Cambridge: Harvard University Press, 1998, and “The Sociology of Philosophies: a Précis”, in: *Philosophy of the Social Sciences* 30, pp. 157-201.

⁹ *Die Figur des Dritten [The Figure of the Third]*, Frankfurt: Suhrkamp Verlag, 2010.

¹⁰ The notion of mastery within a noetic realm that requires specific capabilities presupposing, e.g. acoustic or spatial intelligence, stands in a complex relation to the idea of command over respective grammars of such fields: Command of the grammar of spatial intelligence, e.g. as command over an expressive and reflective inventory of tools pertaining to a specific realm, is a matter of degree and calibration, subject to practices and traditions of finessing and relative profiling; ‘mastery’ in this context is not an absolute notion.

¹¹ To analyse and understand structural features of constellational dynamics does not lead to formalisations and rigid paradigms; rather, it provides a working heuristics of reflection for the searching and re-searching practitioner.

¹² Cf. Howard Gardner, *Intelligence Reframed: Multiple Intelligences for the 21st Century*, Basic Books (New York), 1999, passim.

¹³ The game is not played according to existing or established rules - rather: new rules are being created.

¹⁴ Note here Mark Burry’s critique of the notion of ‘fusion’ and his trans-disciplinary re-interpretation of ‘holism’ to methodological reflections on ‘reverse engineering’ as executed in the *Sagrada Familia* project in Barcelona: Trans-disciplinarity turns out to be actually a tracking heuristic: The enacted ‘whole’ allows one to track the complex interplay of diverse disciplines, levels, domains and realms.

¹⁵ Cf. A. Koestler in a bold attempt to reach out for a ‘unifying theory of art and discovery’ in *Insight & Outlook*, 1947 (preceding his seminal *Act of Creation*, 1964), p. 8: “‘Artists treat facts as stimuli for imagination, whereas scientists use imagination to coordinate facts.’ The aim is to show that such distinctions are not fundamental, that all creativity is based on a common pattern.”

Creativity in a Relational Perspective

We have inherited a strongly individualistic view of creativity from Western culture and psychologists studying creativity are typically taught to study the individual mind and behaviour focusing on cognitive processes and behavioural actions. Much attention has been paid to people who are considered as “specially gifted and talented”, without taking in consideration the importance and significant role of relationships, the learning environment and the social and cultural context. Most of what we have read until now in creativity literature about artists and highly creative people is based on the myth of the lone genius or the misunderstood, “antisocial” outsider working within a solitary venue. Instead of seeing the artist as an isolated individual, my paper focuses mainly on the impact of relational factors that seem conducive to creativity.

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***Creativity, Relationships, Significant Others,
Internalized Others, Inner Voices.***

Moving Towards a Relational Approach

This paper is based on a research project building on 18 qualitative interviews with 22 recognized artists, working within different fields of art: visual arts, design, architecture, theatre, performance, dance, digital art, music, movie direction, writing novels and script writing for computer games. A part of my research is presented in the book *Behind the Scenes of Artistic Creativity - Processes of Learning, Creating and Organising* (Chemi, Jensen & Hersted 2015). Our interviews with the artists reveal that their lives are more social than often considered and that their creativity springs from the soil of relationship.

The following questions have been guiding me through my research for this paper: How can we understand creativity in a relational perspective? And how do the interviewed artists seek and build on inspiration from others? There is no simple standard formula that can be applied to enhance creativity. While being aware of the fact that there are big differences within the specific art forms and traditions, I here intend to indicate some general lines among artists from different fields concerning creativity as something they have in common and display in their daily practice. This might be considered as problematic because creativity has many different shapes and aspects and develops in different ways within the different art forms and traditions. I am aware of this risk of falling into the trap of generalisation, and I intend here to identify and discuss some overall patterns. I consider creativity as profoundly social and in the following I will present some arguments and concrete examples from my research in order to sustain this point of view.

As mentioned above, in thinking about creativity in Western culture, we usually focus on creative individuals, uniquely gifted or inspired, seen from an individual-oriented psychological point of view. But as long ago as in 1983, Teresa Amabile, criticised the tendency of taking an overall individualistic approach to creativity research in her book *The Social Psychology of Creativity*

where she recommended that researchers focus more on the impact of external factors, learning and the social environment, instead of looking upon creativity as something inherent and genetic (Amabile 1983 p. 5). Sixteen years later, Csikszentmihalyi claimed that, psychologists tend to see creativity exclusively as a mental process but creativity should be considered as much a cultural and social as a psychological event (Csikszentmihalyi 1999).

Vygotsky, too, was critical towards the myth of the lone genius and saw creativity as a relational, historical and accumulative process. For instance in one of his essays entitled "Imagination and Creativity in Childhood" he wrote that, "every inventor, even a genius, is also a product of his time and his environment. His creations arise from needs that were created before him and rest on capacities that also exist outside of him" (Vygotsky 2004, p. 30). Vygotsky stresses the importance of having the right conditions, such as a solid economic foundation and living in the right historical moment, in order to be creative and to be considered as such. No one creates alone but in relation to others and in dialogue with the surrounding culture.

A prominent scholar in creativity, Keith Sawyer, breaks with the idea of the lone genius and indicates that creativity does not derive from one single seedbed or from one single individual but from the complex interaction and exchange between people (Sawyer 2007 p. 7). He also claims that the whole is greater than the sum of its parts – a thought, which has often been presented in team development theory, termed synergy. When there is synergy, we not only have the individual elements but we also have the relationships between them that add further complexity to the system or the group. Following this way of thinking, then complexity and relationships can be seen as a fertile soil for creativity.

Though, the relational approach to creativity is

still a young research field. Nevertheless it is my impression that in coming years an increasing number of books and papers will appear, dealing with creativity from a relational perspective. In the following I hope to inspire this movement.

In Dialogue with Traditions and Different Ways of Expression

When we study the history of the arts, we see that often creativity has grown out of dialogue within and among traditions and from exchange between traditions and across cultures. I use the word dialogue here, because we want to emphasise the language of art or the language of a particular artistic tradition as a specific way of relating to each other. This artistic language is not necessarily literally based on words, though it can be, but might be based on sounds, bodily movements or other visuals, like, for example, the language of jazz, classical music, opera, ballet, sculpture, painting, design, architecture etc. To grow up within a specific artistic tradition is somehow like growing up within a specific language (and within this language there are many different dialects). As a young apprentice of an art, for instance classical music, the student learns to navigate and orient him- or herself within a tradition and by practising and rehearsing, little by little, he or she learns and becomes familiar with this tradition. He or she does not only learn the language of music while learning to play the piano or the violin, but he or she also learns the language about the music, e.g. when the student talks about the music with his or her music teacher, with other musicians or maybe even with relatives interested in music. For instance, how could Mozart think about difficulties in composition without being embedded in the language of and about music? Without this language, which comes from a long musical tradition, what would there be to think about? Language (and thereby also languages of music, of dance, of architecture, of design etc.) is fundamentally a product of people in relationships and language (in this case the language of music) only becomes meaningful when people agree on how it functions, following conventional rules and structures in the language. On one hand we have

the language about music and on the other hand the language of music (where music is a language unto itself). Mozart, who was composing already at the age of six, was actively participating and embedded in a whole tradition of music as language, as well as in a tradition of language about music, which, after all, is based on tradition and relationships. In other words, he grew up and became familiar with this language. Only by participating actively and sharing in the tradition of music could he contribute to it.

