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Limfjordens havnelandskaber

Regionale strategier for havneomdannelsesprojekter i Limfjordsområdet

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DESIGN RESEARCH EPISTEMOLOGIES II

- Research in Architectural Design

DESIGN RESEARCH EPISTEMOLOGIES II

Department of Architecture, Design and Media Technology

Aalborg University

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Foreword

The aim behind this publication is twofold. First of all this is an attempt to reflect upon the nature of the knowledge that currently is being produced in the different PhD projects hosted at the Department of Architecture, Design and Media Technology, Aalborg University. During some years parts of the PhD research has been organized within the Media, Architecture and Design PhD Lab (MAD LAB). Now the time has come to reflect across a wide range of very diverse types of architecture and design research projects. Secondly, the aim is to show this research and in particular its epistemological basis to the external world. By this is partly meant the rest of the research environment at the Department of Architecture, Design and Media Technology. But obviously also to the many research networks and professional contacts that collaborate with the Department. Amongst such 'external' target groups are also students of Architecture, Design and Media Technology here at Aalborg University and elsewhere.

The individual contributions has been written by the PhD students and then discussed in the MAD LAB forum. There is a common structure to all of the contributions. Thus they contain the following themes: project title and author, the research question, the methods applied, the theories consulted (or the state-of-the-art theory horizon), and the epistemology of the PhD research itself. Seen this way one could argue that each PhD student was asked two fundamental questions. Firstly, what sort of methods and theories are in the field external to your project? Secondly, what sort of knowledge contribution is your project an example of? Needless to say such questions are very complex and need much more attention to be fully dealt with. However, starting up this reflection it is my firm conviction that the PhD candidates slowly but gradually increase their awareness of issues and questions that take even experienced researchers a long time fully to comprehended (if ever).

It should be mentioned that this the second issue in the series of Design Research Epistemologies publications. The first was published in 2010. So publishing a new volume in 2016 means partly that we are dealing with a whole 'new team', but also that we see interesting changes and shifts in the epistemological frames of reference. The recurrent publishing of these PhD research publications thus opens up for valuable information about the shifting currents and fads in research thinking.

Ole B. Jensen
Professor

Department of Architecture, Design and Media Technology
Aalborg University
April 2016

Chapter 1 : Design research and knowledge - introduction to Design Research Epistemologies II

By Ole B. Jensen

The publication you are looking at is in part an internal working document, and in part an external report about the state of affairs of the PhD research at the Department of Architecture, Design and Media Technology (AD:MT) at Aalborg University. A disclaimer is in place here since it is only the PhD research affiliated to the Media, Architecture and Design PhD program (MAD) that we are looking at here, and not the more technical research within the Media Technology section. Internally the work is used for the PhD candidates to reflect upon their epistemological belonging within the territory of knowledge production. Externally the publication may offer the reader insights into the current themes, approaches, and ideas connected to the PhD design research. As elsewhere one has the prerogative of holding multiple memberships and multiple identities. This grows out of the general intellectual climate of bricolage and hybridism, but is also a hallmark of the cross-disciplinary nature of most of the PhD research taking place at AD:MT/MAD. Therefore we are to embark on a journey marked by diversity in approaches, themes, and perspectives.

1. The nature of academic design research

I shall not repeat myself on the description of the state of affairs concerning design research, but rather point to the introduction chapter of the previous publication (Jensen 2010) wherein I am reflecting on some very general issues of the nature of design and its relation to research. Rather I shall shortly reflect upon some of the changes that have transformed the environment and context over the last five years. The most conspicuous transformation trend directly affecting the PhD research here at AD:MT and elsewhere is the increasing demand for Universities to acquire research funding through external channels. Furthermore, that such channels of research funding increasingly are identified as 'competitive funding resources'. It is in other words harder to get PhD scholarships and research funding and this is very easy to read off directly from the workspaces of the PhD students. So whereas the individual research scholar may notice that empty seats are the happy result of finalized PhD work in the PhD lab, I am as a research responsible constantly reminded that an empty chair in the PhD lab means that I (and my collagues) should sit down and write another application for external PhD funding! Now, this condition may easily take one into the hazy world of university politics and worse which is not the intention here. However, the basic funding condition does change the rules of the game when we are organizing PhD research in the department, the PhD programs and in the local PhD Labs.

I shall try not to tire the reader with this, but one of the immediate outcomes of this situation is that research units and groups increasingly strategize around what I would term a 'mixed research funding portfolio'. By this is meant that we increasingly are juggling the 'hard funding' (National research Funds, EU etc.) with what has come to be termed 'soft funding' (private funds, business phd funding etc). Many groups seem to realize that a mixed basis of funding drawing both on the rather bureaucratic (but academically meriting) hard funds and the more agile and flexible types of soft funds. Also, and this affects the PhD research environment directly, the number of business PhD projects has increased. This is positive to the extent that it brings university research closer to 'real life' problems and challenges. But it also carry certain challenges as when many business PhDs in one group means that people rarely are co-present in the labs or the offices since business PhDs must occupy an office space in the funding company some of the thesis-writing time. Moreover, there is a strategic dimension to business PhD research that also contains its ambivalences. On the one hand side 'real life' problem solving is the DNA of Aalborg University (with its didactic model of 'Problem Based Learning' or PBL). On the other hand side the strategic and instrumental identification of research areas and themes may crowd out the basic research explorations of research that has no clear sense of its goal by the outset, but which end up providing invaluable results. The increasing bureaucratization also means that the research leaders in contemporary universities may feel a certain pressure to work more bureaucratically and instrumentally in their PhD supervisor relations. In passing we often hear statements like 'Niels Bohr would never have had any external funding, had he lived in today's university world'. This obviously concerns more general political issues but it shapes the frame conditions for the PhD research described in this publication.

Having started on the gloomy note I shall swiftly turn towards the positive dimension of the PhD research. Both in general terms and in particular in relation to the ongoing PhD research at AD:MT I must confess to always find this the most stimulating conversations and the most curious and explorative perspectives. So engaging in PhD supervision and PhD administration means that one is very close to the most creative and engaging levels of the research organization. This, I think, also comes across when one start looking into the research projects that will be described in the following. The creativity and exploratory mind-set underpinning these are impressive and a constant source of inspiration to more senior academics in the organization.

2. The contributions – commonalities and differences

The nine PhD projects you find in this report are obviously very different. However, there are also a number of commonalities. As important background information it should be mentioned that they are embedded in different research groups. The actual collection of projects connects to industrial design, architecture and urban design. But as we shall see there are differences and commonalities that cut across these institutional settings. In terms of subject matter the research areas are covering quite some width and as diverse topics as everyday life studies, infrastructural projects, regional strategies for urban transformation, transit place developments, cemetery research, service design in organizations, urban mobility ethnography, and computational based architecture. This list speaks in itself to the heterogeneity of research within the AD:MT Department. But is also is the intellectual landscape that must be pictured when one tries to understand the embedding of the individual PhD projects. The most obvious common denominator is that all are empirical in their focus. No project in this collection has a purely conceptual or theoretical focus. Furthermore, they are all applying multiple methods in their approach to empirical research. And finally, they all (except one) recognize a number of different epistemological backgrounds as their source of inspiration.

The epistemological perspectives that have been consulted reaches across from more classic notions of hermeneutics and phenomenology to post-structuralist and post-phenomenological perspectives. If one goes back to the previous Design Research Epistemologies publication the most striking difference in relation to epistemology must be said to be the general orientation towards pragmatism. There has been an intensified interest in reading about pragmatism in the group across the different research areas. Also this interest covers both the classic positions such as Dewey (1931), James (1899) and Peirce (1994) as well as it reaches up to the various contemporary versions of pragmatic thinking such as Actor-Network-Theory and the so-called 'non-representational theories' (see section below for an elaboration hereof). The big question that surfaces in this relation is then why this sudden interest in pragmatism? Beyond being merely an intellectual fad I believe this to be a process of 'rediscovery' in the sense that the Project Oriented Learning (PBL) model I mentioned in the introduction has a lot of common ground with pragmatism. And most of the PhD candidates writing in this publication have their master degrees from Aalborg University. So my point is simply, that it seems like pragmatism resonates well with the underpinning didactic and epistemological model that the authors have been subject to. This do of course not explain why this reorientation should happen just now. I believe one has to raise the gaze to the wider horizons of epistemological thinking within contemporary research. Here the 'new pragmatism' mentioned before has not just been spinning an interest into contemporary pragmatism, but also to the more classic positions. For instance this is the case with the research being undertaken in the Center form Mobilities and Urban Studies (C-MUS) where in particular the Mobilities Design Group (MDG) has this epistemological mix of classic and contemporary pragmatist epistemology. And in direct prolongation hereof that some of the candidates presenting their projects in this publication are actual members of MDG. This indeed speaks to the way in which intellectual currencies are being passed around in the PhD Lab.

I will not go through the individual projects but rather encourage the reader to look for these pointers (real life empirical research questions, mixed methods and traces of pragmatism – new and old) in the chapters to follow. Rather I shall shortly turn to thinking about the perspectives and future directions of PhD research within the Lab.

Project/chapter	Theory input	Methodology	Epistemologyv
2. Simon Wind: Making Everyday Mobility	mobilities theory, nonrepresentational theory, sociological family theory	qualitative interview, GPS tracking, mobile field studies, grounded theory	pragmatism, philosophical hermeneutics
3. Anne Juel Andersen: URBANE PROJEKTER mellem sted, diskurs og planlægning	Place theory Discourse theory Planning theory Social theory	Discourse analysis Paradigmatic case analysis Phenomenological registration Data collection Interviews Literature survey	Post-structuralist and pragmatic tradition Pragmatic approach Network and design perspective Relational focus
4. Ditte Bendix Lanng: Gesturing Entangled Journeys	Urban design theory, Mobilities Theory, Nonrepresentational theory, Actor-Network Theory (relational materiality)	Film-elicitation studies/qualitative move along-interviews, mapping, 'architectural thinking-makingcomposing'	Pragmatism Post-phenomenology
5. Ida Sofie Gøtzsche Lange: Transit eller leveby?	Stedsteori med fokus på en relationel stedsforståelse, Mobilitetsteori med udgangspunkt i det ny mobilitetsparadigme Udvikling/afgrænsning af termerne transitby og leveby. Herunder bl.a. teori i tilknytning til begreberne atmosfære, landskabsurbanisme, ikkesteder, urbane knudepunkter og netværk	Casestudie som forskningsstrategi Herunder mixed methods med brug af registerdata, dokumentanalyse, interviews, spørgeskema, stedsanalyser og mappings Abduktion som slutningsform	Pragmatisme Herunder inddragelse af fænomenologi, hermeneutik og ANT med afsæt i pragmatisk pluralisme
6. Isak Worre Foget: Environmental Tectonics: Matter Based Architectural Computation	Architcetural, Engineering and Computational theories (Aesthetics, Acoustics, Tectonics, Thermodynamics,	Deductive theory studies, deductive case studies, Inductive design experiments.	Critical rationalism, phenomenology

7. Jacob Bjerre Mikkelsen: Limfjordens havnelandskaber	Stedsteori, mobilitetsteori, design teori	Mappings, Komparative studier, interviews, research through design, workshops	Pragmatisme Hermeneutik
8. Lotte Christiansen: Design for Service Change	Service design theory	Multiple-case study	Pragmatism
9. Mette Olesen: Making Light Rail Mobilities	Mobilities theory, Actor-Network Theory Socio-technical approaches to mobilities studies	Qualitative case studies. Interviews, document analysis, field studies, discourse analysis.	Pragmatism Relational and post-structuralist
10. Tina Vestermann Olsen: Strategies of Temporality	- Temporary uses as a tool for strategic planning – adaptive city development - Time and place in urban processes – sites as places becoming - Urban entrepreneurship (as a way of doing)	- One in-depth case study of an on-going process: mappings, qualitative interviews, document analysis, observational studies, workshops, involvement in strategic initiatives - A multiple study of 4 relevant reference projects: mappings, qualitative interviews, document analysis State of the art theory and practice: internet and literature studies	Pragmatism Assemblage and complexity theory (post ANT)
11 A Model for Enquiry of Sustainable Homes	The human in centre Perceived quality Perceived indoor environment	Quantitative method: Technical measurements Qualitative method: Questionnaire, Blog, In-situ	Empirical–Analytical, Pragmatic, Positivist, Phenomenological

3. Perspectives and future directions

Let me start this discussion by pointing backwards to the first Design Research Epistemologies publication from 2010. In there I concluded that the work presented was testament to a deliberate and hardworking attempt to create '*a creative cross-disciplinary research environment constantly challenging and exploring the state-of-the-art theories, methods and design approaches'*. Fast forward six years, I would say this is still both the ambition and the situation.

The turn to pragmatism seem to be one of the key changes from the first publication. As said this may very well be a matter of which theories an readings that the PhD students have found or have been recommended (as one of the core supervisors I carry some of that blame for sure). However, I do believe this speaks to a more general trend. Widely across human and social sciences the turn towards materiality, the emergence of Actor-Network-Theory, Non-representational Theory, and various forms of speculative realisms and object oriented ontologies (Anderson & Harisson2010; Anderson & Wylie 2009; Bennett 2010; Bogost 2012; Ingold 2011; Latour 2005; Thrift 2008; Vannini 2015) suggest a new orientation of research. This is an orientation characterized by increased interest in embodiments, affect, artefacts, materials, sensations, and the like. It is also an interest in the dependencies of that humans have of systems, technologies, and non-human entities. And finally I understand this as the latest twist in the critique of research as value-free, objective and neutral descriptions of its subject matters. Across the entries for this publication most of these elements emerge and I would surmise that this the beginning of a new and very exiting turn within human-oriented research. For one thing these trends are representative of the most advanced contemporary thinking and one should therefore hope and expect that the next Design Research Epistemologies publication will relate hereto. Not necessarily in awe and with acclamation as it might as well be in the format of critique and problematization. It goes without saying that self-criticism and constant problematization are the hallmarks of the scientific endeavour. In times of global unrest and a certain deligitimiztion of science and research by dogmatic forces there are good grounds to hope for the future of PhD research at AD:MT and wider to be inspired by the now classic descriptions made by Robert Merton (1942) and Alvin Gouldner (1979). The former coined the well-known 'CUDOS ethos for science. In brief this was an abbreviation for Communism (the public should have access to all knowledge), Universalism (Science should seek Knowledge universal to all groups), Disinterestedness (Science should not take sides) and Organised Scepticism (Science should be critical). Likewise Gouldner framed Science is a *'Culture of Careful and Critical Discourse'* (CCD). Accordingly this was a culture where everything in principle is open for investigation, a culture that has to justify its propositions, a culture that justifies its propositions without reference to any authority, and a culture anchored in voluntary consensus based on the force of the 'better argument'. Now, CUDOS and CCD may both be criticized for their normative underpinnings as well as their connection to Habermasian discourse ethics (Habermas 1981). This, however, lies outside of this introduction. Rather I would point to the open-mindedness and the constant seeking of new answers coupled with the institutionalized questioning as important hallmarks of research that we seek to foster and nourish with the work in the PhD lab. This round of Design Research Epistemologies speaks to this agenda indeed I should think.

A final remark is that the research references in this publication are more than just the individual chapter's references. This obviously they are, but they also constitute a 'map of knowledge' for the field as it looked at the moment of writing. Needless to say much more literature could be accounted for as well as this is a dynamic endeavour. However by exploring the key references and literatures consulted one get a fine birds-eye view of the territory of 'design research epistemologies'.

Happy readings!

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Chapter 2 : Inquiring Into Everyday Mobility

By Simon Wind

Timeline: April 2011 to May 2014 (defended November 2014)

Keywords: Mobilities, Family, Everyday life, Coping strategies

Supervisors: Professor, Ole B. Jensen & Associate Professor, Claus Lassen, Department of Architecture & Media Technology, Aalborg University, Denmark

Collaborators: The PhD study is part of the project 'Analysis of activity-based travel chains and sustainable mobility' (ACTUM), hosted by the Technical University of Denmark (DTU Transport), in a strategic research alliance with the Department of Architecture, Design & Media Technology at Aalborg University and the Centre of Mobilities & Urban Studies.

Biography: PhD (2014), MSc in Urban Design (2009), Aalborg University

Project/chapter	Theory input	Method	Epistemology
Making Everyday Mobility	mobilities theory, nonrepresentational theory, sociological family theory	qualitative interview, GPS tracking, mobile field studies, grounded theory	pragmatism, philosophical hermeneutics

Introduction

This chapter concerns the PhD study "Making Everyday Mobility – a qualitative study of family mobility in Copenhagen" (Wind 2014) defended in the fall 2014. The study takes point of departure in the everyday mobility of 11 families with children living in the Greater Copenhagen Area. It is empirically based on a series of qualitative family interviews and GPS tracking, complemented by field studies of everyday family mobility. The main focus of the study is to explore how everyday mobility is associated with the family's processes of coping with busy everyday family life. The overall research question that is answered in the study is:

> "How are selected families in the Greater Copenhagen Area coping with practical, social and emotional conditions in everyday life through the making and performance of mobility practices?"

Through the analysis of the families and their everyday mobility, the study elucidates the how the family members through their ordinary mobility performances, such as commuting to work, escorting children to the kindergarten, going on the weekly visit to the grandparents, driving children to after-school activities, are not only instrumentally moving family members around, efficiently and safely getting them from A to B, but also transforming travel time into small pockets of togetherness, experiences, care, play, relaxation, reading, work, planning and coordination. Furthermore, the thesis addresses the extensive labour, mobility skills and practical knowledge used by the family members in crafting and sustaining their usages of everyday family mobility.

Drawing from selected extracts from the dissertation, this chapter aims at reporting the PhD study's philosophical foundation and its epistemological and methodological consequences. The table (figure 1) seeks to give an overview of the project's main theoretical input, the methods used and the epistemological considerations. Obviously, these three dimensions condition each other in various ways, some of which are discussed in this chapter. Due to the confines of this short description, this chapter will focus upon unfolding the philosophical positioning within theory of science and lay out the meta-theoretical foundation and its influence on the epistemological and methodological orientation of the study.

The chapter begins by positioning the study in relation to pragmatism and hermeneutics and presents the implications of these philosophical positions as tools for studying everyday family mobility. From this point, drawing on pragmatism in combination with hermeneutics, the chapter addresses the epistemological question of what knowledge is and how knowledge is produced. From this epistemological basis the chapter turns to considering methodology. With inspiration from Dewey's pragmatic inquiry and Charles Sander Peirce's concept of abduction, a methodology for the production of knowledge through the cyclical-iterative process of inquiry is outlined.

