

LSRM FINAL ASSIGNMENT

Self-Assessment on Research Methods | Zoe Panayi | 4747062

ECOLOGICAL THINKING: A METHODOLOGY FOR DESIGNING SITUATED RESEARCH AND ARCHITECTURE

A recent speaker at TU Delft's Urban and Landscape Week, Pierre Belanger, highlighted for me the importance of methodology. His talk centered on the exclusionary values embedded in the military-derived methods that architects employ, "standards, surveys, specifications and signifiers,"¹. These tools were derived from an approach to methodology which was founded on an essentialist and normative world view. Research methodologies, as the "the process, rather than the product, of enquiry"², evidently come with historically situated ontologies and their contingent contemporary value systems. By studying the development of those most commonly used in our field during the weeks of lectures, I came to see the importance of methodology as a way of noticing based on a set of values. This seems especially crucial for the practice of architecture as it is central to the role of the architect to communicate values through the built form, making visible those elements that we perceive as important. Belanger went on to challenge the audience to consciously use alternative "tactics" to challenge a hegemonic "world view"³. Following from this logic I hope to employ a methodology described as "ecological thinking"⁴, related to actor-network and assemblage theory, to overcome preconceptions about possession and risk in flood-prone estuarine environments. I arrived at this research by initially taking a step back from my project to research contemporary understandings of the world as a network system, which forces of change flow through, rather than a simple set of causes and effects⁵. This led me to research materialist ontology which "pivots on the primacy of matter"⁶ as "produced in action itself... [therefore with] a profound interest in the morphology of change"⁷ and sees both the inner and outer world as one and the same. Thus, by analyzing a networked system of material and its forces of change, I hope to overcome the path-dependency of established spatial discourse related to possession and risk to reframe the wicked problem of climate change related flooding.

This networked methodological approach is a useful way to approach the unusual brief of the Transitional Territories studio. The location chosen for the studio is the North Sea, a territory which cannot be neatly subdivided by use, quality or location. The tension between the scale and fluidity of the North Sea and the rigidity and object focus of conventional architectural research requires atypical methods. Viewing fluidity as characteristic of not only the water itself but the actions occurring within it allowed me to see, for example, shipping, extraction, erosion and deposition as essentially similar non-static forces, which could be traced as a system of flows. From this networked analysis of flows, or system of noticing, the architect's role is to make visible existing relationships and conflicts in an act of intensification, using this as a "seed"⁸ with which to affect the wider network. This methodology is a departure from the positivist tools of the engineer criticized by Belanger, leading me to ask which design tools are available to architects who employ ecological thinking and how do these differ from the engineer's problem-focused tools? In other words, how can ecological thinking allow us to go beyond today's engineered approach to architecture?

Ecological thinking and a network-based research methodology emerged out of a view of nature as dynamic and enmeshed. The term ecology was first coined in 1866, as a description of Charles Darwin's

¹ Pierre Belanger, 'Flowworld: Global Dynamics Beyond Boundaries' (TU Delft, 17 October 2018).

² Abraham Kaplan, *The Conduct of Inquiry* quoted in Linda N. Groat and David Wang, *Architectural Research Methods* (New York: John Wiley & Sons, 2002), 9.

³ Belanger, 'Flowworld: Global Dynamics Beyond Boundaries'.

⁴ Linda N. Groat and David Wang, *Architectural Research Methods* (New York: John Wiley & Sons, 2002), 10.

⁵ Peg Rawes, ed., *Relational Architectural Ecologies: Architecture, Nature and Subjectivity*, (London ; New York: Routledge, 2013), 1.

⁶ Manuel De Landa, *A Thousand Years of Nonlinear History* (New York: Zone Books, 2000). Andrew Poe, 'Diana Coole and Samantha Frost (Eds), *New Materialisms: Ontology, Agency, and Politics*', *Journal of French and Francophone Philosophy* 19 (13 June 2011).

⁷ Susan Yi Sencindiver, 'New Materialism - Literary and Critical Theory', *Oxford Bibliographies Online*, 26 July 2017.