Let us take an example from the artists interviewed for our research project: Anders Koppel, musician and composer of classical, rhythmical and world music, is well known for combining different musical traditions in his work, for instance, elements of music from the Middle East and from jazz. He was born into a family of musicians. His father was an outstanding composer and pianist and their home was filled with music from early morning to late evening. In the following excerpt, Anders Koppel describes the merit and advantage of being embedded in music and the language of music from early childhood:

Concerning families, music and master apprenticeship, it is no chance that there are so many families within music. It is not a coincidence, because it is obvious that if you enter into the world of music and learn the language of music before you turn three years old, you already have a lead and this is the case in music families and then you keep building upon this foundation.

Yet, participating in and being embedded in a specific tradition of music might enhance learning about music and how to play the music, and the seeds for a creative development are sown, but it is not necessarily in itself creative. One could say that, in fact, by embracing a single tradition we might even reduce our creative potential. If we live in a single tradition and this is all we know or appreciate, then we can do little more than sustain the tradition. It is very difficult to “think outside the box” if you do not know there is an “outside” (Hersted & Gergen 2013). Maybe one of the potential keys to creativity, then, lies in combining different traditions and ways of expression because if we only live in and follow a single tradition, we will come to see its constructions of the world as authentic and right. Our horizon becomes

narrow and we do not see any need to seek further as we know we are right. But one artistic expression from a specific period is only one way of interpretation or expression. And there could be multiple others. In effect, when we participate in more than one tradition, we are not tied to a single way of understanding, but can suspend it, play with it, experiment and try something different. Participating in more than one tradition opens up different perspectives and broadens one's horizon (Hersted & Gergen 2013). Anders Koppel can be considered as highly creative while drawing on different cultures and their different types of music, which enables him to compose entirely new forms of music and in this way contribute to the field in surprising and innovative ways. In order to seek inspiration the artists often investigate other art forms or other kinds of media as well. For instance, in one of our interviews, Michael Valeur, who works contemporaneously as a fiction writer and a scriptwriter for computer games, said: "It helps a lot to go out and look at some really good art [...] I know that I will not watch TV when I'm in the middle of a creative process; instead I'll go out and look at paintings or read some good literature, which means keeping my mind pure".

When multiplying traditions and different expressions within art and culture, new and unexpected combinations emerge and novelty results when ideas and practices from two or more traditions are brought together – when there is borrowing, assimilating, associating, deconstruction, layering, sampling and so on.

Internalization and Significant Others

Why do I think that a strong individualist point of view on creativity is misleading – or at least missing something? Because, even when we seem to work alone, for instance writing a chapter of a book, composing a piece of music, or drawing a sketch for a painting, we are not totally alone. The ideas that emerge when we are alone can be traced back to previous relationships, traditions, other art works and collaborations. Vygotsky claimed

that all the higher functions originate as actual relations between human individuals (Vygotsky 1978, p. 57), which means that our intrapersonal processes derive from social processes, or, that all private thought is a derivative of social experience, in other words: people learn to think about the world through interaction with others:

For Vygotsky, then, creative work is profoundly social: "Art is the social within us and even if its action is performed by a single individual it does not mean that its essence is individual" (Vygotsky 1925/1971, p. 249). One could claim that the creator of art is embedded in culture and relationships and has internalized the surrounding culture, which he transforms and externalises into artistic works. We cannot isolate the individual from the surrounding society and culture; even when we are alone, we are related to the world. Kenneth Gergen goes one step further and claims: "What we call thinking, experience, memory and creativity are actions in relationship. Even in our private reveries, we are in relationship". (Gergen 2009, p. 63).

Seen from a relational approach, we are always already embedded in culture and the social and we are constantly in dialogue with thoughts and ideas from others with whom we have been talking, or whose books we have read, movies we have seen, music or interviews we have heard on the radio etc. Our creative ideas arise and have their being within relations and seem always to build on references from other persons. The Russian literary theorists Bakhtin and Voloshinov wrote about the inner voices, which we can hear and talk to in our so-called inner dialogues (Bakhtin 1981, Voloshinov 1986). We can consider these voices as internalized others (Tomm 1998) and say that internal speech and reflective thought arise from the relationships and interactions between people.

These inner voices are also called by Voloshinov/ Bakhtin the inner social audience and they can both motivate and inhibit creativity. They can be seen as active and dynamic while they are influencing the artists' minds and actions and inspiring them for creative endeavours. As Voloshinov writes: "Each person's inner world and thought has its stabilized social audience that comprises the environment

in which reasons, motives, values and so on are fashioned” (Voloshinov 1986, p. 86). If we follow this idea, it means that all our utterances including artistic expressions and artistic works are to an extent jointly produced outcomes between human beings. With inspiration from Bakhtin and Voloshinov, John Shotter and Michael Billig claim:

[...] Even in our own inner dialogues, the dialogical relations with others and othernesses are at work in us, in which new reasons, new motives, new values and so on can be fashioned (Shotter & Billig, 1998).

Several of the interviewed artists in our research project talk about inner voices, with whom they are in current dialogue – voices that inspire or in another sense have a strong influence on their artistic work. Even a solitary act like writing has its origins in relationships. Writer Morten Ramsland explains in our interview how he is deeply inspired by characters and grotesque stories from his own family story and how “ghosts and psychological wreckage and demons from the past are repeated in the next generation and shape the new narratives”. Furthermore he reveals how the dark sides and ghosts from family life sometimes are overshadowing him and how he confronts these dark sides and ghosts while writing and moving around in the stories of his childhood.

Sutton-Smith describes it in the following way: “All of us carry dozens of characters around in our daydreams with whom we carry on imaginary encounters and conversations, none of which are real in the usual sense” (Sutton-Smith 2001 p. 3). This leads as well traces back to Bakhtin who, inspired by Dostoevsky, described a polyphonic (multi vocal) approach to writing novels (Bakhtin 1984). In the case of Ramsland we see how the characters from his childhood or youth are expressed and are interacting with each other in his writing process. Creating these characters is not only a cognitive process for Ramsland, but seems rather to be a matter of physical enactment and embodied imagination, for example, when he says: “And it is really physical, I think, I have the sense that my body becomes very smooth and different, floating in one or another way...”