Pragmatism and studying everyday mobility

This study takes its point of departure in a qualitative stance relying first and foremost on pragmatism, and is especially inspired by John Dewey's *instrumental pragmatism* (Brinkmann 2006, Bacon 2012, Gimmler 2005), complemented by insights from Hans-Georg Gadamer's *philosophical hermeneutics* (Højberg 2004, Kinsella 2006, Brinkmann 2012). Pragmatism has a special interest in everyday life. One of Dewey's ambitions was to reconstruct philosophy in order to bring it closer to and make it more socially relevant to everyday life (Bacon 2012: 47). Dewey did not discriminate between the scientific endeavour of "developing knowledge of the world" and mundane everyday "acting in the world [which] were all part of the same process of learning and discovery through experience" (Healey 2009: 280). Hence, pragmatism is in no way estranged from the everyday and the social practices people engage in. This makes pragmatism, as Brinkmann (2012) states,

"particularly interesting for everyday life researchers because it blurs any hard-and-fast distinctions between scientific knowing and human knowing in general" (p. 38).

This study is concerned with the everyday mobile lives of families. The objective is to understand and produce knowledge of how families use mobility as a mode of coping in everyday life. Pragmatism provides an approach to the world and to knowing that can be used to engage with the families and their mobility from an "agent point of view" (Bacon 2012: 108), taking their situational practices in everyday life as the point of departure. Furthermore, pragmatism offers a pluralistic perspective on the world as it insists "on the validity of different ways of viewing and reporting the world as a function of our different contexts and purposes in dealing with it" (Barnes 2008: 1547). Neither everyday life nor mobility exists as a single and complete whole; depending on the situation, they are understood and performed in multiple ways. By focusing on *knowledge how*, pragmatism rejects the search for universal and everlasting laws in favour of recognising and emphasising the local and practical knowledge that emerges from practical situations. Hence pragmatism supports qualitative inquiry into everyday mobility practices as particular and contextual situations in which tacit knowledge is used in coping with uncertainty and contingency in everyday life.

Moreover, pragmatism offers an interesting instrumentalist approach to research practice. As Louis Menand writes, "ideas are not 'out there' waiting to be discovered, but are tools—like forks and knives and microchips—that people devise to cope with the world in which they find themselves" (quoted in Brinkmann and Tanggaard 2010: 243) . This should be understood in the broadest possible sense: not only ideas/knowledge, but also theories, methods, models, concepts and analytical approaches are all thinking heuristics and sensitising tools supporting the inquiry at hand rather than transcendental Truths (Brinkmann 2012: 56).
Similar to pragmatism, hermeneutic thought is interested in interpretation and understanding as ways of knowing. Kinsella (2006) argues that due to their emphasis on understanding and interpretation, as opposed to explanation and verification, there is a profound linkage between qualitative inquiry and hermeneutic thought, although this often goes unnoticed. Historically, hermeneutics was used mainly as a methodology for finding what were regarded as the true meanings of ancient biblical texts (Kinsella 2006). However, in *philosophical*, also termed *ontological,* hermeneutics, hermeneutics is not a method for gaining true knowledge but rather a way of being in the world, in which human life is "conceived as an ongoing process of interpretation" (Brinkmann 2012: 40). Hans-Georg Gadamer, one of the main proponents of philosophical hermeneutics, argued that humans are interpreting beings. In everyday life, we are continually, often subconsciously, concerned with interpreting and thereby seeking to understand and make sense of the environments we traverse, the actions and statements of other people, the texts we read, the scenes and signs we see and so on. Both Dewey's pragmatism and philosophical hermeneutics regard knowing and interpreting not merely as something researchers do, a scientific practice or methodological set of rules and procedures, but instead as a way of being, something all humans are engaged in when performing everyday life. Hence interpreting and understanding is not only a "methodological process or condition but also an essential feature of all knowledge and understanding, therefore every interpretation relies on other interpretations" (Kinsella 2006).

From this understanding, hermeneutic thought offers a conceptualisation of knowing in research as an iterative process of interpretation of a world that is already interpreted and imbued with meaning. This "double hermeneutic" highlights the process of knowing as a two-way relation, a reciprocal interaction between the subject and the object, in which both parties holds transformative efficacy (Højberg 2004: 320). Unlike pragmatism, philosophical hermeneutics does not provide any specific methodological schemes; rather it is concerned with the

conditions of understanding and knowing. Hence these insights from hermeneutic thought will be used in a pragmatic manner in the following sections, in combination with a pragmatist approach, as tools supporting reflection on the process of knowing and knowledge production.

Epistemological considerations

Pragmatism argues for an anti-representational approach to understanding what knowledge is and how it can be obtained (Gimmler 2012). It rejects the representational ideal of obtaining propositional or corresponding knowledge that simply mirrors phenomena in the world. Despite this stance, pragmatist epistemology takes its point of departure in the empiricist idea that reality is and can be experienced through our senses. However, Dewey was critical of what he called the 'spectators theory of knowledge' of the British empiricists, who claimed that through phenomenal experience knowledge, as an accurate representation of the world, could be obtained (Bacon 2012: 50). He argued that perceiving phenomenal experience as a neutral and pure perception of reality is erroneous. Instead, human experience of the world, and hence knowing, always involves primary reflection "influenced and prefigured by theory, traditions and habits" (Gimmler 2005: 17). Thus, knowledge is never universal or fixed, but always local, contextual and contingent. Through the use of hermeneutics, the consequences of the active knower will be further investigated shortly.

In addition to being an anti-representationalist philosophical position, pragmatism is anti-foundational, as it holds that "knowledge has and requires no foundation" (Bacon 2012: viii) neither in a privileged metaphysical sphere nor in a transcending logic or structure in the world. As the quest for certainty and universal truths is abandoned and knowledge is understood as always being local and limited, and emerging in empirical situations of social practice, knowledge no longer requires absolute justifications (Gimmler 2012: 47). Hence pragmatist knowledge never amounts to *Truth,* in the traditional sense of the word, as knowing can never be endowed with complete certainty. Instead knowledge is empirical, grounded *beliefs* that are "robust and stable enough to rely upon but always open to revision, not least because they have to adapt themselves to other changes in the environment" (Bacon 2012: 49). Hence pragmatism does not reject the claim that knowledge is based upon other knowledge and indeed should be. As knowledge remains beliefs they are never "permanent, Cartesian, foundations" but instead always provisional and revisable, as they may be proven wrong in other or later instances (Bacon 2012: 54).

Turning away from a representationalist ideal also shifts the focus of the scientific enterprise from uncovering and representing universal facts or truths in propositional *knowledge that,* to producing local and contingent knowledge claims of *knowledge how*. As this thesis subscribes to this stance, its aim is not to uncover universal laws or causal connections governing everyday mobility in the family; rather it is interested in knowing how families are coping with specific contingent situations and conditions in everyday life through making and performing mobility practices. In a pragmatist approach (and a hermeneutic approach, as we shall see shortly), the family's everyday mobility cannot be isolated from the social and historical contexts within which it is embedded. Family members' doings in everyday life are not observable, causal processes that can be easily traced; rather they are incited by reasons, motives and beliefs, and therefore are only recognisable as meaningful when situated (Brinkmann 2012: 20-1).

Knowledge Emerges from Practice

In the rejection of representationalism, foundationalism and the Platonic lineage of epistemology, that clearly separates object and subject and promotes the theoretical "observation" of the object (Gimmler 2012: 48), pragmatism offers a radically different and non-contemplative epistemology in which "we are not spectators

looking at the world from outside but rather agents operating within it" (Bacon 2012: 108). Dewey holds that knowing is not a passive process of perception and representation, but rather knowledge emerges in "the engagement of the active subject with the world" (Gimmler 2005: 17). Thus to Dewey, "the act of knowing something is part of interacting" (Gimmler 2005: 18), and knowledge emerges from the human experience of the world in practices, not from theory. Thus in pragmatism, practice has primacy over theory. This also means that all knowledge is fragile, fallible, situated and bound "to social practices and cannot be maintained within a privileged sphere of absolute certainty" (Gimmler 2005:18). Hence Dewey favours an understanding of knowledge that is interactive with the world and locally and empirically grounded in cultural, historical and social practices.

Therefore knowledge should not be understood as "fixed and complete in itself, in isolation from an act of inquiry" (Neubert 2001: 2) ; rather the understanding of knowledge Dewey tries to develop is a practical one that transcends the dualities of subject and object, theory and practice, relativism and absolutism (Thayer-Bacon 2002: 97). Although knowledge emerges in practice, or the act of inquiry, thinking is still crucial, as "knowledge comes neither by thinking about something abstractly nor by acting uncritically, but rather by integrating thinking and doing, by getting the mind to reflect on the act" (Gordon 2009: 49). Knowing is a process that begins with the act of inquiry in a particular situation, but is tested and evaluated through reflection before being folded back into the world, trying to control the situation. Hence knowledge, as Richard Rorty (1991) writes, is not a "matter of getting reality right, but rather a matter of acquiring habits of actions for coping with reality" (p. 1).

Normativity, Validity and Conditions for Knowing

Both pragmatism and hermeneutics place the researcher in an active role, by which subjectivity is brought into the research situation. Indeed, when engaging in qualitative inquiry, we do not do so with a "virginal mind, but always with 'certain acquired habitual modes of understanding, with a certain store of previously evolved meanings'" (Brinkmann 2012: 39). Consequently, when experiencing and thinking in a situation, the researcher is already and unavoidably engaged in primary reflection, evaluating and judging the situation from a certain normative perspective against the background of individual norms, private experiences and an existing web of beliefs. In pragmatism normativity is a profound and integral part of qualitative inquiry and knowledge production. Through experience, normativity infiltrates the process of inquiry (Gimmler 2005: 19). Having departed from a spectator's theory of knowledge, the ideal in the pragmatist research process is not to produce *objective* knowledge in the traditional sense of the word. In the act of inquiry the researcher is actively experiencing the world, interacting with it and transforming the situation that is being studied (Bacon 2012: 52).

Gadamer's philosophical hermeneutics provides further tools for reflecting on the researcher's active role in the creative process of interpretation and understanding that is essential to knowledge production. In line with a pragmatist approach to knowledge, the ambition of hermeneutics is "not objective explanation or neutral description"; rather the purpose of hermeneutics is "sympathetic engagement with the author of a text, utterance or action and the wider socio-cultural context within which these phenomena occur" (Gardiner 1999: 63). As already mentioned, knowing, engaging in interpretation and eventually understanding, is in hermeneutics regarded as always located in a specific historical and cultural context (Højberg 2004: 321). Hence the knower is never situated in a 'god-like' position, being able to see everything, but is always granted only a partial view, framed by what in hermeneutics is termed a *horizon*. This metaphor describes what the knower is able to understand as being within the horizon, and, conversely, what the knower is unable to understand as being beyond the horizon. The horizon is shaped by *pre-understandings* and *prejudices* and constitutes how we see and understand phenomena, how we

orient ourselves, act and respond to the world (Højberg 2004: 322-3). Pre-understandings are the web of beliefs and knowledge that precedes any knowing, whereas prejudices are the set of normative orientations and meanings that is brought into the process of understanding.

In this light, the researcher is never separate from the object of study, but rather is actively shaping and demarcating the object based upon a knowledge ambition and is intimately involved in the production of knowledge. Hence the object being studied is "considered through the historically and culturally situated lens of the researcher's perception and experience" (Kinsella 2006). Thus the produced knowledge always depends on a web of prior experiences, the choice of theoretical approach, the academic field, personal meanings, knowledge, beliefs and so on. Therefore the researcher must, as Brinkman (2012) argues, "take her own biography (and prejudices) into account" (p. 43). During the course of this study I have come to form a family and had my first and second child. The subject of the study, everyday family mobility, is therefore something that plays a highly relevant and significant role in my personal life. Hence my pre-understandings and prejudices affect the inquiry process, as it is experienced and interpreted through the historical and social context of my biography, tacit knowledge, values and normative beliefs. Therefore, to some degree, my experience and interpretation of the 11 families in the study and their everyday lives and mobility is unavoidably set against the backdrop of my personal life. The fact that I was raised in a middle-class nuclear family, on the outskirts of one of the larger provincial cities in Denmark, has certain implications for the horizon from which I perceive and interpret the families' everyday urban mobility situated in the Greater Copenhagen Area. Some of the families' mobility choices, tactics and coping strategies are familiar to me, as I have personal experience with them from my own life, while others struck me, when I first encountered them, as strange and alien. As Hastrup (1999: 130) argues, normativity and value are basic conditions of research and knowledge production that cannot and should not be avoided. However, through purposive reflection, "each has the ability (however imperfect) to acknowledge and compensate for the influence our perspective may exercise on our analysis" (Hildebrand 2008: 225). Disclosing pre-understandings and prejudices does not eliminate one's standpoint; rather transparency qualifies the knowledge being produced.

Returning briefly to Gadamer's concept of horizon: our horizon is what enables us to make sense of experiences and encounters in everyday life. It is a frame that encapsulates the knower's personal and unique way of understanding and engaging with the world, which is shaped by personal experiences, the communities in which the knower is invested and the historical and cultural contexts in which the knower lives (Højberg 2004: 234). Hence to understand how and why families make and perform mobility practices the way they do and the meanings they ascribe to their mobility, it is necessary to consider a fuller picture of their lives by addressing the historical, social and emotional contexts of their mobility, or what is in phenomenology termed the *lifeworld*.

Moreover, as we are constantly subjected to experiences and encounters in both everyday life and in research that may confound our understanding and prejudices, the horizon never coagulates. Instead the horizon is, as Gadamer (1996) writes, "continually in the process of being formed because we are continually having to test all our prejudices" (quoted in Kinsella 2006). This formation of the knower's horizon is termed *fusion of horizons*. This process is the outcome of the on-flow of interpretations of objects, be they texts, practices, statements, people, places and so on, that happen more or less reflexively in everyday life as well as in the research process. The object of study, as Kinsella (2006) writes, "merges with the interpreter's own questions in the dialectical play, which constitutes the fusion of horizons". It is in this reciprocal process of interpretation that meaning and understanding emerge. The knowledge produced in the fusion of horizons is forged in the

relational encounter of the subject and object, and is therefore not one-way (i.e. only affected by the subject's pre-understandings and prejudices); rather the encountered object also holds transformative efficacy. Consequently, in such a dialogue the researcher's prejudices are "brought into play by being put into risk" (Højberg 2004: 325). This means that when confronted with empirical material on everyday family mobility, for purposes of both production and analysis, the researcher's own pre-understandings and prejudices are tested and changed, which enables the researcher's horizon to move and expand. Indeed, what separates the knower in everyday life from the knower in performing research is conscious and purposive attempts to become aware of his or her own prejudices in order to challenge them by exposing them to the object of study. In hermeneutic thought, this enables the process of developing new understanding. However, a break or rupture of understanding is also what in pragmatism amounts to the surprise fact, the puzzling and indeterminate situation of doubt that arrests action and provokes inquiry and knowledge production (Brinkmann 2012: 44).

Qualitative inquiry is an active process of interaction in which understanding and knowledge are created in the relations between researcher, respondents and the world. In this sense, pragmatist and hermeneutic inquiry do create "objective" knowledge, but not in the sense of the subject/object dichotomy. Rather they create the type of knowledge in which the object of study, paraphrasing Latour (2000), is allowed to *object* thereby emphasising that knowledge is co-constructed in interaction as a collective enterprise. Knowledge is inter-subjective and inter-objective; it is created in dialogue with others and the physical and material world, and as a consequence the object of study, others and the world always have the opportunity to influence and infiltrate the process of knowledge production by raising objections or fighting back. Hence, as Brinkmann (2012) states, "Objectivity is attained when objects reveal themselves through acts that frustrate the researcher's preconceived ideas" (p. 48).

The respondents are therefore not merely spectators, standing outside and looking in at family mobility, its motivations, purposes, effects, experiences and meanings, but they are very much situated within the process of interpretation and understanding (Højberg 2004: 339). Hence their interpretations, based upon their horizons of prejudices, normative values and pre-understandings of family life and mobility, are part of the inquiry and knowledge production in this study. The respondents do not share a uniform and coherent view of mobility in everyday life; rather they represent a multitude of understandings of and meanings ascribed to everyday mobility. The family members' understandings of and meanings found in everyday family mobility potentially frustrate, amaze and challenge the researcher's pre-understandings and prejudices. Hence a basic condition in both hermeneutics and pragmatism is that there is no universal reading of everyday family mobility or of how mobility practices are experienced, used, formed and performed in everyday life; instead the process of understanding and knowing is characterised by ambiguity, as it is always performed from a uniquely situated position contingent upon both the researcher's and the subject's constantly changing horizons (Kinsella 2006).

Yet this profound openness and ambiguity in the process of knowing does not entail extreme relativism. Although they are sometimes accused of this (see Højberg 2004: 332-3), proponents of philosophical hermeneutics, particularly Gadamer, claim that understanding, though contingent upon the horizon, is characterised by an openness to the world proven by our willingness and ability to change and expand our horizons through dialogue. To Gadamer, language, as a tool used in dialogue, is only functional when "we are with others in a common and commonly known objective world" (Ramberg and Gjesdal 2005). Hastrup (2011) argues, using the work of the pragmatist scholar Donald Davidson, that when engaged in dialogue, the world is always interwoven as a 'third point' of view that both grants common ground and shared understanding and retains the dialogue in a relational hold with the world, one that cannot easily be deviated from. Davidson claims

knowledge is not based solely on the subjectivity of those engaged in dialogue, but draws upon what he terms "triangulation", a "three-way relation between speaker, interpreter and their shared environment" (Bacon 2012: 87). Hence, in producing knowledge through dialogue, when, for instance, interviewing respondents or reading a text, the presence of the world as the factual and objective reality that we have in common ensures the pitfall of extreme relativism is avoided, as the world cannot be departed from without voiding and violating the process of interpretation and, in turn, understanding.

In this study inquiry is initiated, problematised, analysed and tested in dialogue with the empirical reality, between the researcher and the family member respondents, and even in solitary moments when the act of inquiry is indirectly in dialogue with other theoretical sources, the academic field of research and the researcher's personal experience and relationship with everyday life and mobility. Hence the knowledge produced in the study can be seen as valid, not by exact correspondence to the world, but exactly because of its close and dialogical relationship and commitment to the empirical world of the study. The pragmatist and hermeneutic approach in this study should therefore not be considered leading to knowledge claims of extreme relativism. Rather, subjectivity is a profound condition that cannot be put aside even in research practice - subjectivity is *the only way in*, so to speak. It is a tool through which knowledge is achieved, though it is always in relation to and affected by the existing web of understandings of and beliefs about the world (Hastrup 2011).