⁸ *Ibid.*

⁹ Lars Lerup, 'After the City' (TU Delft, 7 December 2018).

study of evolution as a result between organisms and environment and became a branch of scientific study¹⁰. In the 1960s the term became attached to a set of political and social movements which were a response to pollution problems and energy crises¹¹. Its association with a philosophical school of thought came in 1989 with Felix Guattari's book *Three Ecologies* which extends the definition of ecology to encompass social relations and human subjectivity. The book stands as a "criticism of a depoliticized structuralism/post-modernism that has accustomed us to a vision of the world drained of the significance of human intervention"¹² and thus puts emphasis on the role of humans in relation to the environment. The most explicit use of this school of thought as a research methodology, first applied to science studies, can be found in actor-network theory, developed by Bruno Latour and Michel Callon. Their micro level studies of the places in which (scientific) knowledge was produced took both humans and non-humans (e.g. artifacts, organization structures) as actor-networks, integrated into the same conceptual framework and assigned equal amounts of agency. An actor-network "is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of"¹³. The reciprocity of this framework and its ability to change itself over time is directly aligned with the idea of an interrelated and changing ecology.

When adopted into architectural discourse ecology is often confused with sustainability or environmentalism, in fact in his book *Ecological Architecture* James Steele states that the three terms are "used interchangeably to describe environmentally responsive architecture"¹⁴. This neglects the fact that ecology is a methodology whereas sustainability and environmentalism are qualities or goals. The differentiation hinges on a normative view of nature as something which in the view of sustainability goals or environmentalism should be rebalanced, leading to a focus on "designs, technologies and material typologies that achieve environmental efficiency"¹⁵. This is in line with the Brundtland report, where economic and technological modes of sustainable design are the central criteria¹⁶. The emphasis on quantifiable goals as an evaluation tool for architecture shifts attention away from the complex cultural, social and economic issues which underpin environmental damage, which only become visible with a non-heuristic methodology¹⁷. In a similar misuse of a world-view and its contingent methodology as an end goal some "environmentally responsive architecture"¹⁸ has led to architecture focused on formal plays with biomimicry, creating a static image of nature rather than learning from its processes and relationships.¹⁹ Greg Lynn has linked this historical preoccupation in architecture with idealized forms with an essentialist concept of nature, and in fact, by seeking an idealized end-result, are in direct opposition to an ecological conception of nature as ever-changing²⁰.

Much more relevant to an ecological methodology is the work of landscape urbanism which developed out of symposium and exhibition in 1997 by James Corner and Charles Waldheim, inspired by the work of landscape ecologists Ian McHarg and Richard Forman. Landscape urbanism reflected a methodological approach which treats "all forces and agents working in the urban field and considers them as continuous networks of inter-relationships"²¹ for multidisciplinary land-based operations which rework the urban grid. This methodology, very similar to that put forward for science studies in actor-network theory, focuses on natural processes and relationships in order to integrate architecture or design into the environment. More recently and at a smaller scale, *Spatial Agency* was created by Nishat Awan,

¹⁰ Nicole Chojecka, 'Ecological Thought in Contemporary Architecture: The Impact of an Ecological Conception of Nature' (Master of Architecture, 2013).

¹¹ Ibid.

¹² Felix Guattari *Three Ecologies* quoted in Mohsen Mostafavi, Gareth Doherty, and Harvard University Graduate School of Design, *Ecological Urbanism*, (Zürich: Lars Muller Publishers, 2010).

¹³ Michel Callon, 'Society in the Making: The Study of Technology as a Tool For Sociological Analysis', in *The Social Construction of Technological Systems*, ed. Wiebe Bijker, Trevor Pinch, and Thomas Hughes (Cambridge: MIT Press, 1987).

¹⁴ James Steele, *Ecological Architecture: A Critical History*, 01 edition (London: Thames & Hudson, 2005), 6.

¹⁵ Rawes, *Relational Architectural Ecologies*, 1.

¹⁶ Ibid, 4.

¹⁷ Ibid, 5.

¹⁸ Steele, *Ecological Architecture*, 6.