If we continue with the example of Ramsland, not only family members but also different role models

can be defined as significant others. Ramsland explains:

When I was quite young, you know, when one tends to lean on role models...I think I had a feeling that my favourite writers, role models, were expressing something deep inside myself and I would like to be able to express these things myself and then I tried to write like them in one or another way. And then, little by little, I found my own voice, my own way of doing it and such a process is, in many ways, blurred, but for me, it was closely related to the fact that I had many different literary role models in different periods of my life and then I might have rejected them later on. My relationship to them was as if they were, at least earlier in my life, superior to me and then maybe in a later moment, I knocked them off their pedestal, thinking that they were ridiculous and stupid, when I came to another moment in my life, which did not suit them.

Ramsland explains in the interview that he stands on the shoulders of others, a whole tradition of writers from whom he received inspiration and learned a lot. One could claim that in the beginning of his career he internalized the voices of the writers with whom he felt most familiar and he could identify. Being in an inner dialogue with these voices, watching and building on ideas from them, gradually helped him to find and shape his own literary voice as a writer and then these voices were left in the background. One could, in this later phase, speak of a process of independence or liberation from the role models (the masters) when they were standing in the way of his creativity or simply were not inspiring him as a writer any longer. The literature on art and psychology often mentions that the artist at a certain moment in life has to liberate himself from “his father” or “the master”, in order to create his own identity as a human being and as an artist. Ramsland goes on to explain about the impact of the voices from his masters and the battles with and between these voices, which had become internalized as inner voices:

So it has sort of been like a wrestling match with them and I looked up to them and it was like I had to pull them down, throw them away and find others and seek my own way. [...] But I have learned a lot from the others who have a voice, who in one way or another are close to my voice. [...] And that's how you learn, isn't it? You do it by seeing what others are doing and you do it by borrowing some ideas [...] to recognise that you stand on the shoulders of a lot of other people. And if you want

to progress, you have to use tools and ways of doing things that others used before you [...] and find your own way without getting pulled too close to one of those major bodies and becoming trapped by their gravity. So when you're a writer, you borrow a lot of ideas from tons of places, from your own life and from people you know, from books you read and so on.

In the quote above, we recognise that Ramsland has learned a lot from other writers. In fact he has built on some of their tricks and ideas, he has combined different ideas and elaborated them and in doing so, little by little, he has created his own style of writing and gradually has created his own identity as a writer. Regarding learning and achieving inspiration from others, he also touches the delicate matter of not being absorbed totally by the impact of a master.

Conclusion

In conclusion, creativity can be seen as a highly sophisticated form of creating meaning and learning in relation to others and the surrounding world, through images and dialogues carried from the past, the present and even imaginary dialogues with significant others in the future. From participating in relationships, in cultural events, meetings with the art world and active engagement in educational programmes and learning settings, the artist acquires an enormous range of resources and becomes familiar with a specific tradition or language within the art world. The point is here that the artist is never an isolated being but always developing him- or herself in response to others. Creativity is entirely relational and emerges in environments and communities of people who share ways of thinking and acting and learn from each other. In short, as opera singer Marco Nistico' explains in one of our interviews:

"You create with and for other people - that's all we do. All we do is related to other people".

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Techniques

'to think as doing'

“... to think while making or rather while doing: to think as doing.” (Grosz, 2001, p. 59) is a quote I referred to often during my PhD (by project) and one I continue to use with PhD candidates I supervise as a way of presenting and grasping an idea of research through making. This quote articulates a shift in understanding thinking as an analytic process to appreciating the synthetic, material qualities of thinking. However this quote is not enough to give candidates a way of working with the significant potential this proposition has in relation to situating their research and articulating practice based research more broadly. To attend to this, this essay attempts to offer some techniques crafted during my PhD to enable a practice of research amongst PhD candidates that fosters and supports making research and research making.

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Thinking; Knowledge; PhD by practice.*

1. Introduction

The motivation to write this paper comes from challenges in relation to positioning knowledge generated by practice-based research that I faced doing a PhD by practice that I see in the research of PhD candidates. During my PhD, a number of conceptual shifts were provoked due to making connections between thinking and making. Relations between ideas and practice, knowledge and thinking, process and artefact needed to be re-thought through doing that did not privilege dominant ideas of knowledge that underpin PhDs. This paper articulates some of these conceptual shifts and accompanies an aspiration to support a practice of making research and research making. My PhD, titled 'interior, practices of interiorization, interior designs' (Attwill, 2012) was situated in a curatorial and exhibition practice where I experimented with concepts of interior and interiority. In the discipline of interior design, a centred subject as an autonomous interiority inflected by phenomenological and Cartesian concepts of subjectivity resides as an a priori subject for any designing as does 'the interior' as a spatial condition within an architectural enclosure. My practice focused on exhibitions – from a design and curatorial practice – as these enabled an experimentation with interior and interiority 'inside the white cube' gallery perceived as a timeless neutral space where artefacts as containers of meaning are encountered by viewers whose own situated interiority produces an autonomous interpretation.

In relation to research, these two concepts of subjectivity are also defining forces. It is therefore worth unpacking them a little here by way of introduction and to note that both the phenomenological and Cartesian subjects are self-knowing subjects where consciousness enables this knowing. This is coupled with a desire for a certainty of knowing. For Descartes, "I think, therefore I am" is his defining statement – a foundational given that remains the same through change and therefore the only statement that can be said with any certainty. This idea of certainty

inheres in ideas of knowledge particularly in relation to research. And while Descartes's "Ghost in the Machine" may not be subscribed to in a contemporary world, the analytic method where reason reins the process inflects most people's perception and understanding of research and knowledge.

In the discipline of interior design, the phenomenological subject is an antidote to the rational, autonomous Cartesian subject. Argued as a counterpoint to Euclidean and geometrical ideas of space, phenomenology's foregrounding of the subject/the body is embraced in a tacit way as a natural idea of the conditions of interior and interiority. While there are important differences between the rational Cartesian subject and the phenomenological subject where the body comes into play, the subject as centred and self-knowing inheres in both. In relation to PhD practice based research and the production of knowledge, the activity of self-knowing and cognition is assumed. Based on processes of recognition and identification – a re-cognition – making research and research making understood within modes of representation, and hence re-presenting what already exists.

In this paper, as with my PhD, I draw on the works of the philosopher, Gilles Deleuze and others who make connections with his writing. Deleuze's ideas are useful to practice-led research as his philosophy foregrounds a synthetic approach i.e. a making process. As the philosopher Brian Massumi writing on Deleuze distinguishes:

"there is not an identity between the subjective and objective or between the world and experience: there is a continuity that mutually includes each side of the divide in the same self-differentiating reality." (Massumi, 2002, p. 288).

Again – like Grosz's quote – the above is not enough to effect a conceptual shift in relation to ways of understanding knowledge and to support

candidates to think otherwise. So I have crafted a series of techniques:

“Techniques are not descriptive devices – they are springboards. They are not framing devices – they activate practice from within. They set in motion.” (Manning & Massumi, 2014, p.ix).