How is knowledge or belief reliably secured then? It is not enough for the researcher to personally feel convinced. On the contrary, Dewey thought knowledge should be tested and confirmed by others: "the method of science locates normative authority within communities of inquiry" (Bacon 2012: 55). In this study this goal has been pursued by building "member checking" (Saldaña 2009: 28) into the research design, in which initial findings from the analysis can be fed back to the respondents and thereby tested and further developed. Just as the knowledge claims in this study have been produced in concert with family members, the theoretical concepts have been developed and refined through interaction with the academic community, literature, theories and other researchers. This refinement process cannot be completed without commitment and responsibility to the world. The empirical reality enters the inter-subjective process of inquiry as Hastrup's (2011, p. 14) 'third point' between the researcher and others that cannot be avoided or disregarded without compromising the validity of the knowledge production.

Methodological considerations

Having presented the epistemological approach to knowing and understanding based on Dewey's pragmatism and Gadamer's hermeneutics, the chapter will now address the study's methodological considerations for performing qualitative inquiry. These primarily draw on Dewey's active and practical engagement of inquiry, which can be understood as a "general abductive attitude" (Strübing 2007: 566). The process of inquiry can be separated into several stages, as illustrated in figure 1 below. To gain a sense of this methodological approach, each step will be briefly elaborated and related to this study.

In pragmatism, the production of knowledge always starts with an *indeterminate* situation (step a), a situation in which something is fishy or puzzling and does not fit, or simply arrests, the researcher's general understanding (Gimmler 2012: 20, Brinkmann 2012: 39). This critical moment is equivalent to when the knower's prejudices are challenged in the process of interpretation. To remove doubt and thereby overcome the *problem*, inquiry is undertaken. Inquiry is understood as a profound and integral part of both social and research practices, and is "prompted when we confront a situation in which there is some issue or problem that must be resolved" (Bacon 2012: 53). Hence the fusion of horizons is the

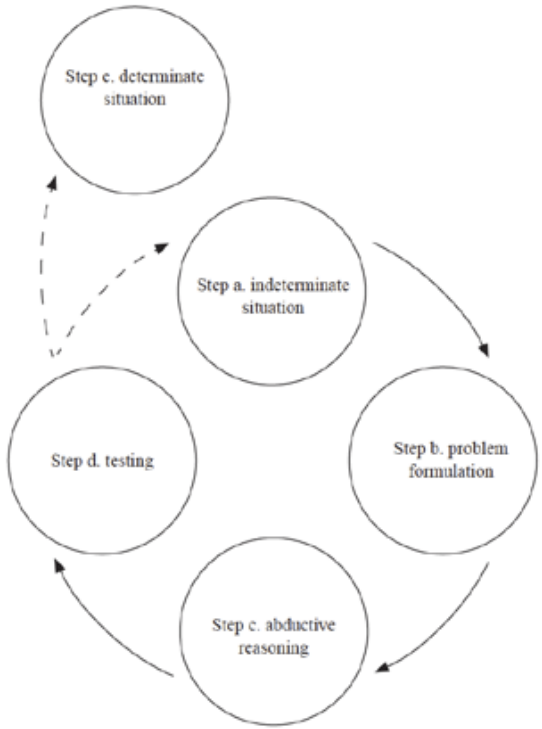

Figure 1: Pragmatist process of inquiry (problem-solving), adopted from Strübing (2007:563)

potential outcome of inquiry. An indeterminate situation arises when the researcher enters a new field of empirical research and is confounded by the empirical reality at first (Strübing 2007: 564). In this thesis, being confronted with and having to make sense of the multitude of ways families lead their everyday lives and the complexity and meanings they ascribe to making and performing mobility practices amounts to an indeterminate situation. As Strübing (2007) explains it, the "researcher's 'arrest of action' lies in not having an answer to a certain empirical research problem. Doubt results from not properly understanding the empirical phenomena dealt" (p. 568).

However, the first step in the process of inquiry is the formulation of a *problem* or a question to guide or determine the scope of the inquiry (step b). What arrests action is not always clear, and "[i] n order to evoke inquiry, the situation needs to be designated as a specific situation of uncertainty 'about' something" (Strübing 2007: 563). Only when the situation has a clearly defined problem can the inquiry proceed to propose a solution (Brinkmann 2006: 71). Drawing on hermeneutics, we might say this means becoming aware of and clarifying which prejudices are violated. However, as Gimmler (2005: 21) points out, defining the problem can often be challenging. Defining the problem is an open and on-going process in the inquiry. As Bacon writes, "as we strive to secure our ends, we find that we revise our view of what we want" (Bacon 2012: 53). For instance, theories and methods brought into the study are sensitising tools that foreground certain aspects of the data, shaping both the inquiry and the knowledge that is produced. In pragmatism "there is no such thing as the ultimate formulation of the problem – the definition of the problem ought to be functionally fit in relation to its possible solution" (Gimmler 2005: 21). What the problem is and how we will try to solve it depends on our perspective, exactly as hermeneutic thought advocates for. Clarifying and defining the uncertainty of the situation is achieved through the scope of research and the formulation of research questions. In the study, primary attention is given to the uncertainty

of how the families are coping with everyday life through the use of mobility. However, as Brinkmann (2012: 180) also points out, in many research projects the problem, or at least the scope of the research, is given.

The Abductive Attitude

Through the process of inquiry, "We try to transform an indeterminate situation into one which is determinate by examining possible solutions, tentatively adopting a hypothesis which we then investigate to see whether it answers our needs" (Bacon 2012: 53). In pragmatism, this suggestion of understanding or hypothesis generation comes about through *abductive reasoning* (step c). This type of inference differs from the traditional models of reasoning of *induction* and *deduction* (Brinkmann 2012: 45). Whereas inductive reasoning is the process of formulating a *probable* statement from a limited number of observations, and *deductive* reasoning is the process of reaching a logical and *certain* conclusion from the premise of a general statement, abductive reasoning seeks to infer a *possible* statement based on an observation. Peirce formulated abductive reasoning as:

> The surprising fact, C, is observed; But if A were true, C would be a matter of course; hence, there is reason to suspect that A is true.
> (Peirce in Gimmler 2005: 10)

When confronted with a problem, neither induction nor deduction inference is helpful, as neither can produce new ideas to overcome the indeterminate situation (Strübing 2007: 565). In abductive reasoning, however, the intent is to provide a workable explanation that can stabilise the situation (Brinkmann 2012: 46). Based on the context of the indeterminate situation, a provisional hypothesis is *suggested* to bring understanding or explanation of a given phenomenon. This *"creative moment"* of suggesting ideas in the abductive process can be described, as Peirce himself has admitted, as a kind of "guesswork" (Gimmler 2005: 11). However,

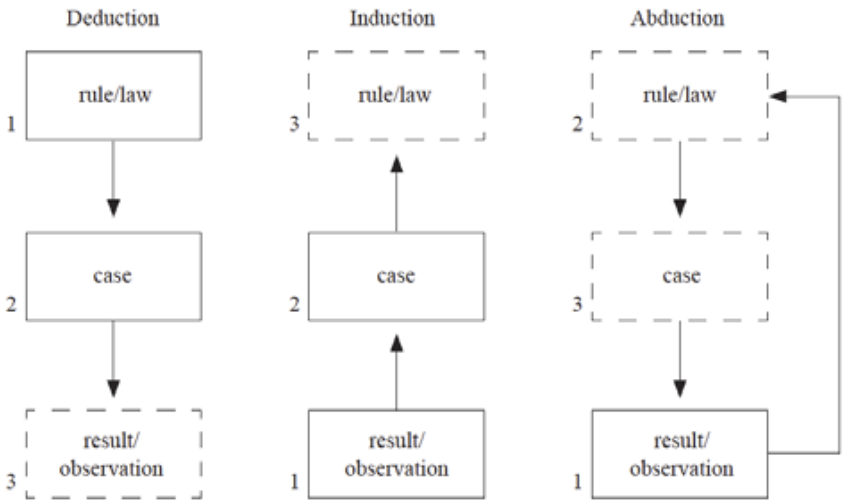

Figure 2: Forms of inference. Solid boxes contain premises that are presupposed as true; dashed boxes contain premises that are inferred.

in pragmatic inquiry, the abductive process of "correlating the observed facts of the situation with suggestions" (Strübing 2007: 565) is not unsupported but relies on a web of knowledge, theories, methods, models etc. that are instrumentally applied as tools and heuristics, aiding in the formulation of hypothesis and knowledge claims that can transform the situation into a determinate one.

In this study, through the process of inquiring into family mobility in everyday life, a series of theories and methods are utilised as tools aiding the production of knowledge presented in this thesis. For instance, the study pragmatically proposes the heuristic of *elasticity* as an instrumental way of understanding the role and importance of mobility in everyday family life (and as a model of how families cope with everyday life through their mobility). In this model of elasticity, the family's mobility is approached both as if it were an *assemblage* and as if it were a *performance*. Hence these analytical approaches are interpretive tools that facilitate the creative moment in the abductive process of generating interpretations and producing knowledge.

Having formulated an *ad hoc* hypothesis, the next step in the inquiry process is to experiment and test its validity against the empirical material (step d). In Peirce's abductive method, this is where deduction and induction inference are applied. Frederik Stjernfelt describes this step in the process as moving from the empirical world from which the hypothesis is formulated to an ideal world where it is possible to "trace certain ideal consequences of the model so proposed" (2007: 333) by applying deduction. Finally, using induction, the process returns to the empirical world to determine whether these consequences can be collaborated in the empirical material. If so, this is taken as an indication of the possibility that the hypothesis is working (Stjernfelt 2007: 337). In this iterative, cyclical process, commuting between the data, analysis and hypothesis building, the soundness and substance of the hypothesis grows (Strübing 2007: 566). Thus, relating this to the process of interpretation, abduction is a possible description for what is at work methodologically in the event of fusion of horizons. When engaged in interpretation, the knower, based upon his or her horizon, constantly suggests, tests and approves hypotheses of the perceived phenomenon, allowing the knower's horizon to move. Alternately, a hypothesis may fail testing and be rejected, in which case a new hypothesis is formulated (Stjernfelt 2007: 333). When the hypothesis succeeds in solving or engendering a satisfying understanding of the problem, the hypothesis successfully transforms the situation into a determinate one (step e). In the words of Dewey, "If inquiry begins in doubt, it terminates in the institution of conditions which remove the need for doubt. The latter state of affairs may be designated by the words of belief and knowledge … I prefer the words 'warranted assertibility'" (Bacon 2012: 53). Hence, based on "fallible yet self-corrective operations taking into account past failures and successes" (Healey 2009: 280), inquiry is the method involved in producing knowledge claims in pragmatism—not universal laws, but local and provisional knowledge functionally fit to the situation at hand.

Conclusion & perspectives

In this chapter the philosophical positioning within the theory of science in the project "Making Everyday Mobility" has been presented. In doing so, the chapter has focused on some of the key epistemological and methodological implications of utilising a pragmatist and hermeneutic perspective. Firstly, Dewey's pragmatism offers a useful way of thinking about the research process as instrumental, in the sense that theories and methods are to be understood as tools measured by their utility in aiding the production of knowledge. Thus the philosophical underpinning presented in this chapter is in itself to be understood as no more than an instrument with the purpose of facilitating the study at hand.

Secondly, both pragmatism and hermeneutics regard knowing and

understanding as a profound process in everyday life as well as in performing research. In this worldview, knowledge is not lying somewhere to be stumbled upon; rather knowledge is produced in the researcher's active (and transformative) engagement with world. Therefore, knowledge is not static, corresponding to some piece of the world, but dynamic, provisional and situational relative to the researcher's horizon, the subject of study and the material, historical and social environment in which they are emplaced.

Hence, thirdly, this qualitative stance elucidates the active role of the researcher as an unavoidable fact, and allows for consideration of his or her influence in the production of knowledge. Thus a pragmatist-hermeneutic positioning offers sensitivity to the contextual conditions of both the researcher and the object of study, especially through the notion of pre-understanding and prejudices. Through inquiry into everyday family mobility, we discover a world already interpreted by family members and filled with meanings based upon their historically and socially constituted horizons; this has implications for the choice and design of methods in the study.

Fourthly, this philosophical underpinning offers a way of embracing the ambiguity and complexity that confront the analysis of everyday family mobility. Pragmatism and hermeneutics are particularly directed towards the creativity and multiplicity of everyday life: the unfamiliar, that which disrupts understanding and arrests knowing. Linking back to the second point, both pragmatism and hermeneutics resist any idea of a universal reading or singular knowledge, and instead facilitate inquiry into plurality in the families' particular *lifeworlds*. However, they do so without falling into extreme relativism, as the inquiry is at all times empirically grounded.

Fifthly, through the abductive scheme of inquiry, pragmatism offers a methodological approach that combines the above-mentioned points and supports understanding, knowing and production of knowledge as results of the creative potential in research practice (as well as everyday life practice). This abductive approach influences the qualitative inquiry performed in the study and, in particular, shapes how the empirical material is constructed and analysed. In this study this has, through experimentation, lead to a method combination of qualitative interviewing, GPS tracking, mobile field studies and grounded theory.

Finally, the knowledge produced in this PhD was initially envisioned to be integrated with the work of DTU transport researchers in the project ACTUM. The goal was to create a novel transport model for the metropolitan area of Denmark, and the qualitative knowledge on everyday mobility emerging from this PhD study was supposed to provide qualitative input and point to 'soft' factors within transport choice modelling. For various reasons, this integration did not occur. However, the knowledge has been applied in my work with urban design and in particular with mobilities design (Jensen & Lanng forthcoming). Here this knowledge, albeit not directly connected to design, serves as a strong foundation for understanding how people use, value and give meaning to mobility spaces in everyday life. This, in turn, has proven to become valuable background knowledge for urban designers operating in and designing mobility spaces.

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Chapter 3 : URBANE PROJEKTER *mellem sted, diskurs og planlægning, - redskaber i strategisk byomdannelse*

By Anne Juel Andersen

Timeline: Oktober 2010 til November 2013, forsvar Februar 2014

Keywords: Urbane projekter, strategisk byplanlægning, stedskvaliateter, narrativer, diskursanalyse.

Supervisors: Professor Hans Kiib og professor Ole B. Jensen, AAU, samt Stadsarkitekt Peder Baltzer og afdelingsleder Peter Mikkelsen, Aalborg Kommune

Collaborators: Erhvervs PhD-afhandlingen er resultatet af et samarbejde mellem Aalborg Kommune, Teknik- og Miljøforvaltningen, og Aalborg Universitet, Institut for Arkitektur og Medieteknologi.

Biography: Anne Juel Andersen, arkitekt MAA, PhD. Konsulent Sven Allan Jensens tegnestue 1987-1996. Planlægger i Aalborg Kommune siden 1996

URBANE PROJEKTER	Theory input	Methods	Epistemology
Urban Projects between place, discourse and planning – tools in strategic urban development	Place theory Discourse theory Planning theory Social theory	Discourse analysis Paradigmatic case analysis Phonomenological registration Data collection Interviews Literature survey	Post structuralistic and pragmatic tradition Pragmatic approach Network and design perspective Relational focus

Introduktion

Denne PhD-afhandling handler om urbane projekter som led i strategisk byomdannelse.

Udgangspunktet har været en dyb interesse i de konstante forandringer og udviklinger der sker i byen, og en tilsvarende undren over de skiftende rationaler og diskurser som er til stede i bymæssige projekter der planlægges og gennemføres. Afhandlingen fokuserer på de skiftende byplanoptikker på byen og på urbane projekter som komplekse netværk. Den teoretiske ramme for analyserne er sted, diskurs og planlægning - tre grundlæggende forskellige teoretiske felter, men som hver især fungerer som nødvendige elementer og ressourcer i analyserne. Lidt firkantet kan det siges at sted er i centrum for transformationen og besvarer spørgsmål om HVOR? Planlægning er det bevidste værktøj for transformationen og besvarer spørgsmål om HVORDAN? Endelig kan diskurs siges at udtrykke den rationalitet som styrer transformationen og besvarer således spørgsmål om HVORFOR?

Forskningsspørgsmålene er:
1. Hvordan kan strategiske urbane projekter forstås i en teoretisk ramme bestående af sted, diskurs og planlægning?
2. Hvordan hænger skiftende rationaler for urbane projekter og bypolitiske diskurser sammen med ændrede konjunkturer og de narrativer som knytter sig hertil? Det skal diskuteres på hvilken måde samfundsudviklingen, bredt betragtet, påvirker stedsopfattelser og planlægningsmæssige diskurser.

Tre cases om urbane projekter i Aalborg efter 1990 analyseres som en del af afhandlingen:
- Byøkologiprojektet i Danmarksgadekvarteret, 1994-98, et byfornyelsesprojekt med et ekstra 'lag' ovenpå om økologi og demonstration af forskellige teknologiske løsninger, et projekt som i udgangspunktet er drevet af 'naboskabsrationalet'.
- Kennedy Arkaden, indviet i 2004, er et knudepunkt for offentlig transport kombineret med butiks- og biografcenter samt kontorer, og repræsenterer projekter drevet af 'mobilitetsrationalet'.
- Endelig er Nordkraft, et tidligere kraft-varmeværk som er konverteret til kulturhus og åbnede i 2009-11, repræsentant for projekter drevet af 'fyrtårnsrationalet'.

Udover casene er Aalborgs byplanpraksis siden 1950 analyseret og periodiseret med fokus på skiftende rationaler for urbane projekter, ligesom den danske byplanpraksis siden 1990 er undersøgt via artikler i fagtidsskriftet 'byplan'. Endelig er et antal europæiske eksempler på ikoniske urbane projekter studeret med brug af de samme teoretiske optikker som gælder for de dybtgående casestudier.

Projektet beskrives med hensyn til teori og metoder samt epistemologi, jf. skemaet på forrige side. Der refereres til teorierne gennem et afsnit som relaterer sig projektets indhold om det historiske udviklingsforløb hvad angår byplanpraksis i Aalborg og nationalt/internationalt, om de projektdynamikker som er fundet på baggrund af caseanalyserne, og om projektets to teoretiske modeller. Derefter redegøres for de anvendte metoder og valg af cases. Endelig beskrives de videnskabsteoretiske overvejelser i et afsnit om det analytiske objekt som designredskab, pragmatisk objektivitet samt projektets ontologi og erkendelsesteoretiske grundlag.