¹⁹ Maggie Toy, *The Architecture of Ecology* (London; Lanham, Md.: Academy Editions; Distributed to the trade in the U.S.A. by National Book Network, 1997).

²⁰ Greg Lynn, *Folds, Bodies & Blobs: Collected Essays* (Bruxelles: Lettre volée, 2004).

²¹ James Corner, 'Terra Fluxus', in *The Landscape Urbanism Reader*, ed. Charles Waldheim (Chronicle Books, 2012), 13-20.

Tatjana Schneider and Jeremy Till. The book and website consist of a curated database of spatial projects which slip in and out of the professional confines of architecture projects, all based on an ecological approach, where critical attention is shifted to “architecture as a matter of concern rather than a matter of fact” and projects “enter into socially embedded networks, in which the consequences of architecture are of much more significance than the objects of architecture”²². As a result, the projects are not visually similar or similarly accredited for meeting sustainable targets, but they are united in their methodological approach.

I hope that by employing a similar approach informed by the field of ecology and the related methodology of ecological thinking I will create a socially and environmentally embedded design project. This research has led me to a diverse range of methods, all of which are seen as windows into a network of related phenomena. The three key methods I have employed are etymologically related to my location, Zeeland. I looked at the territory through three lenses – sea-land, see-land and seek-land. In relation to sea-land, the dichotomy between land and water, I have employed a quantitative approach, using existing hydrological and GIS data on the Westen Scheldt to find information about material distribution. In relation to see-land, I have employed photography from my own field trip as well as satellite imagery and the film *It's Been A Lovely Day* by Jos Putter, all connected by the lens and intentional framing by myself or an artist as a combined quantitative/qualitative approach. Finally, in relation to seek-land I have employed a literature review into the political history of the polder as a landscape and nation-building device, which takes a qualitative approach. I considered the idea of change over time by using a method introduced by the studio, projective scenario building, focusing on the intersecting gradients of key agents of change. In my case these were predicted sea level rise and the continued expansion of the port of Antwerp, which created spatial scenarios of sediment and salt intrusion into de-poldered land.

These diverse methods go beyond an engineered approach to architecture, which applies generic solutions across locations, treats problems in a contained way and evaluates itself based on quantifiable measures, as a static end solution. This is achieved by firstly, situating my design both within a diversified network of human and non-human agents, secondly within a specific location, and thirdly by acknowledging the role of qualitative aspects of cultural desire in the success of architectural interventions over time. As a network of human and non-human agents I aim to make central the existing flows situated in the cultural/material landscape, suggesting an outside-in approach to architecture, not as “an object in the [homogenous] field” but as something which emerges as an “effect emerging from the field itself”²³ with the power to have a reciprocal influence. In this way I position the environment as an active force in the creation of form, rather than a passive landscape or background against which architectural activities are played out. Further to this, I create a networked approach which is place-related, a complex but local “habitat”²⁴ rather than a global and unspecific set of generic forces. This is in line with the relational approach to ontology taken by Lorraine Code, a pioneer of ecological thinking in philosophy. In *Ecological Thinking: The Politics of Epistemic Location*, Code argues against the abstraction and reductivism of orthodox western epistemology, advocating “down on the ground” inquiry in everyday lives and situations²⁵. Thus, by situating my research in the specifics of the Westen Scheldt through sediment flow scenarios and site photography my methods aim to reflect this “down to the ground” approach. However, Code goes beyond this, she states that research must “be addressed and analysed locally, not just in being located in specific places, although this matters too; but also in their diverse particularities”²⁶. Here the relational and subjective makes room for an acknowledgement of the cultural role of desire in colouring the relations between actors in the network. The terms see and seek aim to go beyond the physical measurements of materials to question these aspects of desire and

²² Nishat Awan, Tatjana Schneider, and Jeremy Till, *Spatial Agency Other Ways of Doing Architecture* (Abingdon, Oxon [England]; New York, NY: Routledge, 2011).

²³ Susannah Hagan, ‘Ecological Urbanism’, *Architectural Review*, 16 March 2015, <https://www.architectural-review.com/essays/viewpoints/ecological-urbanism/8679977.article>.