The aim of my contribution here is to set making research/research making in motion in a way that is not weighed down by unhelpful assumptions regarding knowledge, value, truth and various other aspects of PhD research. As a doctor of philosophy, it is perhaps the most significant contribution of PhD by practice to articulate a “practical philosophy” (Deleuze, 1988) of making research/research making – “to think as doing”.

2. Some Techniques

1: Engaged in a world in constant movement, making becomes a process of production open to change and chance.

My PhD was situated in a practice that posed (and still does) the question of interior and interiority. The research, engaged with making exhibitions and curatorial practice, moved from foregrounding space, objects and subjects to working with relations and processes of interiorization, objectification, subjectification and spatialization in time. Situated in a world in constant movement, making became a process of production open to change and chance – a contingent experience.

This technique values qualities of immersion in a world in constant movement. This technique will assist one to resist the demand for certainty that knowledge seems to imply and demand of research. Certainty happens because one reimburses what one already knows and can therefore be certain. This in a way contradicts thinking as a creative act.

“... to think is not to be certain nor yet to calculate probabilities. It is to say yes to what is singular yet impersonal in living; and for that one must believe in the world and not in the fictions of God or the self ...” (Rajchman, 2001, p. 17).

To be open in the world is a quality that runs through a number of interior design PhDs. Phoebe Welman Whitman’s PhD titled *Surface* encounter experiments with an openness with surfaces which are placed in the world – to capture ephemerality such as light, shadow, colour, materiality. 89,964 seconds [paces] of drawing [walking] a project that is part of James Carey’s PhD research attends to, as he says, “immediate [im]material, immersive and inhabitable situations.” James immerses himself to enable “a slow material engagement” attentive to particular qualities and conditions with which he then makes connections and arrangements.

Deleuze’s concept of sensation as something that takes place before cognition and meaning is useful here. This might be referred to as intuition or the phenomenological position – however for Deleuze sensation is not reducible to the phenomenological because it is not something that is located in an already given subject. This can be contrasted to the position of architectural phenomenologist Juhani Pallasmaa who writes: “we live in worlds of the mind, in which material and the mental, as well as the experienced, remembered and imagined, completely fuse into each other” (Pallasmaa, 2009, p. 127).

Sensation, for Deleuze, is “the affect, which is neither subjective nor objective; rather it is both at once: we become in sensation and at the same time something happens because of it” (Boudas, 2005, p.132). This conceptual shift/inversion enables one then to engage with sensation without having to align it with subjectivity as a matter of self-knowing. The desire for certainty is also suspended. Interestingly, sensation pertains to significance – a counterpoint or intensity – which become a valuable idea to work with in relation to research and making. Matter is impersonal and becomes expressive as distinct from embodying meaning and becoming a medium for communication.

“Sensation is resistant to identity in representation. Thought must be responsive to sensations that go beyond its capacity to represent them.” (Williams, 2005, p.49)

2: Thinking as an event in relation to the outside

This involves an engagement with an outside that is other than what is already known. To open to the outside of what we know creates a gap (a crack) in the existing/the given fostering curiosity, surprise and the new. Such an encounter forces one to think – to do thinking and to think doing; making research, research making.

Following on from the first technique, this technique foregrounds thinking as an event – as a doing – that happens in relation to the outside (of what we already know). This is a different approach to an idea of research that identifies gaps in knowledge to be addressed by one's research. This latter idea of research is a further manifestation of a desire for certainty in relation to knowledge. A stamp collection is an example: the context is established beforehand and the filling of the gaps is a process of identification and reimbursing existing knowledge to complete the system. Both the research process and examination then measure the contribution in relation to this context and how well the gap is filled. Gap filling has a static quality about which does not suit creative practice. There is also something about the knowing beforehand – before hand, before making – that renders making research a process of representation and identification, of representing and reduces the creative act to one of repeating the same and familiar.

Pausing between stimulus and response opens a gap: “the non-action of suspending established stimulus-response circuits to create a zone where chance and change may intervene” (Massumi quoted in Grosz, 2001, p. 191). A passive quality is acknowledged here in the process where one is not in control of what happens; where it is not the activity of the thinking subject who uncovers and reveals intrinsic properties of existing entities. Instead chance and constraint rush in and force one to experiment. Curiosity and surprise are fostered.

In her keynote for the symposium SITUATION, Australian artist Bianca Hester and a PhD candidate in sculpture (completed in 2007 who I supervised), addressed creative practice research as an improvised, temporal and spatial engagement in the world. She also spoke to this

aspect of being open to the world and the value of open-endedness in practice-based research:

“Generating projects with a high degree of open-endedness built into them, demands a particular attitude of ‘being open’ to forces unforeseeable in advance. This approach necessitates developing the ‘capacity to learn to be affected’ by – and respond to – forces that circulate around and traverse any situation. Elaborating this idea, In the essay Personal Support: how to care?, Jan Verwoert discusses the painting of Saint Jerome by Niccolo Antonio Colantonio and Lorenzo Monaco, depicting Saint Jerome removing a thorn in the paw of a lion who has happened to enter into his study. Verwoert’s observation is that the most poignant gesture offered by Saint Jerome is not the performance of care enacted by the thorn’s removal, but the fact that St Jerome left the door of his study open in the first place, and then simply ‘dealt with what came in’. In committing to responding to what is affirmed is the willingness to encounter, to negotiate and to grapple with whatever crosses over the threshold: no matter what.” (Hester, 2014, p.302).

3: question in making

How to pause and intervene between stimulus and response to produce a crack is challenged in PhDs by the demands for a research question. Research questions are challenging for creative practice PhDs as they are established at the beginning of the PhD with the expectation that the completed research will provide an answer. Accompanying these is an idea of design research as a problem-solving practice. ‘What’ is usually the key interrogative word used with research – ‘What are you researching?’ A ‘what question’ is most often in search of an answer that identifies ‘what is it? – a solution to a problem – as distinct from posing ‘what can it do?’ Questions of how, which, when and where engage with making research in a different way – process and specific contingent situations of practice become attended to and the focus for thinking through.

While I did have a ‘research question’ posed during my PhD, I found it valuable to think about a persistent interest that drove my practice – i.e. the concept of interior. And the research involved making a question in relation to this – initially this was posed as: ‘interior?’ But this was challenging

as ‘what’ questions steered my thinking into negotiating abstract universals in search of a response and the contingent experience produced by my research was sidelined. I found the idea of a problematic useful as making a question becomes a focus through one’s practice as distinct from posing a question in a given context. A problematic is a force that shapes an ongoing practice and produces a multiplicity of responses and outcomes.

Once I began to think of the question as a problematic, the ? moved to pose ‘?interior’. Shifting the ? to before ‘interior’ produced a pause which opened up ‘interior’ and invited the activity of designing. Posing ?interior with each project creates “a new problem ... new orientations” each time anew. (Colebrook, 2006, p.225) The concept of the problematic enabled me to flip conceptually from a position that sought to answer the question of interior to making a question ‘?interior’. A problematic is a question that is not in search of absolute answer so much as invites, incites and ignites practice – question in making.