Til sidst perspektiveres projektet i forhold til brugbarheden i praksis, idet der i skrivende stund er gået næsten to år siden forsvaret – to år hvor jeg, forfatteren, har genoptaget det praktiske arbejde med byplanlægning i Aalborg. Artiklen afsluttes således med nogle refleksioner over den praktiske værdi af PhD'ens fokus på projekter som strategisk bypolitisk redskab.

En ekstra
pulsrod til dem
der kører hele tiden
Aalborg

T.v. Kennedy Arkaden analyseres som et urbant projekt der repræsenterer mobilitetsrationalet
T.h. Nordkraft analyseres som et urbant projekt der repræsenterer fyrtårnsrationalet. Foto: Claus Rene Pedersen

Forskningsdesign og teorier i projektet

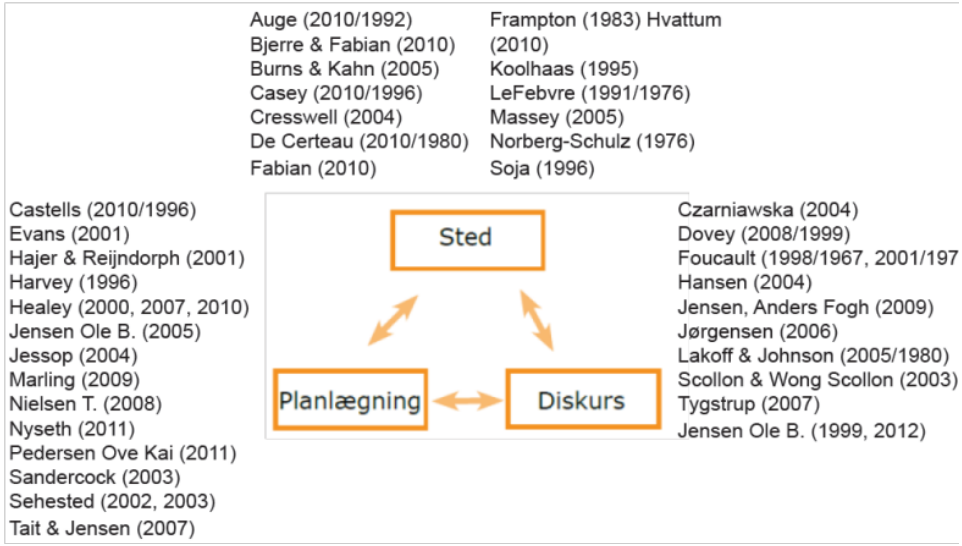
De historisk specifikke udviklingsforløb med hensyn til byplanpraksis er undersøgt, henholdsvis for Aalborg og nationalt/internationalt. De analytiske værktøjer her har været et fokus på forskellige rationaler eller byplanoptikker på byen, og, med brug af Jessop's (2004) metode, en periodisering ud fra identificering af perioder af relativ ensartethed på baggrund af strukturelle sammenhænge, specifikt for urbane projekter. Denne viden udtrykkes med 'bølgemodellen' om de historisk skiftende rationaler som dominerende tilgange til byen i forskellige perioder, se senere. De europæiske eksempler på ikoniske urbane projekter fungerer som referencer. Tre grundlæggende rationaler baseret på henholdsvis områder (naboskabsrationalet), forbindelser (mobilitetsrationalet) og punkter (fyrtårnsrationalet), bl.a inspireret af Shane (2005), eksisterer samtidigt igennem hele perioden siden 1950, men det er tydeligt at forskellige rationaler dominerer tænkningen i forskellige perioder. Det viser sig at rationalerne som drivkræfter for urbane projekter rummer en træghed i sig, som rækker ud over hvad de konkrete bymæssige udfordringer tilsiger. De dominerer tænkningen om byen i lange perioder.

I analysen af tre cases fra Aalborgs byplanlægning efter 1990, har der været fokus på projektdynamikker og konstruktion af en 'netværksmodel' ud fra den teoretiske ramme: sted, diskurs og planlægning. Udover disse aspekter rummer modellen også repræsentationer, narrativer og magt i urbane projekter. I tilknytning til figuren overfor er anført de væsentligste teoretiske inspirationskilder til analyserne.

Med forståelsen af projekter som netværk handler det ikke om at finde årsagsforklaringer, men derimod om forståelse af komplekse relationer mellem mange forskellige aktører. Modellen kaster lys på den komplekse virkelighed og mange forskellige sandheder. Caseanalyserne tester netværksmodellen og producerer kontekstafhængig og projekt-specifik viden som ikke gør det ud for at være forudsigende teorier, men til gengæld kan bidrage via 'det gode eksempels magt'. Caseanalyserne rummer således en række pointer om brugen af urbane projekter som strategisk værktøj i bypolitik, udvikling af stedsopfattelser, brugen af narrativer i planlægningsprocesserne, repræsentationers funktion som diskursivt udtænkte forestillede virkeligheder, magtstrukturer og planlægningstilgange - viden som kan bruges i fremtidig praksis i forbindelse med andre projekter.

Netværksmodellen blev konstrueret og brugt som analysemodel i relation til specifikke urbane projekter, men den udtrykker også en generel forståelse af projekter som socio-økologiske komplekse netværk. Med forståelsen af urbane projekter som komplekse redskaber for forandring af steder, udtrykker modellen en konstruktiv designtilgang, hvilket hæver den op fra analyseniveauet til også at kunne anvendes som redskab i udvikling af strategisk byomdannelse, hvor stedet med sine mange dimensioner spiller en vital rolle. Inspirationskilder til udvikling af netværksforståelsen er bl.a. Blok & Jensen (2009), Brinkmann (2010), Farias & Bender (2010), Friedman (2003), Gad og Jensen (2007), Ingold (2008), Latour (2008/2005), Latour og Yaneva (2008), Law og Mol (2002) og Olesen og Kroustrup (2007).

Mens netværksmodellen om dynamikken i bymæssige projekter er abstrakt i forhold til tid og rum, er bølgemodellen historisk specifik i forhold til synet på byen, stedsopfattelser og således også i forhold til målet med projekterne som afhænger af de tidstypiske byplanrationaler. Ved at kombinere de to modeller og de resultater de har produceret, dvs. overføre tankesættet fra bølgemodellen som en ekstra, vigtig dimension i netværksmodellen, argumenteres for et mere generelt vidensniveau i forhold til forståelse af urbane projekter. Se også sidst i artiklen.



Tidligt i forløbet blev den teoretiske ramme: sted, diskurs og planlægning, valgt for analyserne. De teoretiske studier befrugtede modellen som forståelsesramme og analyseredskab.

Metoder og valg af cases

Det har været et mål i projektet, med brug af netværksmodellen, at opnå en større forståelse af urbane projekter som komplekse redskaber for forandring af steder - som design der via komplicerede netværk kan forbedre en eksisterende situation. En sådan forståelse og viden har også givet anledning til at opstille perspektiver for hvordan urbane projekter, som led i en mere omfattende transformation af byen, kan bruges som strategisk bypolitisk redskab til forandring og skabelse af forskellige typer af stedskvaliteter. Det har således været et mål med erhvervs PhD projektet at de to formål, henholdsvis ny viden (forskning) og resultater i den virkelige by (praksis), skulle befrugte hinanden.

Koblingen mellem de to verdener er søgt ved at 'stille mig udenfor' og påtage mig en refleksiv tilgang til materialet, med henvisning til Hastrup (2006/1999) som argumenterer for at subjekt/objekt-forholdet som grundlaget for det videnskabelige arbejde må være præget af en 'essentiel refleksivitet':

> 'Refleksiviteten sprænger altså modsætningen mellem subjekt og objekt; det subjektive bliver objektivt, og omvendt. Men det er ikke bare et spørgsmål om at bytte plads, det er også et spørgsmål om at stille sig uden for udvekslingen, eller med et tidligere brugt begreb: at indtage det tredje standpunkt.' (Hastrup 2006/1999 s. 150)

Metode er græsk og betyder 'det at gå noget efter' og henviser til vejen der blev fulgt. Metoderne spiller en vigtig rolle for konstruktionen af viden, som ikke kan siges at repræsentere 'virkeligheden', men som tilsammen, som værktøjer til at udvikle og forstå, og fortælle en god historie, skal skabe et blik ind i

den praksis som det analytiske objekt udgør. Der er tale om en form for byplanarkæologi - en åbning og analyse af processer og netværk som ellers kan fremstå utilgængelige som en 'black box'. 'Black box' begrebet bruges i ANT til at beskrive det forhold at mange elementer, i grunden komplekse, er gjort til et trivielt eller uproblematisk element, der i sin forståelse er bragt til at virke som ét, med et input og et output. (Olesen og Kroustrup 2007, s. 82). I det omfang urbane projekter opfattes som 'black boxe', skal metoderne 'pakke boxen ud' og analysere indholdet nærmere.

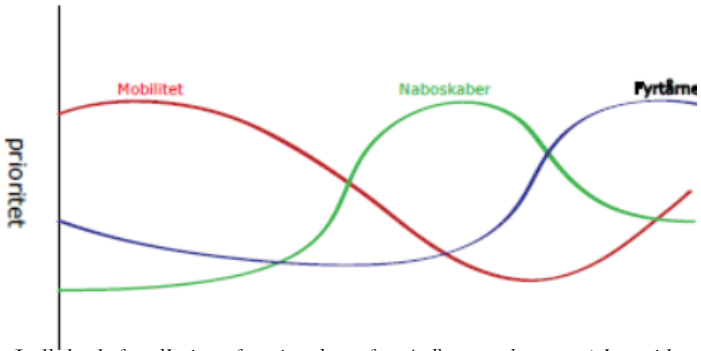
Caseanalyserne af tre urbane projekter i Aalborg efter 1990 er gennemført med anvendelse af netværksmodellen. Hermed er der foretaget en grundig afdækning af det kronologiske forløb, bl.a. kontroverserne mellem de forskellige aktører. Projekterne er analyseret som hele det 'netværk' der udspiller sig i spændingsfeltet mellem sted, diskurs og planlægning, idet de defineres ikke kun af det materielle, selve de fysiske ændringer, men også af andre stedsdimensioner, repræsentationer, diskurser, magt, planlægning og narrativer som har indgået i planlægningsprocesserne og fortsat påvirker stedernes udvikling.

Analyserne registrerer mønstre i netværket og søger svar på følgende spørgsmål som led i at besvare forskningsspørgsmålene:

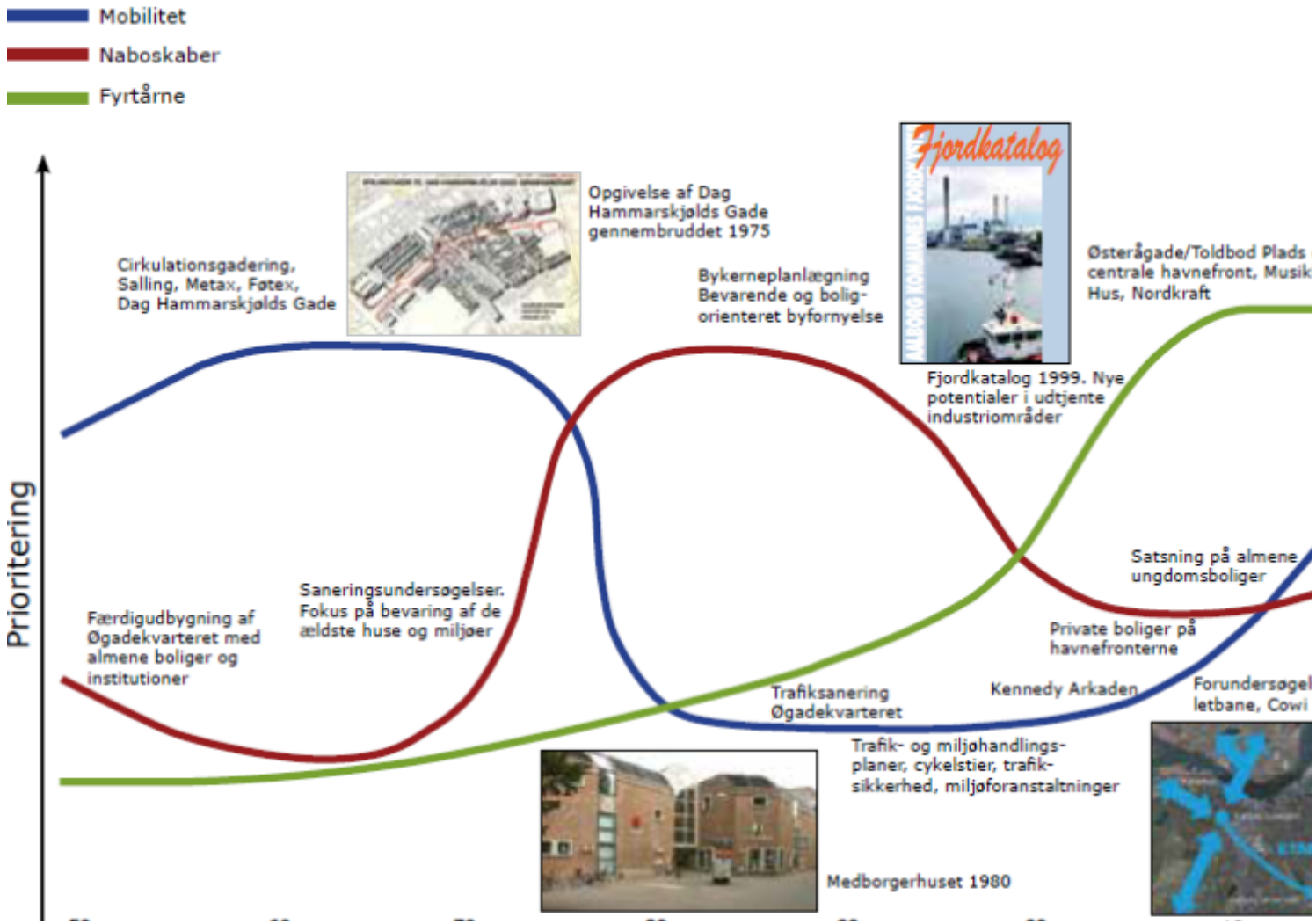
- Hvordan er diskurserne materialiseret, og hvilke kampe om stedet er foregået?
- Hvordan er de 'rejsende ideer' som projekterne/strategierne er affødt af, bl.a. i forhold til fælles udfordringer i sammenhæng med konjunkturudvikling, 'oversat' via kompleks planlægning?
- Hvilke former for planlægning og planlæggerroller har været i spil, og hvordan har magtrelationerne fungeret?
- Hvad har repræsentationer og narrativer om stedet betydet for processen?
- Hvilke stedskvaliteter har projekterne produceret?

Valg af cases

Valget af de 3 cases er sket med tanke på den omtalte bølgemodel. Således repræsenterer casene de tre grundlæggende forskellige rationaler, henholdsvis mobilitet, naboskaber og fyrtårne. Projekterne har det tilfælles at de hver for sig fungerer som komplekse redskaber for bymæssig forandring, og de rummer som udgangspunkt tre forskellige måder at tænke forandring på, der hænger sammen med deres rationaler. Hvor mobilitetsrationalet lægger op til at det er via forbindelser i byen at forandringer sker, tager naboskabsrationalet udgangspunkt i en områdetænkning om byen - at byen består af områder der hver især kan forbedres til et højere niveau. Endelig er tankegangen bag fyrtårnsrationalet at et projekt som et 'punkt' i byen kan skabe attraktion og forandring, ikke kun i området omkring projektet, men på byniveau – ligesom et fyrtårn kan ses langvejs fra. Ligesom projekterne analyseres med brug af netværksmodellen, undersøges rationalerne og de stedskvaliteter som de producerer, og sammenhænge mellem typer af projekter diskuteres i forhold til rationaler og samfundsudvikling. De valgte cases er hver især afgrænset tidsmæssigt sådan at projektets genese er medtaget, dvs. der er sket en vurdering af hvilke hændelser der med rimelighed har kunnet henregnes som hørende til skabelsen af projektet. Fysisk er der, udover en



Indledende fortolkning af rationalerne for Aalborgs urbane projekter siden 2. verdenskrig



Fortolkning af rationalernes betydning for urbane projekter i Aalborg Midtby siden 1950

snæver områdegrænse for selve projektet, behandlet et større kontekstområde, som projektet med rimelighed kan siges at stå i direkte sammenhæng med. Denne vurdering forholder sig til opfattelsen som den fremgår hos projektets aktører. De aktører og de data der er medtaget i analyserne er på samme måde valgt udfra en vurdering af at de på en rimelig måde repræsenterer projektet.

Jf. Flyvbjergs (1991) definition af forskellige typer af cases, er der tale om paradigmatiske cases. Kritiske cases defineres i forhold til at opnå information som tillader logiske slutninger af typen "hvis det (ikke) gælder for denne case, så gælder det for alle (ikke for nogen) cases" (Flyvbjerg 1991, s. 150), men her er der ikke tale om at verificere eller falsificere specifikke teser om projekterne. Ekstreme cases har til formål 'at opnå information om usædvanlige cases' (Flyvbjerg 1991, s. 150). Casene kan måske defineres som ekstreme, men det er ikke hovedformålet med valget af dem. Heroverfor defineres paradigmatiske cases som cases der fungerer som metafor for eller danner skole for det område som casen vedrører. Således findes der heller ingen standard for den paradigmatiske case (Flyvbjerg 1991, s. 150 og 152). Der findes ikke en entydig definition for identifikation af en case som fx paradigmatisk men det

> '...hænger således sammen med designet af ens undersøgelse, lige så vel som det hænger sammen med egenskaber ved den studerede case.' (s. 151)

Med caseanalyserne og casebeskrivelserne fortælles en historie om de unikke projekter, der om ikke 'danner skole' så i hvert fald gerne skulle gøre os klogere på forskellige typer af projekter og på rationalerne bag dem.

De anvendte metoder

En sansemæssig registrering med inspiration fra Scollon (2003) og Dovey (2008/1999) indgår i stedsanalyserne. Jeg har således ledt efter konkrete spor på stedet, hvor projektet er gennemført, med henblik på at registrere 'materialiserede diskurser', og fortolket disse. Fænomenologi, som kan betegne både filosofi, videnskabsteori, teori og metode, bruges her som et værktøj i metoden, idet jeg har bevæget mig rundt i områderne med åbne sanser og registreret hvad jeg oplevede på stedet, både i form af det visuelle miljø og den adfærd og de situationer mellem mennesker på stederne som jeg dermed blev vidne til. De sansemæssige oplevelser er efterfølgende fortolket kvalitativt.