²⁴ Lorraine Code, *Ecological Thinking: The Politics of Epistemic Location*. (New York: Oxford University Press, 2006), 37.

²⁵ Code, *Ecological Thinking: The Politics of Epistemic Location*, 37.

²⁶ Rawes, *Relational Architectural Ecologies*, 75.

perception. Van der Ryn, a leader of ecological architecture argued for a definition of design as “the intentional shaping of matter, energy, and process to meet a perceived need or desire”²⁷, again putting emphasis on the role of humans in relation to the environment. This is more in line with the phenomenological basis of Steven Holl, Tadao Ando or Peter Zumthor’s approach, which is inspired by humanity’s place within nature and our situated perception and appreciation of it. This position allows for effects “emerging from the field”²⁸ in the form of localised desire which I as a designer can use as a “hinge that inevitably connects culture and nature through exchanges of materials, flows of energy, and choices of land use”²⁹ and thus make an active response to.

Tim Igold wrote that “systems are the materialization of a thought”, recognizing the role of culture in creating networks, and by extension of value systems in creating knowledge. This reflects my methodological approach which differs from an engineered architecture by both situating a system within a network and within a culture. An ecological understanding of nature, knowledge and culture meets territorial scales of analysis put forward by the likes of Ian McHarg and taken up by Fransje Hooimejer in her layered approach to territorial analysis, as well as material analysis of culture put forward by Eireen Schreurs which emphasized the role of physical matter on perception and situated experience. In conclusion, the research I have carried out, instigated by the lecture series, has led me to a series of interlocking positions with regard to my methodological approach. My initial questioning of values led me to a system of inquiry which is constructivist rather than positivist, as understood by a materialist ontology. This is bound up with an ecological school of thought, a field of science which has influenced many other fields and emerged from a radical shift in our view of nature as emergent and dynamic rather than normative and complete. This outlook has led to a strategic or methodological approach which deals with networks, is situated in a specific place, and acknowledges the role of desire in the creation of the environment. From these methodological strategies I decided on a set of tactics with which to describe a network. These consisted of a literature review, a photographic study of the site, an analysis of a film and a set of scenarios for sediment movement under different conditions. These combine the quantitative approach of an engineered approach to architecture with one that acknowledges the relational and subjective nature of built reality. It is able to notice a broader range of phenomena and augment them in order to create a design which communicates its place and role clearly. This would go beyond a design which goes beyond an engineered approach to land as a place to be possessed and risk as a variable to be quantified. It doesn’t aim to minimize architectural impact or to justify it through natural form finding, instead it aims to intensify an existing aspect of the land use’s interaction with its site, to notice and make visible these interactions in a way that reflects and intensifies desire.

Looking beyond the uncritically descriptive to the design tools enabled by ecological thinking it becomes clear that the cultural role of the architect as mediator of relationships is central. The acknowledgement and research of both human and non-human actor-networks and their interrelationships show the ways which the two can be altered by each other. The tool of the designer becomes the choice of existing relations to make materially visible through their combination. This would create either a synthesis or an intensified conflict between an aspect of the interaction between “scenario” and “territory”, often a conflicted one, where human inhabitation of a certain territory. Since adaptation to conflicting pressures is the processes by which all natural systems evolve, these tools allow and design for cross-pollination and mutation of the species of buildings related with their environment. By intensifying an element of conflict, the pressures which make places change over time become more visible, and architecture can reach beyond a static end goal to a dynamic and reactive relationship to place. In this way, I hope to approach flood risk, port enlargement through dredging and salt intrusion in the Westen Scheldt as signals of conflict within a cultural system, ones that can be reframed away from the engineer’s approach of isolated problem solving, to an architectural approach of cultural adaptation.

²⁷ Sim Van der Ryn and Stuart Cowan, *Ecological Design* (Washington, DC: Island Press, 2007), 8.

²⁸ Hagan, ‘Ecological Urbanism’.

²⁹ Van der Ryn and Cowan, *Ecological Design*, 8.

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