4: evaluating a contingent experience

Making research involves evaluating a contingent experience – in the making of some thing and also in its presentation. In the midst of relations immersed in the world, processes of attention and focus re-orientate terms associated with knowledge such as evidence and truth. To be attentive in the world invites a consideration of relations while being caught up in a movement:

“Many of the new sports – surfing, windsurfing, hang gliding – take the form of entry into an existing wave. There’s no longer an origin as a starting point, but a sort of putting-into-orbit. The basic thing is how to get taken up in the movement of a big wave, a column of rising air, to “come between” rather than be the origin of an effort.” (Deleuze, 1992, p. 281).

To come between and experiment foregrounds a synthetic approach to research and as one of working in the midst, thinking through doing, caught up in the wave – a contingent experience – and within this to experiment with what can be seen, spoken and felt. Rosie Scott’s PhD research

works in the medium of watercolour painting as a practice of care “that operates relationally in a sensitive and attentive way. Watercolour can be a design tool, method, and tactic, but also a production, duration, response, and engagement and, as such, has the potential to address the nuances of situation in a careful way. To study a site (or a scene, a space, a situation?) through watercolour requires an engagement between what is being studied and the studier. Something new is produced in this durational process: a situation or a relation.” (Scott, 2004, p.66) The making research, research making and examination become an on-going process of evaluation where evaluation is “the creative imposition of form” (Bogue, 1989, p.45). This differs from an evaluation that attempts to correct life by the imposition of knowledge.

This also shifts a way of working with truth from an idea of universal and absolute truth to truth in the making. Fred Wilson is an artist whose practice makes apparent this truth – not as a relative truth but truth “in complex constructions of propositions and sensations that express the conditions for the genesis and development of events” (Williams, p.289) Wilson is an artist of African American and Caribbean descent whose practice rearranges existing museum collections to make visible racial prejudice. In his project, Mining the Museum (1992-3) Wilson made a simple re-arrangement with an eighteenth century painting by Ernst G Fisher (1815–94) dated c1850 that depicted a wealthy Deep South American plantation family having a picnic lunch. He changed the title on the label from Country Life of a Baltimore Family to Frederick Serves Fruit and changed the lighting from a flood which focused on the central party to a spot light which illuminated an otherwise unnoticed figure in the background – a young black boy serving fruit to the leisurely party. The re-titling and focusing of the light illuminated another aspect of the surface and through the process of selection changed the meaning produced in the encounter from a celebration of the wealthy to a moving portrayal of slavery. As noted in the catalogue for this exhibition, Wilson explores “not what objects mean but how they mean.” (Wilson quoted in Corrin, 1994, p. 14).

This is where the contribution and significance

of the PhD research can become a focus. And to think about what it does. This continues the making research. The Australian writer Paul Carter in his book *Material Thinking: The Theory and Practice of Creative Research* writes that the mistake artists make is that when asked to discuss their work, they explain what it means [is] as distinct from the social relations it produces [does]. (Carter, 2004). Value resides in how/where/when the research enables connections for others (including the other of self).

“Thought gathers in the work. It is the event of the work’s unfolding. Not into language, but in painting, on canvas that seeks to activate a new way of seeing, a new effort at participation.” (Manning & Massumi, 2014, p. 65)

These new ways of seeing, participation and making relations become the focus of evaluation as much for oneself as for others.

It is hoped these techniques become springboards in different practices of making research and research making “... to think while making or rather while doing: to think as doing.”

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Making Architectural History

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This research aims to shift the focus of existing scholarship on the lectures of the architect John Soane (and the historical object of the architectural lecture in general): from discussion of an intellectual journey of writing their texts, towards an understanding of how such lectures intended and received as architectural acts functioned moreover as a form of performance - both within the context of Soane's wider practice of architecture and in relation to particularities of the oral and performance culture of the period. I ask specifically in this paper what kind of two hundred year-old forms of "making, doing and showing", to quote the words of the theatre historian Alan Read, were at stake in Soane's early nineteenth century performance practice of architecture through lecturing (Read, 2013, pp. xxviii). I discuss the different forms of historical evidence that can be read from different material artefacts for Soane's practice-based research that took place between the written, spoken, built and the drawn, and explore the significance and implications of studying this kind of embodied and performative architectural knowledge - both for architectural history and existing accounts of the lectures of Soane. During the course of this paper I also propose my own practice of architectural history (encounters with/reading archival materials, writing, imaging etc.) as a form of making, exploring the critical and creative value of this approach in developing a contemporary understanding of the architectural object and archive.

Keywords:

John Soane, lectures, performance, transcript, drawing, creative, architectural history, evidence, invention.

1. Reading in

On the 7th and 14th of June 1817, the architect Sir John Soane delivered his first two lectures at the Royal Institution of Great Britain (R.I.), a recently established scientific society located in London. On the front page of previously unstudied transcript texts for these popular lectures, Soane wrote:

*“Lecture the First
Read June 7th 1817
about 55 Minutes
read too quickly
by at least 20 minutes
at least 600 persons”
(1817, unnumbered page) (See fig. 1)*

Three years later in 1820, Soane delivered four more lectures at the same institution to similarly packed audiences of men and women and to further enthusiastic reviews. These lectures were the last Soane would deliver in person during his lifetime. On the first page of the first lecture of this second series, he recorded:

“50 minutes (too fast)” (1820, unnumbered page)

From these brief comments it is possible to say that the manuscripts that contain the texts that Soane read at the Royal Institution (R.I.) are documents that were produced neither completely before nor after they were performed in lecture-form. Indeed, the fact that the above notes that were never intended to be read were added to the front page of the transcripts after Soane delivered them, starts to introduce the complicated temporal status of such documents in relation to the actual performed events that took place. Such annotations, which are in fact written by Soane on the front pages of most of his lecture texts across twenty five years (at both the aforementioned R.I., but also at the Royal Academy of Art (R.A.) in London) indicate their duration when read and sometimes the number of people they were delivered to - giving us details and impressions of specific dated events and audiences. Additionally

however, what they also suggest is that Soane engaged in a process of reflecting after each event on the pacing of his spoken delivery in conjunction with an awareness of the fact that such a delivery had also been received. This repeated process of thinking and recording after individual lectures can be understood both as an assessment by Soane of his performance in retrospect of it, but also, as a form of preparation for the delivery of the next lecture to a future audience and a commitment to improving his delivery over time.