Centrale plandokumenter vedr. de valgte cases er fundet frem og analyseret med henblik på dels at redegøre indholdsmæssigt for processen i forhold til hændelser, beslutninger, udtrykte holdninger, kontroverser og udviklinger, dels at analysere teksterne i forbindelse med diskursanalyser af casene. Plandokumenterne foreligger i en vis forstand 'objektive' og klar til analyse, men udvælgelsen af dem er sket med grundlag i mine og forskningsprojektets formulerede interesser. Jeg har ledt efter metaforer, som er blevet brugt i planlægningsprocesserne, og brugt dem som kilder i diskursanalyserne.

Alle de tre analyserede cases har været særdeles omtalte i medierne i forbindelse med udvikling, planlægning og gennemførelse. Der indgår medieomtale i analyserne, men der er ikke foretaget en systematisk indsamling og analyse af mediedækningen.

Der er gennemført en række interviews med nøglepersoner som har været involveret i planlægningsprocesserne. De har suppleret den faktuelle viden fra plandokumenterne om forløb og processer i de urbane projekter og bibragt interviewpersonernes holdninger og refleksioner til projekterne og den kontekst i tid og rum, som de er rundet af. Alle interviews har været semistrukturerede.

Den viden som skabes med interviewene er ny, idet den er konstrueret socialt i samspillet mellem mig som interviewer og interviewpersonerne i situationen, målrettet de perspektiver jeg

har valgt og derfor har formuleret mine spørgsmål ud fra. Der er tale om en intersubjektiv erkendelsesproces som involverer både intervieweren og den interviewede som fælles skabere af viden (Kvale 2009, s. 34).

> 'Interviewviden konstrueres socialt i samspillet mellem interviewer og interviewperson. Den resulterede viden er ikke blot noget, der bliver fundet, gravet op eller er givet, men noget der skabes aktivt gennem spørgsmål og svar, og produktet skabes af interviewer og interviewperson i fællesskab.' (Kvale 2009, s. 71)

Litteratur er udvalgt i forhold til forskningsprojektets teoretiske ramme samt de udvalgte cases, eksempler og byplanpraksis i Aalborg og Danmark. Litteraturstudierne har været brugt som grundlag for at lede analyserne i de valgte teoretiske retninger, og til at skaffe konkret og faktuel viden. Endelig har litteraturstudier dannet mulighed for at indhente viden om bl.a. samfundsmæssige og makroøkonomiske forhold, som er relevante som baggrund og perspektiv for de konkrete analyser.

Casene, eksemplerne og byplanpraksis, både specifikt i Aalborg og mere generelt i Danmark, er undersøgt med en kvalitativ tilgang med henblik på at forstå processer, erfaringer og mening. De mange forskellige typer data er i analyserne fortolket i mønstre. Diskursanalyserne, som er bærende men har forskellig 'dybde' i afhandlingens forskellige dele, er gennemført på baggrund af sansning og tolkning af materialiteten, dokumenterne som beskriver intentioner, narrativer og beslutninger fra planprocesserne samt udsagn fra nøglepersoner. De mange data er operationaliseret i forhold til den valgte fremstilling, og de bidrager hver især med viden som tilsammen danner en helhed: stedsindtryk, beslutninger, holdninger, repræsentationer og refleksioner.

Inspireret fra Foucaults genealogiske undersøgelser, som han i sine diskursanalyser benyttede til at opspore hvilke begivenheder der skabte et historisk forløb, er analyseret de konkrete kampe, kræfter og beslutninger, som tilsammen har skabt de projekter der er blevet gennemført. Ifølge diskursteori findes altid en 'uafgørbarhed', og det handler ikke om at lede efter direkte årsager (det handler ikke om årsag-virkning) men om at finde de afgørende handlinger som har bragt historien videre. Derfor er der fokuseret på valg og dermed også de muligheder, som ikke blev realiseret, men derimod ekskluderet.

> 'I stedet for at spørge til, hvad den kausale kæde forårsager, spørges der til, hvilke huller i den, der blev udfyldt af hvilke beslutninger med hvilke eksklusioner til følge. (...) Historiserende analyser viser, hvordan visse sociale relationers uafgørbarhed åbner op for forskellige strategier og muligheder (dvs. beslutninger), og sporer i forlængelse heraf de muligheder, som ikke blev realiserede (dvs. det ekskluderede).' (Hansen 2004, s. 403)

Diskurstankegangen indebærer at det altid er konkrete valg og handlinger som forandrer verden, og at intet er 'forudbestemt'. Metaforer er et grundlæggende værktøj i analyserne, idet de indgår i narrativer som led i planlægningsprocesserne om projekter på stedet. Metaforanalyserne er tæt koblet til projektets diskurstankegang og bruges til at bringe mening og magt frem i lyset. Casene er beskrevet og analyseret i forhold til den lokale kontekst - fysisk, socialt og politisk - samtidig med at de også er perspektiveret i forhold til national og international udvikling. I fremstilling af caseanalyserne er der fokuseret på at give læserne en interessant og fyldestgørende præsentation af de urbane projekter hver for sig uden for mange gentagelser. Hver casebeskrivelse afsluttes med en analyse i forhold til afhandlingens to hovedmodeller, henholdsvis bølgemodellen og netværksmodellen. Der er stor forskel på kompleksiteten og karakteren af de undersøgte cases hvilket har givet anledning til forskel i omfang og prioriteringer mellem de forskellige afsnit.
Som baggrund for udviklingen i Aalborg er foretaget en historisk (genealogisk) undersøgelse af urbane projekter i byen siden

1950. Det er sket via registreringer, plandokumenter, fotos og interviews samt litteraturstudier. Der er søgt efter projekter og begivenheder som indikerer ændring af styrkeforholdet mellem diskurserne og som har bidraget til kursskifte, ikke mindst i forhold til rationalerne for de urbane projekter. En række særligt bemærkelsesværdige eksempler på urbane projekter i europæiske byer er studeret, dog ikke ud fra primære kilder men ud fra tilgængelig sekundær litteratur, websites mv.

Eksemplerne fungerer som referenceprojekter for caseanalyserne og for beskrivelsen af dansk praksis for urbane projekter siden 1990. Eksemplerne undersøges i forhold til de to hovedmodeller: bølgemodellen vedr. deres relation til overordnede tendenser og netværksmodellen vedr. dynamikker i projekterne. For at kunne beskrive praksis er der endvidere foretaget litteraturstudier i form af en gennemgang af artikler og debat vedrørende urbane projekter i fagbladet Byplan siden 1990.

Videnskabsteoretiske overvejelser

Dette afsnit rummer refleksioner over forskningstilgangen og over hvilken type af viden der produceres med projektet - der er således her tale om metateori. Den relationelle forskningstilgang og inspiration fra bl.a. Massey, Foucault og ANT knytter forskningen til en poststrukturalistisk og pragmatisk tradition, og forskningsdesignet tager udgangspunkt i praksis, hvor netværks- og designtankegangen om de urbane projekter er et kernepunkt.

Det følgende afsnit beskriver hvordan det analytiske objekt er konstrueret og kan forstås som et kompliceret designredskab. Derefter følger et afsnit om pragmatisk objektivitet, som med brug af dette begreb (Hildebrand 2008) redegør for den normativitet og værdisætning, der er og nødvendigvis må være i analyserne og dermed forskningen. Endelig følger to afsnit om henholdsvis ontologiske og epistemologiske overvejelser i forhold til PhD-projektet.

Ontologi handler om, hvordan virkeligheden forstås, og epistemologi om erkendelsesformer, dvs. hvad vi kan vide om virkeligheden. Disse afsnit rummer en kort gennemgang af den pragmatiske position, herunder brug af abduktion i videnskabelig ræsonnering, og pragmatisk forsknings fokus på handlingsorienteret og fremtidsorienteret viden. Med henvisning til Flyvbjerg (1991 og 2006) gøres rede for hvordan det er muligt at bidrage til videnskabelig udvikling ved at foretage analytisk generalisering udfra kontekstafhængig viden via casestudier.

Det analytiske objekt som designredskab

Jf. Hastrup (2006/1999, s. 157) er konstruktionen af det analytiske objekt en grundlæggende parameter i den videnskabelige proces, fordi det er med den konstruktion vi skærper opmærksomheden på det vi vil vide mere om, mens resten kan glide ud af fokus.

> 'Hvor det empiriske objekt med en vis rimelighed kan siges at udgøre et 'naturligt' afgrænset felt (fx et fundsted), er det analytiske objekt allerede en abstraktion, der skal argumenteres for på en helt anden måde ('en landsby'). Der skal argumenteres for objektets afgrænsning, kvalitet og kohærens. Uden en sådan præcisering af objektet kan vi ikke sige noget nyt, eller noget andet.' (Hastrup 2006/1999 s. 157)

Det analytiske objekt er urbane projekter forstået som designredskaber for forandring i byen. De analyseres som komplekse størrelser via den teoretiske ramme sted-diskurs-planlægning, idet de defineres ikke kun af det materielle, selve de fysiske ændringer, men også af diskurserne, repræsentationerne, planlægningen, narrativerne og magtstrukturerne som har indgået i planlægningsprocesserne og fortsat påvirker stedets udvikling. Det betyder at det analytiske objekt er hele det 'netværk' som udspiller sig i spændingsfeltet mellem sted, diskurs og planlægning og som

er med til at forme projektet. I forbindelse med caseanalyserne foretages konkrete afgrænsninger af de projekter der analyseres, både i forhold til tid og rum men også af hvad der inddrages i de 6 aspekter.

Målet at at forstå praksis bedre og derved skabe viden om redskabet 'urbant projekt' forstået som design i forhold til fremtidig praksis. Design skal her forstås bredt som bevidste handlinger med henblik på at forbedre eksisterende situationer. Som Lars Marcus (kommende bog) skriver, er der ikke længere nogen mening i at betragte verden som 'natur', som naturvidenskaben per definition gør, da en større og større del af menneskers omgivelser er menneskeskabt - der er så at sige tale om en kunstig verden, et social-økologisk system. Socialvidenskab i forhold til byplanlægning, arkitektur og urban design er også problematisk da det materielle spiller en meget stor rolle. Friedman (2003) definerer design som en målorienteret proces. Som han konstaterer, er der mange fejlkilder til dårligt design:

> 'Those who cannot change existing situations into preferred ones fail in the process of design. There are many causes of design failure. These include lack of will, ability, or method. Designers also fail due to context or client, lack of proper training or a failure to understand the design process.' (Friedman 2003, s. 509)

Både Marcus og Friedman henviser til Herbert Simon (1981/1969) som definerede design som den proces med hvilken vi gennem bevidste handlinger forsøger at ændre eksisterende situationer til andre som foretrækkes. De er også enige om at design per definition går på tværs af en række forskellige discipliner, alt afhængigt af det konkrete projekt eller problemkompleks. Jf. Friedmans citat kan der være mange grunde til at designmål ikke nås, da designprocesserne er komplekse. Netværksmodellens oplæg om at betragte projekterne som design giver mulighed for at diskutere urbane projekter på en mere konstruktiv og sammenhængende måde end hvis fokus, som det ofte er tilfældet, kun er på selve arkitekturen, eller på planlægningsprocesserne i sig selv. Det designmål, som de urbane projekter skal holdes op mod, er 'sted' forstået i sin bredeste betydning, som indeholder både de rumligt-arkitektoniske, sociale og betydningsmæssige aspekter. Resultatet af indsatsen, jf. Friedmanns citat, er således afhængigt af hvad der foregår i hele netværket, dvs. både enkelt-aktører og relationerne mellem dem i de komplekse processer kan have betydning for det. Det samme gør sig gældende i forhold til aspekterne i netværksmodellen. Designtankegangen er central for forskningsprojektets konklusioner og betydning for fremtidig forskning og praksis. Caseanalyserne tester netværksmodellen og producerer kontekstafhængig og projekt-specifik viden der ikke gør det ud for at være forudsigende teorier, men til gengæld kan bidrage til videnskabelig udvikling via 'det gode eksempels magt' og i form af generering og test af teser, jf. Flyvbjergs argumentation for nødvendigheden af casestudier og forskning i progressiv phronesis (1991, s. 165). Analytisk generalisering, hvor projektspecifik viden kan overføres til andre relevante situationer baseret på analyse af ligheder og forskelle mellem de to situationer, beskrives også af Kvale (2009). Caseanalyserne har således til formål at skabe ny viden med henblik på fremtidig praksis.

> 'Praktisk rationalitet udvikles og fungerer først og fremmest i kraft af dybe case erfaringer, og praktisk rationalitet kan derfor kun forstås gennem cases, ligesom skøn kun kan kultiveres og kommunikeres gennem eksponering til cases.' (Flyvbjerg 1991, s. 161)

Den tværfaglige netværksmodel, som rummer en tænkning og forståelse af strategiske urbane projekter og indgreb som komplekse redskaber for forandring af steder, bidrager til eksisterende forskning og praksis, sammen med de mønstre og sammenhænge som kan udledes på baggrund af empirien og netværksmodellen.

Pragmatisk objektivitet

Projektet vedkender sig en normativ værdisætning, fx i forhold til valg mellem forskellige mål og løsninger, og der er argumenteret i forhold til erfaringen med 'rimelighed'. Der er således argumenteret for de valgte forudsætninger - det er argumentet fremfor fx henvisning til autoriteter der tæller. Der henvises til en 'pragmatisk objektivitet' som er defineret af Hildebrand (2008) og som beskrives nærmere i det følgende. Hildebrands artikel viser hvordan hans forståelse af objektivitet er tæt forbundet til en pragmatisk opfattelse af demokrati, en forståelse som er i modsætning til dikotomien mellem administration og politik:

> 'It shows how objectivity is closely connected to a pragmatic conception of democracy and how this conception of democracy is diametrically opposed to one built on a fact/value (or administration/politics) dichotomy.' (Hildebrand 2008, s. 222)

Hildebrand (2008) hævder, med henvisning til andre forskere, at det tidligere har været et gængs ideal at holde facts adskilt fra værdier, når det drejede sig om offentlig administration. Årsagen hertil var troen på at en sådan adskillelse ville garantere en effektiv, videnskabelig og værdineutral tilgang. Imidlertid er denne tilgang ifølge Hildebrand aldrig værdineutral, og han argumenterer for at klassisk pragmatisme leverer et mere demokratisk (og bæredygtigt) begreb om objektivitet (Hildebrand 2008, s. 223). Med hensyn til det demokratiske henviser han til Deweys (1991) syn på demokrati, som udover det 'politiske maskineri' også indeholder for det første et normativt fælles grundlag for love, politik og institutioner, og for det andet en fælles måde at identificere, prioritere og løse problemer på. Ved at kombinere de to kommer demokrati til at handle om en livsform. Sammenhængen et problem opstår i, er altid vigtig og aldrig værdineutral, og Hildebrands begreb om pragmatisk objektivitet indebærer at midler og mål ikke kan adskilles i problemløsning. De forskellige perspektiver skal ikke elimineres men synliggøres (Hildebrand 2008 s. 225).

Med henvisning til Dewey indebærer den pragmatiske objektivitet, ifølge Hildebrand, at undgå fordomme, at kæmpe for den størst mulige grad af objektivitet og upartiskhed og tilskyndelse til at udvise forsigtighed samt skepsis i forhold til data. Objektivitet er således relativistisk, idet der ikke findes standarder for den bagom menneskelig aktivitet. Der findes således ikke nogen absolut sandhed, men det rigtige afhænger af konteksten.

> 'Objectivity is not the assurance that an inquiry or judgment has been completed from a completely ahistorical or apersonal point of view; rather, it is the assurance that the inquiry or judgment has been done in a way that allows open access, testability, and public verifiability of the process. The process described is "objective" because it has been conducted in a democratic way, not because it is value neutral.' (Hildebrandt, 2008, s. 226)

Pragmatisk objektivitet er således en brugbar betegnelse for den måde, hvorpå værdier indgår i forskningsprojektet. De spiller en vigtig rolle både i forbindelse med forskningsspørgsmål og forklaringer og overvejelser om overførsel af viden til den praktiske virkelighed i fremtidige urbane projekter og i selve forskningsdesignet. I dataindsamling og databehandling tilstræbes størst mulig objektivitet i form af upartiskhed, at undgå fordomme, udvisning af forsigtighed og skepsis i forhold til brug af data. Det er også vigtigt at perspektiverne, herunder mine egne uddannelsesmæssige og planlæggerfaglige, lægges åbent frem. Udover at sikre at fx interviewpersoner citeres korrekt og loyalt i forhold til sammenhængen hvor ytringerne er forekommet, og at tilstræbe en fordomsfri læsning af fx plandokumenterne, handler det om at sikre så høj en transparens i afhandlingen som muligt. Det er tydeligvis mig som forsker, der som 'gatekeeper' lukker den viden ind jeg kan bruge, i forhold til hvordan jeg ønsker at designe mit projekt, og med den normativitet der ligger i det. Dataproduktion i form af interviews er også til en vis grad normativ, idet der bevidst udvælges nogle interviewpersoner som kan give et syn på

sagen, som skal bruges i forhold til de teoretiske 'blikke' der er valgt i forhold til det analytiske objekt. Alle de personer, som blev interviewet i forbindelse med projektets caseanalyser, har enten tidligere spillet eller spillede fortsat på interviewtidspunktet en rolle i de projekter de udtalte sig om, eller andre tilsvarende, og de havde dermed i større eller mindre grad selv interesser i sagen. Blandt de private aktører har især to ledende partnere endvidere haft økonomiske interesser på spil i forhold til fremtidige projekter, og dermed interesser i at fremstille deres version af historien på en overbevisende måde. Dette er indgået i tolkningen af interviewene via den sammenhæng hvor de bruges. Pointen her er imidlertid at normativ dataproduktion er noget som vil være tilfældet i alle forskningsprojekter.

Ontologi

Projektets netværksorienterede og relationelle tilgang, med sit fokus på praksis forstået som urbane projekter der 'designer' forandringer i byen, er som nævnt udtryk for en pragmatisk position og virkelighedsforståelse. Ifølge pragmatismen findes ikke en endelig eller 'essentiel' sandhed, men verden forstås ud fra relationer mellem mennesker, og mellem mennesker og det materielle. Verden forstås relativt - der er mange sandheder, og det er relationer der stabiliserer fænomener i verden. Det relationelle fokus, som indebærer at det er relationerne som giver betydning til og ændrer verden, er fælles i hele den poststrukturalistiske tradition som forskningsprojektet indskriver sig i, og hvorunder en mængde forskellige teoretiske retninger kan siges at spille sammen. Bl.a. gør projektet brug af elementer fra diskursteori, relationel stedsteori, netværksplanlægning, ANT og pragmatisme.

Dele af diskursteorien er tæt forbundet med socialkonstruktivisme, som hævder at det er sociale relationer der producerer mening, og at det materielle får betydning af sproget. Projektet, som i høj grad tillægger det materielle betydning, distancerer sig således fra ren socialkonstruktivisme, ligesom Foucault, som er en af inspirationskilderne til forskningsprojektets diskursforståelse, udover sociale konstruktioner tillagde menneskelige handlinger og det materielle stor betydning. Ontologien i forskningsprojektet er også inspireret af Latours (2008/2005) aktør-netværk-teori, hvor hele verden så at sige hænger sammen med hele verden via relationer, som beskrives som aktør-netværk, og af Brinkmann's (2010) tankevækkende artikel om de komplekse relationer mellem mennesker og majs. Ifølge denne tankegang skal det analytiske objekt, som her er urbane projekter, således defineres i et kompleks af sammenvævede relationer. ANT er en radikal konstruktivisme, hvor det materielle opskrives som betydende i de netværk som konstruerer verden. ANT positionerer sig mellem naturvidenskab og konstruktivisme. Det er aktørerne, såvel humane som ikke-humane, der giver hinanden mening, og der er fokus på relationerne mellem disse. Projektets ontologi abonnerer ikke på ANT's radikale konstruktivisme, hvor materielle 'aktører' er lige så betydende som humane, men de bymæssige omgivelser som 'materialiserede diskurser' og andre ikke-humane aktører, som fx repræsentationer og rejsende ideer, ses som vigtige i den menneskeskabte verden, i og med at de besidder en påvirkningskraft i forhold til handlinger her og nu og i forhold til fremtidige diskurser. Aktør-Netværks-Teoriens pragmatisme og konstruktivisme spiller således godt sammen med den måde hvorpå diskursbegrebet bruges i analyserne og med forståelsen af at de forskellige aktører igen påvirker en videre udvikling af diskurserne. Mennesker og materialitet spiller således tæt sammen. Følgende mål indgår ifølge Gimmler (2012) i den pragmatiske position:

> 'Målet for en undersøgelse er ikke at repræsentere verden, men på interessant vis at finde den problematiske konstellation af aktører, der åbner for en ny forståelse af et udsnit af virkeligheden.' (Gimmler 2012 s. 47)

Videre skriver Gimmler, at pragmatismen også har et direkte normativt formål, nemlig at forbedre praksis:

> 'Deweys pragmatisme munder ud i en pragmatisk vending, en forandret grundholdning, der (...) giver afkald på at viden skal funderes af en priviligeret særsfære eller logik, og i stedet anser viden for at være fejlbarlig og situeret i sociale og formidlede praksisser. Forbedringen af disse praksisser gennem det eksperimentelle demokratiske fællesskab er pragmatismens mål...' (Gimmler 2012 s. 50)

Samtidig med fokus på praksis og 'viden om hvordan' fremfor 'viden om at..', kendetegnes pragmatisk tænkning således af handling, eksempelvis hvordan menneskelige frembringelser som arkitektur influerer vores hverdagsliv, samt af fremtidsorientering. Pragmatisme adskiller sig fra socialkonstruktivisme ved at have en realistisk tilgang til verden i modsætning til socialkonstruktivismens antirealisme. De to ontologier er relative på hver sin måde: Hvor socialkonstruktivismen ser sociale konstruktioner som relative i forhold til hinanden og opfatter sociale konstruktioner som forskellige perspektiver på samme virkelighed, opfatter pragmatismen at der findes flere samtidige lokale virkeligheder som virker i relation til hinanden. Med den pragmatiske tilgang er forskningsprojektet således anti-essentialistisk - der findes ingen endelige sandheder, men der skal argumenteres for hvorfor noget er mere overbevisende eller brugbart i en given situation end noget andet. Det handler med Hastrups ord (2006/1999, s. 204) '...om at fremsætte et levedygtigt forslag til, hvordan verden kan forstås her og nu og under denne synsvinkel.' Argumentets styrke ligger i dets logiske sammenhæng med den menneskelige erfaring. Fundamentalt for projektet er en diskursiv forståelse og erkendelse af verden forstået som et social-økologisk system: Byen betragtes som materialiserede diskurser, som planlægningsprocesser og –beslutninger har båret med sig ind i de urbane projekter, som tilsammen har skabt byen. Diskurstankegangen indebærer også at verden - og byen - kunne have været anderledes, hvis de konkrete processer og beslutninger havde været anderledes. Allan Dreyer Hansen skriver om diskursteoriens ontologi:

> '…diskursteorien tager sit udgangspunkt i, at det principielt er muligt at vise kontingens og uafgørbarhed i det forhold, man vil analysere, og det er dette ontologiske udgangspunkt, der overhovedet muliggør konkrete studier.' (Hansen 2004 s. 404)

Tankegangen om diskurser og konstruktivisme indebærer, at der ikke er en direkte adgang til virkeligheden, i og med at den altid er konstrueret. Men at virkeligheden er konstrueret, gør den ikke mindre virkelig, hvilket også ANT tilslutter sig:

> 'Konstruerede ting er virkelige, hvad enten der er tale om biokemiske substanser, bygninger eller parkeringsreglerne i København. Det er derfor vildledende at sige, at der "blot" er tale om konstruktioner, som om de var et tilfældigt vrængbillede eller en strøtanke.' (Blok og Jensen, 2009, s. 57-58)

Epistemologi

Epistemologi - måden at erkende verden på – relaterer sig til verdensforståelsen, ontologien, og de metoder som bruges til at indhente viden i forskningsprojektet. Igen skal derfor fremhæves den pragmatiske tilgang, som indebærer et fokus på praksis frem for videnskabelige 'love'. Der findes ingen absolut viden i en kompleks verden under konstant forandring, hvor mennesker og steder gensidigt konstituerer hinanden (Massey 2005). Viden forstås ikke som objektiv, men som en normativ refleksion der hænger tæt sammen med den sammensætning af teorier i form af redskaber, som er valgt til at belyse det analytiske objekt. Med henvisning til Dewey beskriver Gimmler (2012) den pragmatiske forståelse af videnskabelige standarder som altid vil være afhængige af den sociale, kulturelle og politiske kontekst. Den viden og de data, der benyttes i forskningsprojektet, er en montage af forskellige videnstyper som er hentet fra kultur, teknologi, lovgivning, aktører, diskurser og materialiteter. Ud fra

det udgangspunkt, at viden under alle omstændigheder består af konstruktioner, redegøres og argumenteres løbende for de fortolkninger som laves i tilknytning til analysen.

Pragmatismen opfatter virkeligheden som tilgængelig via sanserne, men (igen) at der ikke er tale om at nå frem til en endelig 'sandhed' om virkeligheden. I projektet benyttes sansemæssige indtryk i analysearbejdet. De hidrører fra en fænomenologisk registrering af stederne, hvor de 3 cases er lokaliseret. I projektet bliver fænomenologi således brugt som metode og ikke som epistemologi. Den pragmatiske tilgang inkluderer sansemæssig viden men ophøjer den ikke til at udgøre den eneste sandhed. Pragmatisme benytter sig, med sit fokus på praksis og innovativ forbedring af praksis, af abduktion som videnskabelig argumentation (følgeslutning). Abduktion handler om at formode og sandsynliggøre processer og dermed udvikle teori ud fra facts i den praktiske virkelighed, i modsætning til induktion der bygger på empiri og slutter fra iagttagelser til regler, og deduktion der bygger på logik og udleder regler fra andre regler. I abduktion kommer praksis forud for teori, og det handler således om at argumentere og sandsynliggøre sine tolkninger (Gimmler 2005).

I de analyser der er gennemført, er der ikke noget skarpt skel mellem teori og praksis. Analysernes valideringskriterier med brug af abduktion er bundet op på logisk og gennemsigtige argumentationer og opfattelser som understøtter hinanden. Forskningsprojektet har fokus på den handlingsorienterede viden 'knowing how' eller 'tacit knowledge' med henvisning til det konkrete håndværk - byplanlægning. Viden om 'hvordan' er tæt knyttet til handlinger, og handlinger igen tæt knyttet til viden. Der søges altså handlingsorienteret viden orienteret mod 'håndværket' at udvikle og gennemføre urbane projekter. Forskning i design forstået som bymæssige indgreb rummer ifølge Marcus (kommende bog) forskellige vidensformer, således både analytisk teori, diskursiv teori og generativ teori. Der er således bl.a. behov for generativ viden om andre projekter og hvilke forestillinger der er gjort i den forbindelse, når der skal udvikles nye projekter. Der skal indhentes en stor mængde viden om andre projekter, et stort kendskab til eksempler, for at kunne udvikle godt design. Jf. netværksmodellen sker designet ikke alene hos den projekterende arkitekt men skal forstås meget bredere - mange parter og faggrupper er aktivt involverede i designet. Det er fx derfor studieture er så væsentligt et led i praksis: det er her de 'rejsende ideer', som skal 'oversættes' til det lokale 'social-økologiske system' eller 'netværk', studeres. Men der ligger også et fokus på 'knowing why' i forhold til den praktiske viden - selve forskningsprojektet er selvreflekterende i forhold til praksis og rummer vurderinger og fortolkninger i forhold til både mål og processer i de urbane projekter. Projektet leder efter værdier og rationaler bag beslutningerne i praksis, og der udfoldes stor opmærksomhed om de processer som skaber systemerne. 'Knowing why' rummer således viden om 'konstruktionen', jf. det konstruktivistiske og pragmatiske udgangspunkt. Der er tale om phronetisk forskning som jf. Flyvbjerg (2001 s. 5) har fokus på værdier i relation til praksis og er pragmatisk, variabel, kontekst-afhængig og handlingsorienteret. Phronesisviden er analytisk viden om værdier og interesser som baggrund for praksis. 'Knowing why' handler således ikke om universelle årsagsforklaringer, men er tæt knyttet til praksis.

Den viden, som produceres på baggrund af caseanalyserne, har karakter af forståelse fremfor forklaring, dvs. der er tale om en hermeneutisk fortolkning. Jeg har således produceret praktisk og kontekstafhængig viden som imidlertid rummer basis for teoretisk generalisering, jf. Flyvbjergs redegørelse for 5 misforståelser om forskning ved hjælp af casestudier (2006) og forståelsen af analytisk generalisering af casestudier, hvor der ikke er tale om repræsentativitet, men om at den praktiske kontekstafhængige viden kan bidrage til videnskabelig udvikling af teorier (Flyvbjerg 1991 og 2006, Kvale 2009).

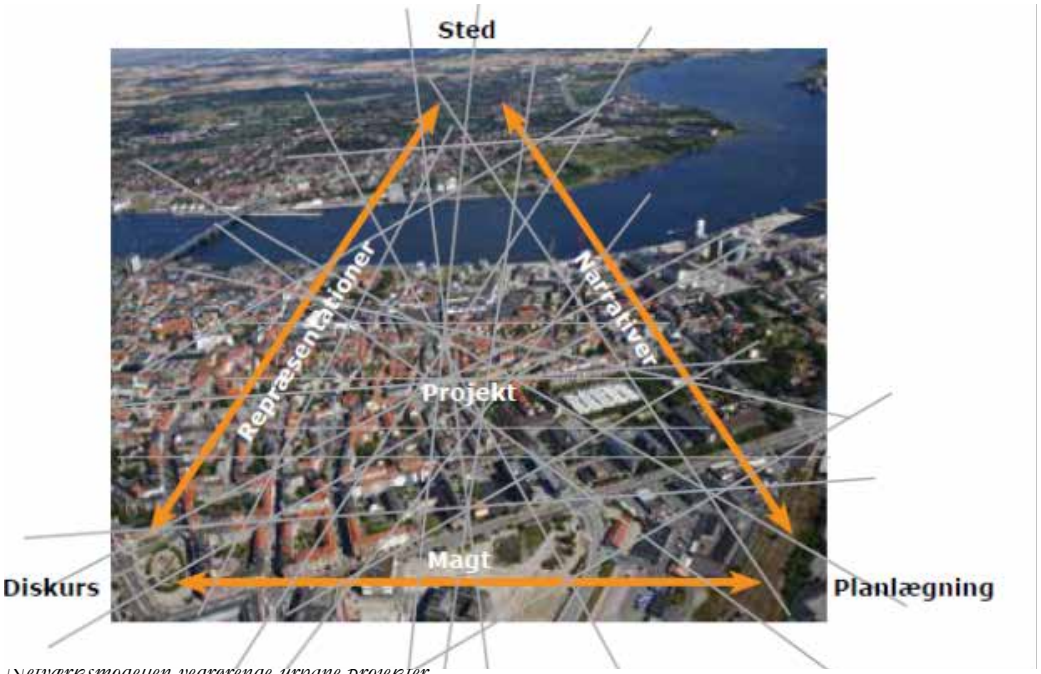
Refleksioner – om relationen til praksis

Hvad sker der med den producerede viden når PhD værkstedet forlades? Hele ideen med erhvervs PhD er at skabe en frugtbar kobling mellem forskning og praksis, og det har også været udgangspunktet for dette projekt. I skrivende stund er der gået ca. 2 år siden jeg afleverede PhD'en, og der er basis for at reflektere over hvad den indtil nu har kunnet bruges til i den kommunale praksis, og over hvordan udsigterne for det ser ud i fremtidig byplanlægning.

Aalborg Kommune er en arbejdsplads uden tradition for at arbejde forskningsbaseret, og der har i organisationen ikke været gjort nogen særlige overvejelser over hvordan PhD-projektets viden og resultater skulle bruges efterfølgende, selvom der har været positiv opmærksomhed om projektet. Under PhD-studiet og efter jeg er kommet tilbage, har jeg afholdt forskellige seancer hvor jeg har formidlet elementer fra mit arbejde overfor både nære byplankolleger og mere bredt i organisationen. Efter mange års professionelt virke har det været en stor fornøjelse med PhD-studiet at få mulighed for refleksion over egen praksis og skiftende byplandiskurser mv. Oplæggene og diskussionerne har bl.a. handlet om den udvikling Aalborg har været igennem, om de skiftende narrativer og magtforhold og grænserne for åbenhed i forvaltningen. Det har været frugtbart at diskutere, og jeg har også indtryk af at både chefer og medarbejdere har fundet det interessant. Jeg har aftalt med Aalborg Stadsarkiv og Selskabet for Aalborgs Historie at skrive Aalborg-bogen 2016 med udgangspunkt i kapitlet om Aalborgs byplanhistorie siden 1950, hvilket giver mig mulighed for at formidle dette stof for en bredere offentlighed.

Der har i de sidste par år i forvaltningen været meget fokus på byudvikling og ikke mindst hvordan vi planlægger for en mobilitetsdrevet byudvikling i Aalborgs vækstakse. Dette fokus fortolker jeg som en ny 'mobilitetsbølge' jf. bølgemodellen, hvor mobilitet i høj grad er drivkraften for byudvikling. Jeg har fået stillet en rolle i forbindelse med byudvikling i det planlagte letbanetracé (vækstaksen) i udsigt. Jf. Olesen (2014) handler letbanen om meget mere end transport - de to PhD-projekter rummer i øvrigt mange fælles tilgange og har gensidigt inspireret hinanden, og det er helt naturligt at trække på den netværksorienterede og relationelle tilgang i arbejdet. Grundlæggende er det den strategiske brug af projekter (jf. afhandlingens titel) som er udfordringen i det kommende arbejde med byudvikling og byrum i vækstaksen.

Jeg har det sidste års tid indgået og indgår stadig i et samarbejde om en kommunal byudviklingsstrategi, hvor vi forsøger at 'oversætte' de meget overordnede mål i kommunens hovedstruktur 'Fysisk Vision 2025' til den komplekse virkelighed i byen. Byudviklingsstrategien skal være en platform for byudvikling som kan bruges i forbindelse med forhandling om og tilrettelæggelse af private og offentlige projekter, kommunal planlægning og offentligt-privat samarbejde om byudvikling. Også her bringes PhD'ens netværks- og designtankegang i spil. I dette arbejde, ligesom i andre strategiske planlægningsprojekter jeg er involveret i, er det meget relevant og helt selvfølgeligt for mig at bruge løs af den 'verdensopfattelse' og de analyseredskaber jeg har fået kendskab til gennem PhD-uddannelsen. Mit arbejdsfelt har bevæget sig i en retning hvor jeg beskæftiger mig med strategisk byudvikling og dermed på tværs i kommunen håndterer og udvikler bymæssige projekter og strategier. Den virkelighedsforståelse og analysetilgang der ligger i netværksmodellen, se overfor, er frugtbar og relevant både på projektniveau, byniveau og byregionalt niveau.



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Chapter 4 : Gesturing Entangled Journeys, Mobilities Design in Aalborg East, Denmark

By Ditte Bendix Lanng

Timeline: March 2011 to February 2015 (defended May 2015)

Keywords: Urban Design, Mobilities, Mobilities Design, Mundane, Public Space

Supervisors: Professor, Ole B. Jensen & Associate Professor, Henrik Harder, Department of Architecture & Media Technology, Aalborg University, Denmark

Collaborators: The PhD study is part of the project 'Aalborg Øst – en forstad i forandring' (Aalborg East – a suburb in transformation), hosted by Aalborg University, and co-financed by the Danish fund Realdania, the local fund Obel Fonden, and local housing organisations Lejerbo and Himmerland.

Biography: PhD (2015), MSc in Urban Design (2008), Aalborg University

Project/chapter	Theory input	Method	Epistemology
Gesturing Entangled Journeys, Mobilities Design in Aalborg East, Denmark	urban design theory, mobilities theory, nonrepresentational theory, Actor-Network Theory	film-elicitation studies/qualitative move along-interviews, mapping, 'architectural thinking-making-composing'	pragmatism, post-phenomenology

Introduction

This chapter concerns the PhD study "Gesturing Entangled Journeys - Mobilities Design in Aalborg East, Denmark" (Lanng 2015) defended in the spring 2015. The study is dealing with re-thinking the design of transit spaces. As such, it locks horns with the design predictions of the Functional City. During the last 100 years, immense structures have been built in our cities to facilitate transport. They have been built, relatively cheaply and fast, with the intention of making possible the huge flow of goods and people that is part and parcel of our lives. And they have been built to make transport a common good, to make destinations far and near accessible, to make it relatively safe to move and to give us the convenience of smooth rides. Yet, these good intentions aside, when we assess the immense structures today, a massive critique arises. The critique proposes that functionalist transit space design has failed in shaping a world that we will live in; that such spaces have been 'exempted from having to function socially, aesthetically, or ecologically' (Mossop, 2006, p.171). The PhD study has paid attention to these critiques and attempted to articulate a pathway for the re-design of these spaces.