Continuing this attempt to identify approaches or attitudes regarding how the lectures were said - other significant annotations include pencil notes written throughout a single lecture text which act as signposts to monitor pacing. For example, on page eighteen of the second (forty-nine-page) lecture of 1817, where Soane added to the left-hand column, the words:

“One Third” (1817, p. 18)

And correspondingly - again indicating the score-like function of the transcripts to aid in the delivery of the lecture - on page thirty:

“Two Thirds” (1817, p. 30)

Tracking the process of writing and constructing the text to be performed is also possible from such documents. Here, in fig. 2 that presents an earlier draft for the first 1817 lecture at the R.I., instructions for showing visual drawing material (in the form of titles running down the left hand columns) are revealed as serving an integral and active role in the early writing process and construction of the argument to be spoken (which runs largely down the right). Throughout the drafts the drawn and spoken argument correspond on the page in this way suggesting a form of thinking in the production and preparation of the lectures carried out in dialogue somewhere between both modes. In the later fair copies of the same lecture texts, this material and spatial layout of the visual

playing out in parallel to the verbal is maintained into even more clearly distinct columns. On the odd occasion further notes concerning the drawings are added later in Soane's hand to the left column, for example:

"Front of Somerset House next to the Strand, leave this + take away the others" (1817, p. 37)

Here, rather than indicating an amendment concerning the drawings which has a discursive or intellectual bearing on the lecture and its content, this comment suggests that the preparation and construction of the lecture was also considered in the terms of physical acts of showing visual material. In so doing, both the organization and inclusion of such information suggests that the transcripts in addition to aiding speech, served another performance-related role - that of the coordination of a dimension of the lectures that involved action, of when and in relation to which spoken words to show particular drawings.

But what is the significance of such brief notes and observations as evidence for the lectures Soane prepared for and performed? Following architectural theorist Katie Lloyd Thomas' work within the current wider 'material turn' which asserts that 'materials are themselves active', I choose in the context of this paper to focus not on what Soane lectured on, as historians such as David Watkin have done (Watkin, 1996 & 2000). Instead, I consider what other forces were at work in the realization of the transcripts - including in which two hundred year old (performative? creative?) architectural practices their generation may have been embedded (Thomas, 2007, pp. 2-12). Rather than iron out the ambiguities, what could the complications offered by these performance documents and their relationships with other artefacts physically distributed in the archive, such as the drawings, specifically tell us about Soane's architectural attitudes regarding the delivery of speech or the showing of drawings, each both constituting different and particular forms of architectural acts?

2. Two hundred year-old architectural acts

John Soane's lectures, which combined the spoken word with extensive pre-drawn material, pose significant methodological challenges regarding the question of how to investigate complex visual and verbal architectural lecture performances from the past through largely textual means. Considering these difficulties it is not surprising that to date architectural history has tended to neglect the status and significance of its lectures' delivery and enactment in general. Indeed, as historian Adrian Forty writes in a recent article, "although we can read the texts" of lectures delivered by past architects,

"...we have little idea how they were performed... Yet performances they were, in a craft that has long been cultivated by architects, and which they continue to cultivate." (2015, p. 124)

In pursuing this 'craft' as legitimate historical object of study, I ask specifically what kind of two hundred year-old forms of "making, doing and showing" (to quote the words of theatre historian Alan Read) were at stake in the architect John Soane's early nineteenth century performance practice of architecture through lecturing (Read, 2013, pp. xxviii)?

In Andrew Leach's excellent book *What is Architectural History?*, enquiry into the past of architecture over time is presented as a dynamic process involving an 'iterative...perpetual exchange between research, knowledge and concepts' which has an inevitable bearing on the changing definition, not only of what is considered architecture now, but also of that which has been and should be deemed architecture historically. This, Leach explains, means that:

"An architectural history can tell its readers what is known and can be known of the past. These are questions of evidence." (2013, pp. 77) (Leach's emphasis)

Leach's theorisation of the active process of making history goes on to characterise the central significance of evidence coupled with the choice of analytical tools, not as stable categories or forms of 'proof' and 'method' that serve the historian universally - but rather, as resting moreover on the specific questions asked of different kinds of documents and materials, tailored to investigate

particular kinds of architectural historical problems. In so doing he draws attention to recognising the importance in architectural history of “the way evidence interacts with conceptual parameters.” (2013, pp. 77-79.) Leach’s discussion is helpful for situating my approach to reading evidence in the written transcripts for speech and action - notes, details and features of the manuscript that only become relevant in the context of the specific historical problem and significance of the past architectural lectures as a performance.

3. Drawing Out

Having touched on some of visual dimensions of Soane’s lectures suggested from the written transcripts, I now focus on the drawings themselves, kept in drawers physically located across three buildings of the current Soane Museum at 12-14 Lincoln’s Inn Fields in London. In addition to text originally written for the R.A. (and re-worked into shorter/simpler form to address the popular audience of the R.I.) - the other key factor that links both sets of lectures into a practice constitutes the enormous amount of drawings that were produced for, and shown often at both venues. Soane had about 1,500 of these lecture drawings made in total by his office that were to be held up to the audience whilst his texts were being read (Watkin, 1996, pp. 396-408 & 2007). Many of these drawings were copied from printed sources in Soane’s own library, occasionally being replaced by the original drawing if he purchased it in the interim, whilst others were made from sketches drawn on site by the pupils in his office. Occasionally Soane showed his own designs or included the work of other architects. Different drawings accompanied each lecture (sometimes more than one hundred in a single one-hour event!) and corresponded with different subjects that were explored in each specific discourse. This could range from discussion of the classical orders and comparison between ancient and modern structures, to nineteenth century building sites or aspects of London’s then contemporary built environment, to thoughts about the early nineteenth century architectural profession and role of the architect. Very often, the same drawing was used in different lectures, and on the odd occasion was even used more than once in a

single lecture (see fig. 3 which shows an example of the back of a typical drawing with inscriptions that note the different lectures in which it was shown). Combined with a process of re-working the text of individual lectures over time, the order and final drawing selection was often in a similar way also continually modified, recombined and adapted with each re-performance. Many of these drawings have been reproduced as part of both Bolton’s 1929 and Watkin’s 1996 and 2000 published editions and analysis of Soane’s R.A. lecture texts, and other architectural historians have also explored individual and specific sets of these drawings on isolated subjects that Soane lectured on. Whilst they are continually recognised as being the most “compelling”, “successful” (Watkin, 1996, 396, 400) and “pleasing” (Watkin, 2007) aspects of the lectures to be received by Soane’s audiences – such studies also tend to approach the drawings as serving a secondary and illustrative function to the text.

In a document entitled draft Guide for the cataloguing of drawings by John Soane and his office, the archivist Jill Lever describes architect’s drawings in the terms of being a ‘way of communicating with’, going on to cite ‘the architect himself, the client, the builder...the estimator, viewer at exhibitions...’ amongst the receivers to whom different kinds of architectural drawings transmit (2010, pp. 12). In the context of my enquiry Lever’s guidance is helpful where she indicates in turn that the significant properties of any given drawing (coupled with the specific architectural drawing conventions beginning to be standardised in Soane’s time) including its frame, border, material, paper, text, adopted view etc. – can be read accordingly to reflect specific decisions directly related to these intended context(s) and receiver(s) of communication.