The pathway is interdisciplinary. The 'wicked problem' (Rittel & Webber, 1973) of transit space re-design is not confined to disciplinary boundaries, but is entangled with a host of concerns. The PhD study suggests a crossover effort in its work to expand what counts as relevant considerations for ordinary transit space design beyond quantifiable standards. As such, the study seeks to push the disciplinary limits of urban design towards a wide 'entanglement' with knowledge of mobile lives (see also Tietjen, 2011). Concretely, the integrated perspective on transit spaces works from a cross-verbalisation between design thinking and mobilities in building an alliance that contributes to transit space re-design with an increased sensitivity to our immediate embodied 'dwelling-in-motion' (Urry, 2007) in these spaces. This is a combined research and practice field that professor Ole B. Jensen and I have been working to articulate in recent years, under the heading 'mobilities design'. This work is especially driven forward by Ole B. Jensen's recent publications, 'Staging Mobilities' (2013) and 'Designing Mobilities' (2014) (see also Lanng, Harder and Jensen, 2012; Lanng, 2014; Jensen and Lanng, forthcoming a, forthcoming b). In this effort we have been occupied with opportunities for mobilities research in engaging with the experimental and materially oriented design discipline, as well as, on the other hand, the opportunities for the design fields to learn from mobilities research.

The PhD study targets this cross-disciplinarity from the urban design perspective, and in relation to particular re-design potentials in mundane transit spaces. Through a study of a tunnel and a parking lot in Aalborg East, Denmark, the thesis focuses on how we can understand and re-design functionalist transit spaces in the suburbs, spaces that tend to be criticised for their monotonous design and for being desensitised, placeless environments with little cultural and social value. Through interviews conducted on-the-move in transit spaces, the thesis explores what happens between point A and point B during daily life journeys to and from school, work, shopping, and other destinations. Along these journeys life is lived in transit spaces. While people are on the move they are also dwelling-in-motion. They meet, experience, and do things while on the way to their destinations. The thesis examines how these activities and experiences entangle with the modest architectures of the selected transit spaces – how architectures co-condition mobile situations. These insights into small and unnoticed mobile situations are used in re-design experiments, which explore potential architectures of the suburban functionalist transit spaces to not only invite safe and effective transport but also gesture towards a richness of wayfaring ways of life.

The research questions of the PhD study are:

How do mundane architectures of transit spaces at the study site in Aalborg East, Denmark, co-condition practices and experiences of daily life embodied mobilities?

Which concepts can supplement the functional efficiency of ordinary transit spaces and drive urban design thinking about these public spaces of embodied mobilities?

Which are the rich, hands-on tools that we can use to work with the entanglement between travellers and architectures in re-designing these transit spaces?

This chapter begins with a brief overview of the research design of the PhD study. After that it sets the scene for the sensitivities that I seek to animate through recapturing an argument by Canadian scholar Phillip Vannini (2012) on re-thinking a transport model into a 'meshwork assemblage'. The chapter moves on to outlining the non-representational and pragmatic streams of thought of the study. It ends with a brief conclusion and perspective.

Overview of the research design

The study is detailed and situated, focused on the particular material situation of the selected study site in Aalborg East, Denmark (fig. 2). In this study site, I have found a tangible opportunity of working on 'questioning assumptions' inspired by artist and architect Michael Singer, who in his practice questions usual assumptions around design objects. He approaches the design task with questions like, 'What is a waste recycling centre?' and, 'What is a power plant?' (www.michaelsinger.com; see also Bukdahl, 2011). In doing so, he opens the possibilities for alternative conceptual readings of the design site or object, and, concordantly, opens the exploration of design potentials along unexpected avenues. The results of Singer's questioning processes are pioneering designs that reshape our notions of public infrastructure facilities. In a pragmatist way, the PhD study is thus initiated by a note of wonder, developed from a beginning dialogue with mobilities studies: these spaces are surely not merely fixities with alienating transport activities on their surface. Since such spaces are both ubiquitous and 'invisible' the act of questioning how we understand and approach them can be described as a small 'breakdown' that sparks curiosity (Alvesson and Kärreman, 2011; Brinkmann, 2012). The study may be received as one of 'making the obvious obvious' (Brinkmann, 2012, p.24). Of course, transit spaces, though rationally designed for utilitarian transport, are entangled with multiple other issues (see also Urry, 2007). The thesis therefore attempts to shed light on some of these issues in relation to design.

How, then, can we work and think towards the re-design of mundane transit spaces? The study's trajectory in exploring this question goes through observations, descriptions, analyses and fictional re-design operations that are conducted on the real, existing situation of the two selected transit spaces. These inquiries are coupled with literature studies in an integrated conceptual approach (figure 3). Design, or 'architectural thinking-making-composing', as Swedish scholar Catarina Dyrssen has termed it (2011), is central to the research. Architectural thinking-making-composing is an active, explorative and spiralling process of associative, intuitive and logical action and thinking derived from art-based research. The design development is not a strategy of rational problem-solving; rather, it points at design as a research practice that, in a problem field of uncertainty, aims to open up a pathway for the future of transit space design rather than defining a set target (see Ingold, 2014). Transit space re-design might be envisioned as a non-singular 'wicked problem' that must adhere to a plurality of goals and measurements of its success (Rittel and Webber, 1973). There is no one best answer to the re-design of a transit space; rather, its re-solution is an

Figure 1: Photo of the tunnel at the study site, Aalborg East

act of balancing in a field that is context-, situation-, and time-dependent. Transit space re-design is by no means a simple or value-free process, just as it has no one best answer; rather, the 'right' way to design a transit space is a unique balancing act in a field that is context-, situation- and time-dependent, and from which it cannot be isolated (Melles, 2008b; Rittel and Webber, 1973; Till, 2009; Healey, 2009). Though perhaps holding many similarities in common with other problems, there might always be a distinguising property of overriding importance to the design resolution (Rittel and Webber, 1973, p.164). In correspondence with this line of thinking, it has been argued that:

> architects need to engage with a pragmatist type of architectural inquiry that is a situation-based, distributed way of learning about architecture and its various entanglements rather than one that relies on a stable stock of systematic, scientific knowledge. (Yaneva, 2012, p.68)

Through interactions with local travellers, research project partners from outside the university (e.g., Boligforeningen Himmerland) and other actors (e.g., the local planning authority), the study is interwoven with practical processes going on here and now, seeking to gain from a dialogical insight (Hastrup, 1999). These are arguably not uncontested processes of inhabitation, urban development and local community sustainment; rather, they pose many sometimes conflicting priorities on the issue of transit space design at the study site (see Madanipour, 2006, for some of the roles that urban design is assigned within the change of cities).

As such, the study does not display final answers for how to re-design the tunnel and the parking lot in question; nor is it the objective of the research to mirror the existing conditions. Instead, it follows a non-representational and pragmatic animation to imagine and produce 'better futures' (Anderson and Harrison, 2010; Jones, 2008; Thrift, 2008; Vannini, 2012, 2015). The path that it points out towards such futures is one that seeks to illuminate the ill-defined topic of potential embodied, multi-sensorial qualities of transit space design; envisage relevant and informed questions for the future of these spaces; articulate tools and concepts to approach their re-design and thereby fuel collective knowledge as part of 'a shared action space' (Dyrssen, 2011, p.225). These methodological andepistemological ideas of pragmatic research and of non-representational research seek to cope with and animate contingent practices and experiences, including the pre-cognitive (Thrift, 2008; Ingold, 2011; Vannini, 2012). Non-representational research, in particular, helps to dive into the embodied multi-sensoriality and sociality of travellers who engage with material transit space. Through these approaches, I seek to recognise and work with transit space design on its own terms as a mundane material fact of our lively and messy world.

Designing a transport typology or a meshwork assemblage?

The trajectory of articulating underused re-design potentials of transit spaces involves conceptualising these spaces beyond objectified transport typologies. This is important because the conceptual take on transit space design is a pragmatist sensitising device that can possibly enable new forms of action (Brinkmann, 2012). When working with mundane, perhaps even banal architectures for daily life transport, 'audacious concepts', such as the one of 'meshwork assemblage' that I will argue for below can also be used to facilitate a defamiliarisation process from this subject, which is well-known in everyday life. In this way they contribute to noticing the less-noticeable (Brinkmann, 2012; see also Edensor, 2003).

A main theoretical and methodological challenge of the study is to work with transit spaces as processually emergent densities

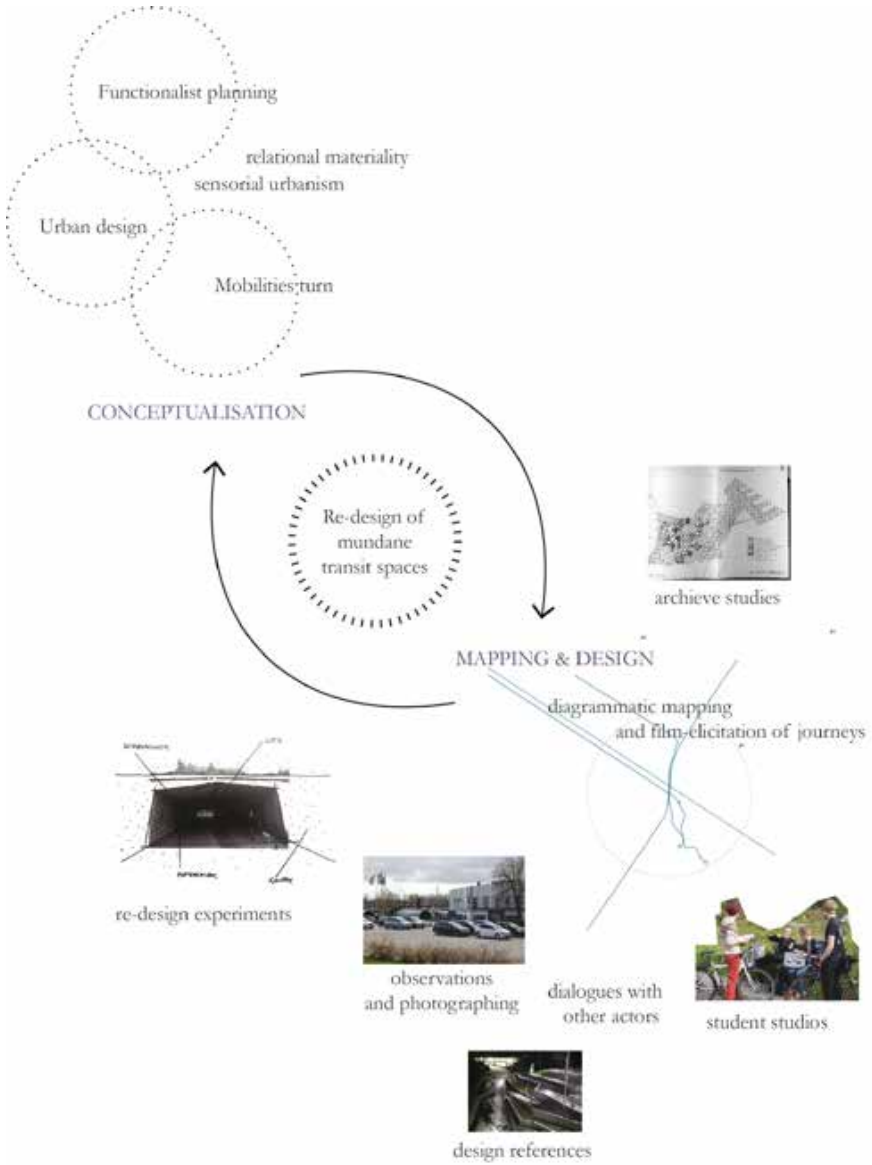

Figure 2: Research design – a twofold process of conceptualisation + mapping and design

of multiple realities. My approach goes through attempts to recognise transit spaces as daily life environments inhabited by travellers who undergo journeys that involve stories, identities, motives to travel, practices, meanings, and experiences of participation, belonging, cooperation and involvement in the world; in doing so, they practice and enact transit space. Phillip Vannini's non-representational research on ferry mobilities in Western Canada (2012) provides an important inspiration for this way of thinking. Drawing on anthropologist Tim Ingold's extensive reflections on entanglements of life (Ingold, 2000; 2007; 2011), Vannini argues for a transformed view of the ferry mobilities: from transport typologies to meshwork assemblages. Below, I have sought to reiterate this point in brief terms (see Lanng 2015 for the full argument).

Vannini analyses how the ferry routes of the Western Canadian coast tend to be thought about by decision makers and the company that runs them. A 'transport model'-way of understanding the ferry mobility system is "assembly-chain-like in nature, based on principles of fragmentation, instrumental orientation, and centralized planning" (p.135-6). Vannini is critical of this way of thinking and questions the transport model. His deep, mobile ethnographic inquiries into ferry traveling expand upon this point. They show that, unlike what the transport model suggests, there is indeed an immense weaving of local meanings of movement inherent in the instrumental means of getting from A to B. Vannini, as well as Ingold, suggests that instead of a transport model, then, there is rather a need for a 'wayfaring model' or a 'meshwork assemblage' that understands and meets the wayfaring ways of life of the people it serves.

The concept of meshwork assemblage can be understood in correlation with the processual and relational ontology of the city, argued for by Amin and Thrift (2002). This is a conception, they write, in which 'the city is made up of potential and actual entities/associations/togetherness which there is no going beyond to find anything "more real"' (ibid., p.27). It is an 'open' ontology that foregrounds the process and potential of the 'encounter' when networked entities come together: "encounter, and the reaction to it, is a formative element in the world" (ibid. p.30). In this ontology, Amin and Thrift argue, cities "cannot be reduced to one. They are truly multiple. They exceed, always exceed" (ibid.). Through this conception we can think about architectures not only as enduring materialities, but also in terms of their variable entanglements. Architectures are what they 'do'; they are not solely inert matter, but embedded in relations and processes. They are part and parcel of the 'web of life', of the "meshwork of entangled lines of life, growth and movement" (Ingold, 2011, p.63).

With the use of the concept of 'meshwork assemblage', Vannini writes about his wished-for transition from the current transport model to a wayfaring-based meshwork assemblage. He writes about a transition to regard ferries as local commons, which are capable of meeting the long-term sustainability needs of islanders and coasters and to contribute to local economy, instead of being detached in these senses from the places they connect. Vannini explains his distinction between a transport model and a meshwork assemblage, using Ingold:

> "Transport," Ingold writes, is characterised "by the dissolution of the intimate bond that, in wayfaring, couples locomotion and perception." [Ingold, 2007, p.78] "The transported traveler," he continues, "becomes a passenger, who does not himself move but is rather moved from place to place." Such is the organising model behind BCFS: a transport model which presupposes that the value of convenience lies in obliterating the seascapes it crosses – or at best in using them as visual backdrop for tourism promotion and in transforming the communities it links as spaces removed of their insular distinction. In contrast, a wayfaring-based mobility constellation or a

> meshwork assemblage would (re)center upon inhabiting place; that is, not upon "taking one's place in a world that has been prepared in advance for the populations that arrive to reside there" [Ingold, 2007, p.81] but rather upon practices, meanings, and experiences of participation, belonging, cooperation, and involvement of the world's coming into being, without a final destination, through the interweaving of its paths and close-knit textures. (Vannini 2012, p.156).

Vannini's remarks on a transformed view of the ferry mobilities inspire the starting point of this research study. They prompt sensitive considerations to be taken with regard to transit space design and its conceptualisation. To think of transit spaces as functional-only, facilitating instrumental transport from A to B, means – similar to Vannini's point – assuming that their value lies only in determining functionalities and obliterating the distances they cross. When one is looking out for underused potential, the transport model seems too constraining. In the study here, then, rather than privileging transport routes that intersect, as these tend to divide and disrupt places as much as connect them (Vannini, 2012, p.155), I seek to engage also with how transit spaces are composed by and entangled with lines of life. The presupposition implied by this short paraphrase is therefore that, by understanding and designing transit spaces from a utilitarian transport point of view alone, our capacity to engage with their architecture is limited and possibly overlooks important potentials for other qualities to surface. There is a need to develop other approaches. The study therefore develops a relational and 'mobilized' conceptualisation of the mundane architectures of transit spaces, working with and through their entanglement in processes of a richness of lives lived on the move. To this work, Vannini's argument provides another form of awareness; an inspiration to re-consider the topic: from regarding this as a matter of materially shaping objectified transport typologies to enabling people to engage with relational mundane architectures and, through that, continuing to cultivate their diverse daily life mobilities.

Non-representational sensitivities

In his work Vannini unfolds non-representational ethnographic sensitivities to wayfaring ways of life: to lives lived on the move (2012, p.130). With a careful appreciation of lived lives, Vannini unpacks some of the details of how islanders move, and how their embodied journeys get entangled in real life situations where non-human and human entities fold into each other: how travellers engage with material objects, places and each other in for example, the situation of queuing up their cars when waiting for the ferry. Such non-representational sensitivities are indeed inspirational to the efforts in this thesis to inquire into the active, precarious, unforeseeable 'over-abundance of things to be known' about transit space design at the study site (Anderson and Harrison, 2010). This places in the centre of my studies the relationship between the question of how it feels to travel in these transit spaces and the mundane architectures that co-condition these embodied and multi-sensorial mobilities.