Bearing this familiar characterization of the architectural drawing as a strategic medium in mind coupled with the fact the above list of receivers can easily be extended to include the architectural lecture audience, it is interesting to notice that to date Soane’s lecture drawings have not been discussed in terms of the ways they may have been deliberately drawn to communicate in the particular scenario of the lecture. This is also surprising considering the extent to which

Soane is widely recognized to have paid precise attention to his use of drawings and their context of presentation, exploiting a broad range of drawing types during different stages of the design process and for marketing and record purposes (Richardson, 1990) as well as for other physical situations of reception for example in exhibitions (Savage, 2001). The lecture drawings have instead been studied in terms of the buildings they signify and, in relation to historical precedents for such content including regarding whether they resemble, were copied from or relate to a particular printed visual or written source. This focus on signification and representation plays a crucial role in establishing some of the reasons why different drawings were drawn in specific ways and important levels on which they communicated to audiences. This approach as demonstrated in the invaluable work of David Watkin, tracks the journey and impact of Soane's contact with particular architectural and literary texts/images on that of his own lectures' written and (as Watkin interprets it, illustrative) drawn content. However, it does not take into account other, perhaps equally significant forms of embodied and performative architectural knowledge that also seems to have been simultaneously at stake in the lectures' production and reception. This alternative line of thinking, which seeks to investigate the ways these drawings were drawn (and shown) to perform, has implications for understanding the lectures in new ways. Firstly, of thinking about the drawings in terms of how they were ordered and shown in succession, of their weight and physical act of coordination, how they were rendered to be seen from afar, as well as how they worked with the words that they were shown to be spoken with. And secondly, as a result, of their functioning within a larger performance practice (and reception) of architecture, reinforcing evidence already discussed in the transcripts regarding Soane's paying attention to his future audience, pacing and management of visual/verbal elements.

As a means to speculate briefly on some of the above drawn intentions and effects I turn now to a single lecture drawing in fig 4., entitled 'Comparative Elevations of Trajan's Bridge over the Danube and Old Westminster Bridge' (SM Archives, Concise Catalogue 21/1/13). This

intriguing long drawing made by George Bailey, was shown in R.A. lectures six and twelve in 1817 and 1819, as well as at the end of the first R.I. lecture in 1817 (as noted on the back of the drawing in fig. 5 which also suggests a back-stage through showing the lecture from the point of view of Soane's helpers). The drawing depicts a large Trajan's Bridge composed of twenty equally spaced arches spanning a river. This bridge that is rendered in watercolour, whilst showing fairly crude variations in tone (the darkest regions being on the left followed by the right side that meets with each bank), otherwise has little detail. The effect of this structure being markedly lighter in the centre works so as to clearly and effectively offset and bring into focus the smaller structure which is in front of it - that of Old Westminster Bridge. This immediately foregrounds the comparison between the two bridges in a manner that would have been visible from some distance and from the point of view of audience members sitting further back in the theatre. Such a drawing was shown at the R.I. whilst the following words were read:

"If Trajan's Bridge over the Danube is contrasted with Westminster Bridge we are astonished, and if we could forget the impression of magnitude produced on passing under the centre Arch of Westminster Bridge, that noble structure so compared with a giant would only convey the ideas of a pigmy" (1817, p. 57)

Here the audience is asked to contrast the two bridges, subsequently being invited to ignore (but in so doing prompted to do the opposite: to imagine) the experience of encountering the impressively large dimensions of Westminster Bridge; a structure designed by the engineer Charles Labelye that stood across the River Thames between 1750-1853. Importantly, the audience is not requested to conjure in their heads this "impression of magnitude" from a distance or a fixed position, but rather, to do so by imagining an experience of its scale overhead by actually "passing under the centre Arch". The comparison of scale is carried out thus by asking the audience to use their knowledge of a recognisable structure that they would have seen either in reproductions or in person or had possibly even crossed or passed under (located only twenty-five minutes walk from where they were hearing the lecture in Mayfair), and then by

extension to apply this image and/or experience to the projected sensation and feeling of passing under a much bigger ancient bridge. As Soane himself explains just before showing the drawing and in similar words said elsewhere in relation to other lecture drawings comparing ancient and modern structures: “The drawings exhibited will I trust convey adequate ideas of the magnificence, symmetry [and] simplicity of the Architecture of the Ancients– but descriptions, drawings and even miniature models will give but faint ideas of magnitude unless compared with those objects which are familiar to us.” (1817, pp. 56-57). The final part of the comparison within this particular constructed scenario is performed in a sense by asking the audience to inhabit the drawing whilst listening to the words, enacting a transformation in perception of Westminster Bridge whilst they envisage gazing up at Trajan’s Bridge towering over it. In so doing, Westminster’s Bridge moves from occupying the top, to the bottom of a scale of reference in terms of possible size and magnitude of a built structure.

4. Reading in, drawing out

In conclusion, I argue that Soane was not only aware of the performed nature of his lectures as a genre but paid close attention to their spoken and drawn format and its effects in his construction, preparation and delivery of them. By means of a number of focused examples, I read original primary archival evidence in the form of the R.I. transcripts as visual and material scores for speech and action, and interpret the drawings as exhibiting particular performative strategies related to being shown in the scenario of the lecture. In so doing I propose the ways in which Soane’s lectures can be read as constituting not only an intellectual endeavour accessible via reading his lecture texts and involving the production of accompanying visual illustrations, but moreover, as a form of nineteenth century performative practice of architecture carried out through the inventive use of words and image; speech and simultaneous embodied architectural acts of showing drawings.

In this paper, I also foreground my encounters with the material objects of the transcripts and drawings, pursuing what this could tell us about performed relationships not only between the drawn, written, spoken and built but also the archival (specifically acknowledging the afterlife of Soane’s nineteenth century architectural lectures and my embodied enquiry of this transmission). I explore the capacities, limitations and unresolved aspects of such written and drawn evidence: striving to invent new ways and conditions for viewing such materials which are generated and emerge through experimental encounters of reading a document, bringing it into contact with other documents and then of restaging these materials and encounters to the reader in writing. Keeping Leach’s observations of the active processes of making history in mind - this interaction between evidence (traditionally associated with the domain of history) and invention (more familiarly belonging to creative work) ask critical questions of each other in a manner that both allows the past to be known in new ways and operate as a productive constraint in the practicing of a creative architectural history.

Royal Institution.
Lecture the First
Paris June 7th 1817
about 55 Minutes
and the year
by at least 20 Minutes
at 600 persons present

1.

70 Lect 3 1832
Lect 3 1819
No 71
No. 70 Lect 8th 1819
Temple Verta Rome
Vaucluse: France 26. 20157
10 pins
31. 8th Lect
51 2nd Lect
5 Lectures 2. 1820

3.

2.

Paper

4.





Paper

5.



Images

Figure 1. Detail of title page for Lecture 1 1817, Royal Institution Lecture MS. (SM Archives Soane Case 157, unnumbered page. Sir John Soane's Museum).

Figure 2. Detail of draft for Lecture 1 1817, Royal Institution Lecture MS. (SM Archives Soane Case 157, p. 57. Sir John Soane's Museum).

Figure 3. Verso of typical lecture drawing entitled Rome: Temple of Vesta, Plan & elevation (SM Archive Concise Catalogue No. 19/8/4. Sir John Soane's Museum).

Figure 4. Front of lecture drawing entitled Comparative Elevations of Trajan's Bridge over the Danube and Old Westminster Bridge (SM Archive Concise Catalogue No. 21/1/13. Sir John Soane's Museum).

Figure 5. Verso of lecture drawing entitled Comparative Elevations of Trajan's Bridge over the Danube and Old Westminster Bridge (SM Archive Concise Catalogue No. 21/1/13. Sir John Soane's Museum).

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W1

The Uncertainty Paradox: Failure, Risk and an Interrogative Process of Coming to Know

This workshop will bring together ideas of risk, uncertainty and failure and how makers respond to, assess and problem solve within their own work. The wild riskiness of an effective creative process, and the attentive and interrogative nature of the editorial process, can appear at odds, and this paradox is what this workshop will explore.

We will start the workshop with a discussion of risk, uncertainty, failure and getting lost. After our initial discussion, I will introduce an adapted version of Liz Lerman's Critical Response Process and, in order to learn it, we will workshop/critique to one or two pieces I'll solicit from participants before the workshop. As we are all working in applied fields, we will then discuss the possibilities of applying our considerations of failure, as well as this critical response process, to the risk-taking and self-evaluative/reflective/editorial interrogation of our own work (and practices) and discussion of that process will comprise the final segment of the workshop. The workshop will be experimental, highly interactive and shaped by the participants. Given the topic and nature of the discussion it will also be open to catastrophic failure – in line with the most exuberant and generative creative practices.

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Keywords:

*Liz Lerman; Failure; Risk; Critical feedback;
Experimentation.*

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Lerman, Liz <http://danceexchange.org/projects/critical-response-process/>



W2

Re-searching / Re-creating

6 iconic architectural scenes, investigated through models

By directly referring to both the atmosphere and experience of architecture, models are arguably the most complete way to understand architecture from all its possible representations. Beyond being used to develop new ideas, models have also commonly been used to appropriate, document and investigate existing architectural expressions.

Positioned somewhere in between, this workshop will provide participants with the opportunity to use models as tools for action and investigation of architectural character and experience. Specifically, participants will investigate the particular material and immaterial qualities of 6 renowned buildings by modulating the materials, textures, spaces, and light of a basic model. These qualities will be investigated through a continuous process of experimentation and reiteration, as participants will be provided with a basic neutral box (open on two ends) to which they will add textures, shape space, regulate light, and create openings.

While participants will investigate and attempt to recreate the atmosphere and architectural essence of a given architectural scene, they will be encouraged to experiment with various modular components in order to understand how different elements influence the composition of architectural character and experience. The entire process (and the various iterations tested) will be documented through photography.

Keywords:

Architectural Models; Atmosphere; Experience; Space; Material; Texture; Lighting.

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1. Re-searching

Unlike orthogonal drawings (like plans or sections) or natural views (like perspective drawings and photographs), models possess unique material qualities that directly refer to the experience of architecture. From the modulation of space to the investigation of structure, from a study of materiality to the creation of atmospheres, models provide a territory for the exploration of some of architecture's most significant intrinsic qualities that, quite simply, are not available to other forms of architectural media. As material objects, models carry a whole set of different layers and facts that directly influence our understanding of architecture.

Models' inherent potential to facilitate and foster architectural production has long been understood. Effectively, either as a process to investigate and develop architectural ideas, or as a product to reveal and communicate those ideas to patrons and the public alike, models have always been a critical element in architectural practice. Similarly, their didactic qualities did not go unnoticed. Beyond being used to develop their own ideas, models have also been used by architects to appropriate, document, and investigate other architectural expressions.

(Fig. 1).

As models were handed down from masters to apprentices, they also became essential instruments in the budding research collections of architecture schools established across Europe in the early nineteenth century. It was through them that professors introduced their students to significant pieces of architecture, distant both in geography and time. By attempting to replicate – at first literally and then figuratively – the spatial and aesthetic subtleties observed in those models, entire generations of students developed their own architectural character. Models thus became a central component in the transfer of architectural knowledge, particularly of a certain knowledge that was specific to architecture and that eluded

textual descriptions and pictorial representations. Models represent a very particular way to think about architecture, one in which researching and making productively collide.

2. Re-creating

The proposition for this workshop is quite simple: to use architectural models to investigate the qualities of architecture. Specifically, this workshop will analyze the conditions of six notable buildings by employing models to research (and recreate) the particular character of each of them. Effectively, by making models, participants will have the opportunity to inquire the deliberate manipulation of elements such as space, material, texture, and lighting and how those define each of the selected buildings. By making models, participants will not only gain a better understanding of the spatial and tectonic qualities that make these examples so special, but also develop a greater appreciation for the model as a territory for both architectural research and expression. In short, these models will serve to reverse-engineer the architectural qualities of these buildings in abstract and practical terms.

The six case studies have been selected accordance to their basic materiality (brick, concrete, natural stone, timber, glass) and as part of two distinct periods (now and before). Ultimately, while rather simple, the models produced in this workshop will nevertheless become a collection of architectural knowledge; a collection of material qualities, production techniques, design principles and strategies, and even, of social circumstances.

(Fig. 2).

The workshop will consist of a continuous process of experimentation and reiteration through which a basic neutral box (open on two ends) will be embedded with a particular architectural essence.

The process will be composed of three phases, namely:

- 1) addition of materials and textures
- 2) shaping of spaces
- 3) staging of light

In instrumentalizing architecture models as tools of investigation and action, the process is just as important as the final result. As such, while participants will primarily investigate and attempt to recreate the architectural essence of a given scene, they will be encouraged to experiment with various modular components in order to understand how different elements shape architectural character. Furthermore, each iteration of the model will be documented through photography (from one single point of view towards the interior of the model with participants smartphone camera). While these scale models will be made with very basic materials (such as styrofoam, plywood, screws, glue and printed textures), the tutors will demonstrate how to create stunning images using just these easily accessible elements.

(Fig. 3, 4).

The workshop will conclude with a group discussion of both the results and the process through the final version of the models and the several photographs taken during the process. Participants will collaborate in teams of two or three people under the guidance of both tutors. The workshop will be conducted as follows:



1. *Lithograph of View in Sir John Soane's Model Room (reproduced from Description of the House and Museum of Sir John Soane Architect, 1835)*

2 (right page). *Matrix of the 6 architectural scenes investigated during the workshop (original photographs by H el ene Binet, Gustaf Welin, Franz Gl uck, Ezra Stoller, and Gaston Wickysource).*



Workshop

3. Reference image of a model similar to the ones produced during the workshop.
(Open Architecture Office, Jan Schevers).



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