Contingency and plurality of our relational ways of being in the world is central and not least the importance of embodiment and senses in these relationships (Anderson and Harrison, 2010; Thrift, 2008; Ingold, 2011). Non-representational research arises from an eclectic landscape of post-modern thinking, including, e.g., Actor-Network Theory, post-phenomenology and pragmatism (Vannini, 2015). Through this study's occupation with relations, embodiment and affects, it adheres to the diverse non-representational, or 'more-than-representational', body of work 'that seeks better to cope with our self-evidently more-than-human, more-than-textual, multisensual worlds' (Lorimer, 2005, p.83). Non-representational research reacts to the assumed impossibility of accurate representations by working to 'rupture, unsettle, animate, and reverberate rather than report and represent' (Vannini, 2015, unpaginated pre-

published manuscript). It is a shift from the methodological preoccupation with structure and order to a research engagement with a hybrid world through 'more action, more imagination, more light, more fun, even' (Thrift, 2008, p.20). The study, then, is occupied with elaborating questions, concepts and tools of the yet-to-be for transit space design, so as to put forward an agenda of re-thinking and possibly re-making some of our most ubiquitous urban spaces. It does so by attending to mundane journeys as 'both thought and unthought' (Adey, 2010, p.149), pointing to a recognition of both the cognitive and pre-cognitive ways we relate to our material environment while performing journeys (Thrift, 2008). In the centre of attention are located the embodied experiences and activities that are generated amidst travellers and transit space architectures. With this sensitivity, I direct the research topic towards some of the lived, atmospheric experiences of mobilities at the study site, which are less representative:

> All forms of mobility are profoundly embodied and consequently much of the experience of moving has remained stubbornly beyond the means of the visual and the verbal to decode. (Spinney, 2009, p.818)

At transit spaces, travellers come into contact with specific, designed materialities. The meshwork assemblages that are formed in this meeting are assemblages of travellers, vehicles, paving, wind and sun, fuel, digital devices, other travellers and many more components (see Vannini, 2012, p.129). Through their journeys, travellers enact transit spaces, and transit spaces 'answer back' (Thrift, 2008, p.9) in shifting constellations of humans and non-humans. Non-representational sensitivities share the attention to such relational human–non-human configurations with other post-structuralist positions, not least Actor-Network Theory. Transit spaces, according to this way of thinking, are ontogically understood as being 'in here', not as an external reality that exists in unconnectedness; as 'enacted', i.e., co-constituted in networks of both human and non-human actors; and as 'multiple', meaning that multiple realities co-exist in the same time-space (see Farías, 2010, p.13-15). Things such as transit space architectures are then not defined by static essences but may be better comprehended and worked with through their 'doings' or 'agency' (Brinkmann, 2011; Latour and Yaneva, 2009; Yaneva, 2009). The active and relational hybridity and contingency of architectural artefacts implied in this understanding is a main idea of the PhD study. 'Busy empirical commitments' (Lorimer, 2005) to 'mobile situations' (Jensen, 2013) are key in this work.

A pragmatist approach

Through a pragmatist line of thinking, transit space design is a practical, situated and ill-structured 'wicked problem' (Rittel and Webber, 1973). It is specifically and relationally situated in the flow of life, and thus in an uncertain plurality of relevant considerations composed by multiple phenomena, including human and non-human concerns (Healey, 2009, p.277). Pragmatism recognises these problematic situations and is concerned with research and knowledge as a method of finding ways to engage productively and fruitfully with them, seeking to help us 'to interact in an intelligent and controlled way with the world' (Gimmler, 2005, p.5). In the study transit space re-design is addressed as a situation-specific field subject to delicate balances regarding what to do next. Aligned with the reconceptualisation from transport model to meshwork assemblage, with this pragmatist stance transit space design is a matter of being "creatively responsive to the particularities of situations rather than following preset technical procedures or playing out conventionally accepted routines" (Healey, 2009, p. 285). Specific situations and the creative response to them are then key in pragmatist research, which is informed by an opposition to the establishment of objective a priori principles. 'Objective' ways of designing transit space are evident in the concrete and asphalt of the study site, where standardised

answers to transit space design are materialised. This, I will argue, has tended to narrow down design considerations in an excessively rough manner that does not sufficiently recognise embodied mobilities, and misses the potential of these spaces to be more than functionally efficient.

Pragmatist inquiries are broadly acknowledged in planning, urban design and architecture as a robust epistemological beginning for facing the contingency and complexity of 'real-world' design problems (Melles, 2008a; Melles, 2008b). In these situations we should draw on available knowledge and aspirations, asking ourselves what these inputs imply for our actions (Healey, 2009). Following this, I seek to inquire into situated problems of transit space re-design, drawing knowledge from mobilities research into the tangible issue of how to design transit space: what do these 'mobile' ways of thinking suggest for transit space design? I interrogate the ways in which such thinking may offer inputs for a fruitful conceptual vocabulary on transit space re-design, helping to unfold potential within this complex design problem in manageable ways. My aim is to articulate a fruitful step on a possible path to transit space design, which is linked to concrete knowledge of lived, embodied mobilities. The pragmatist inquiries of this study are therefore a search for a re-solution to transit space design (i.e., with emphasis on the continuous work with re-developing designs relevant to specific time-spaces). As suggested in the introduction, with the method of 'architectural thinking-making-composing' (Dyrssen, 2011), this is an explorative and experimental work with methods, concepts and design propositions. In setting up the research design, it was a critical factor to involve selected experimental processes of transit space re-design at the study site, and attempt to inform the study with both immediate knowledge from this practical experience and conceptual, representative knowledge (see Gimmler, 2005) through tests, critical reflection, open imagination and the confrontation of concepts with mapping and design experiments and vice versa (see Melles, 2008b).

The combination of pragmatist and non-representational streams of thought

At the outset of this process, I did not have a schematic structure for the inquiries into the indeterminate situation of transit space re-design. The intent was to engage in a research process which could recognise intuitive, impulsive and narrative conceptions and seek to unfold transit spaces for new readings able to challenge established conceptualisations and design approaches (see Gimmler, 2005). To do so I have sought to bring an experimental and explorative attitude into the research process, as a 'methodical guided and controlled […] procedure of experimentation and questioning' (ibid., p.20). Following a main tenet of non-representational theory, this involves combining the experimental and explorative energy ('To see what will happen') from the arts with more conventional methodical rigour (see Thrift, 2008, p.12). I have thus searched to combine and tailor methods in performative ways to the specific problem of the study, and in recognition that these methods take part in making the world rather than revealing it (Jones, 2008). In Thrift's words, these steps might help us to 'inject a note of wonder' into research (his focus is social science) in acknowledgement of the liveliness of the world which 'can never truly be kept within theoretical tramlines' (Thrift, 2008, p.12). Ingold, not least, asserts this point:

> [i]n a world of becoming […] even the ordinary, the mundane or the intuitive gives cause for astonishment – the kind of astonishment that comes from treasuring every moment, as if, in that moment, we were encountering the world for the first time, sensing its pulse, marvelling at its beauty, and wondering how such a world is possible. Reanimating the western tradition of thought, I argue, means recovering the sense of astonishment banished from official science. (Ingold, 2011, p.64)

A combination of pragmatism and non-representational research, which I employ here, has been considered effective in building alternative epistemologies, ontologies and methodologies that can engage critically and creatively with the messy world (Jones, 2008; Brinkmann, 2011). Here there is no 'grand theory' that provides general universal explanations. Rather, these streams of thought argue that science should be embedded in the here and now of an inconstant world. There is a situatedness to how we come to understand the world around us (Ingold, 2011; Healey, 2009, p.283).

Non-representational research has a strong transformative feel, as exemplified above in Vannini's argument towards another way of organising ferry mobilities; the non-representational sensitivity to affirmation and experimentation attunes knowledge production as a process of making, which is embroiled within the world as it unfolds, and is orientated towards the future, life and practice (Jones, 2008; Anderson and Harrison, 2010). Pragmatist research can have the direct aim of engaging with finding resolutions for real-world situated problems. In non-representational research, a potentiality thinking comes forth in a focus on experiences and events. This attention allows the contingency of order to be, indeed, a part of empirical concerns (Anderson and Harrison, 2010). It brings forth the notion that 'mundaneity is always potentially otherwise' (Binnin et al. 2007, 'Mundane mobilities, banal travels', in Vannini, 2012, p.171), opening up a research agenda for invention, change and creativity.

Conclusions

In this chapter I have briefly outlined the research design of the study and discussed its ontological and epistemological commitments. I began by using the concept of 'meshwork assemblages' to introduce relational thinking about transit space architectures, with reference to Vannini (2012) and Ingold (2007; 2011). Instead of thinking about and working with transit spaces as objectified transport typologies, the concept of meshwork assemblages points to the idea that transit spaces continuously come into being when things, people and multiple other entities gather and entangle. Transit space architectures are assemblages; they are composed first and foremost of a tangle of relationships. This concept sets out the study's theoretical and practical work with the agency of architectures in their involvement with the processes of lives lived on the move, a work that focuses on the ambiguous relationships between architectures and travellers' practices and experiences. The re-design potential, then, that I propose to cultivate on the basis of this concept of meshwork assemblages is to give materiality and form to architectures that are resources for wayfaring ways of life and that entangle responsively and respectfully with these local lives. This is a design approach that must grow from local insight and a sensitive appreciation of the practices and experiences inherent in daily life journeys.

In architecture and urban design such an approach can find some resonance. D'Hooghe, for example, writes about moving the conceptual understanding of infrastructures from technocratic systems to objects, from logics to artefacts, from tubes to spaces. He argues that:

> [I]nfrastructures of mobility are the prime candidates to become a public space, or, better yet, a public form that is true and proper to the exigencies and demands of modern society. Such an approach would privilege infrastructure by imposing on it all the demands that culture and the arts usually reserve for themselves but rarely apply to the technocracy that structures the very society in which they operate. (D'Hooghe, 2010, p.78)

When 'infrastructure-as-technocratic-system' is localised and objectified the singularity of transportation as the primary function of the object is downplayed, and we can regard it in

plural terms as, e.g., 'civic space' (not solely 'zone of speed'), as 'transversal connections' (not solely 'linear'), and as 'multiple flows' (not solely one) (D'Hooghe, 2010). Indeed, other authors (Allen, 1999; 2010; Stoll and Lloyd, 2010), emphasize that the form and performance of infrastructures need renegotiation. This is not a matter of style, shape, meaning or symbol, they find, but about instrumentality and performance in relation to use.

Ingold's concept of meshwork assemblages operates in a relational and processual character of reality, an ontology that emphasises encounters between variable processes and streams of becoming (Amin and Thrift, 2002). In the study, this makes the ground for a relational and processual conception of transit space architectures, which is treated through a pragmatist approach and with non-representational sensitivies. The 'wicked problem' (Rittel and Webber, 1973) of transit space re-design that is truly embedded in the dynamic and fluctuating reality is pragmatically approached by searching out knowledge and conceptual tools that can facilitate the practical resolution of the problem. The study embraces pragmatism as well as non-representational research as an attitude towards knowledge, which puts theories into a situated and practical context and activates them as useful tools in the research's interaction with unfurling relations between travellers and mundane architectures. Drawing on these epistemologies, the study has a transformative feel to it; the pragmatic and non-representational animation to imagine and produce 'better futures' brings forth the opportunity to elaborate the yet-to-be of transit space design. In this work, non-representational sensitivities contribute to the study in particular by foregrounding delicate attention on embodiment and senses in the relational, pluralistic ways of being mobile in the world.

With this narrow narrative research study that brings architectures and travellers of two transit spaces to the foreground, I attempt to feed a shared action space of transit space design through the 'force of example' (Flyvbjerg, 2006). The aim is to bring the empirically committed, situated and concrete knowledge of the study to the local arena of practice in Aalborg East, in the form of detailed and affecting narratives and of concrete re-design proposals, and in the form of concluding concepts and tools. It is also the aim of the study to bring this knowledge to be used and developed in more general arenas of practice, namely the arenas of architectural practice and mobilities design research.

Perspective

I have come to regard this research study as an immersive process of growing into things and themes to get to know them. This is a learning outcome that I have found useful in the (so far rather short) aftermath of the PhD, concretely in the further theoretical and practical work with 'mobilities design', herein a forthcoming book which includes empirical, methodological and theoretical content from the thesis (Jensen and Lanng forthcoming b). Ingold finds that such a process is about 'learning to learn'. Learning to learn is

> to convert every certainty into a question, whose answer is to be found by attending to what lies before us, in the world, not by looking it up in the back of the book. In thus feeling forward rather than casting our eyes rearwards, in anticipation rather than retrospection, lies the path of discovery. (Ingold, 2013, p.2)

In my case this process has been about learning to learn about the possible interface between mobilities and urban design, but also about the concrete local district of the study, about daily journeys, about mundanity – about some things that are often disregarded and apparently dull, and about the 'alternative theoretical and methodological landscape' of mobilities research

(Urry, 2007, p.43). Finding and developing fruitful lenses and methods to use as walking sticks in this territory has been a key effort in the knowledge production process and the methods of the research study. I do not claim to have managed to completely 'grow into things' of the study through the small body of explorative inquiries into mundane transit space re-design, nor that all my certainties have been questioned. But Ingold's call captures very well the notion of 'questioning assumptions' with which I introduced this chapter. In my attempt to identify and cultivate design potential in the mundane world of daily transport in Aalborg East – and do so on the mundane mobile terms of these spaces, without answering with complete detournement or spectacular design – I have been forced to shake off preconceptions, seek out new ways of thinking, let the things, places, people, texts and drawings of the study speak first and foremost for themselves, and try to attune myself and follow them with loyalty.

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Chapter 5 : Transitby eller leveby?

By Ida Lange

Periode: 01.01.2013 - 04.02.2016

Nøgleord: Stedsudvikling, mobilitet, transitby, leveby

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Projekttitel	Teori-input	Metode	Epistemologi
Ida Sofie Gøtzsche Lange: Transit eller leveby? Et case-studie af et sted i Gennem-fartsdanmark	Stedsteori med fokus på en relationel stedsforståelse samt mobilitetsteori (jf. 'det ny mobilitetsparadigme') Udvikling/afgrænsning af termerne transitby og leveby. Herunder bl.a. teori i tilknyt-ning til begreberne atmosfære, landskabsurbanisme, ikkeste-der, urbane knudepunkter og netværk	Casestudie som forsknings-strategi Herunder mixed methods med brug af registerdata, dokumentanalyse, interviews, spørgeskema, stedsanalyser og mappings Abduktion som slutningsform	Pragmatisme Herunder inddragelse af fæ-nomenologi, hermeneutik og ANT med afsæt i pragmatisk pluralisme

Introduktion til forskningsprojektet 'Transit eller leveby?'

I afhandlingen, som dette kapitel omhandler, undersøges forholdet mellem *transitby* og *leveby* gennem et case-studie af havnebyen Hirtshals. Hirtshals er en ved første øjekast undseelig by på den danske vestkyst med et faldende befolkningstal. Alligevel er det en by, der spiller en geografisk set strategisk rolle som nationalt knudepunkt mellem den blå[1] og den grå motorvej. Dette gør Hirtshals til en interessant case i form af de på mange måder ekstreme forhold mellem transit og bosætning, der udspiller sig som grundlag for byens eksistens, før, nu og i fremtiden. I forhold til vækst og tilbagegang adresserer og udfordrer casestudiet den ofte fremførte samfundsmæssige diskurs, at øget mobilitet skaber vækst og fremgang for byer per se!

Til at belyse forholdet mellem Hirtshals som transitby og leveby henter afhandlingen viden gennem de teoretiske begreber *sted* og *mobilitet*. Hvordan er forholdet mellem stedet og den fysiske mobilitet? Og hvad sker der, når stedet hævdes mere som transitrute mellem punkt A og B, end som et levet og erfaret sted? Afhandlingen indtager en relationel forståelse af steder og mobiliteter som en forbundet og uadskillelig praksis (Massey 1991). Gennem blandt andet tænkningen fra 'det ny mobilitetsparadigme' rettes opmærksomheden mod det, der er "mere end A til B" (Adey 2010, Cresswell 2006, Jensen 2013, Sheller & Urry 2006, Urry 2000, Urry 2007).

Afhandlingen arbejder indenfor en kontekst af problemstillinger relateret til øget mobilitet (se bl.a. Jensen & Lassen 2011, Urry 2007), globalisering (Harvey 1989) og centralisering og yderområder (Rowlands 1998, Dybvad 2015).

1: Vandet med godsskibe og færger.

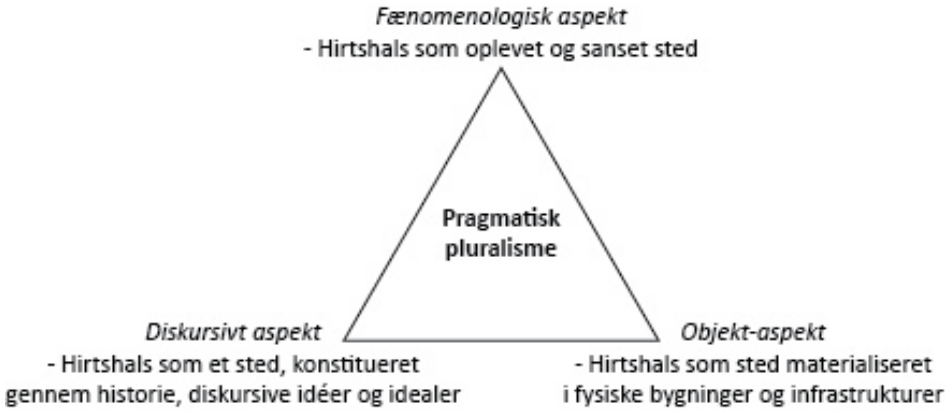
Forskningsspørgsmål

Målet med dette ph.d.-projekt er at undersøge en række problematikker omkring transitsteder og levesteder, med udgangspunkt i følgende overordnede forskningsspørgsmål:

> Med Hirtshals som case; hvad er relationen mellem et sted og dets mobiliteter, og hvordan kan denne viden bruges til at kvalificere forholdet mellem leveby og transitby i forhold til, hvordan udfordringer og potentialer håndteres i fremtidig udvikling?

Kapitlets opbygning

I kapitlets første del positioneres forskningsprojektet i forhold til den pragmatiske pluralisme (Brinkmann 2013), der inddrager blikke fra forskellige videnskabsteoretiske positioner. Dette underbygges af pragmatismens åbenhed og fokus på det anvendelige. Herefter gennemgås, hvordan den abduktive slutningsform er anvendt. Kapitlets anden del er opbygget omkring en række epistemologiske refleksioner, der har været centrale for nærværende Ph.d.-projekt og forskningsproces. I kapitlets tredje del forklares det, hvordan den valgte case, Hirtshals, kan forstås og behandles som en *ekstrem case* (Flyvbjerg 1991). En særlig kvalitet ved casestudiet som forskningsstrategi er dets åbenhed overfor mixed methods. I forlængelse heraf uddybes det, hvordan forskningsprojektet metodologisk er præget af en eksplorativ tilgang gennem en itterativ proces. Kapitlet rundes af med en konklusion, om hvordan afhandlingen samlet set er baseret på empirisk synergi, samt perspektivering omkring hvad den producerede viden kan anvendes til fremadrettet.



Figur 1 - Forskningsprojektets ontologiske trekant, der favner aspekter af forskellige videnskabsteoretiske positioner i en pragmatisk pluralisme, inspireret af Brinkmann (Brinkmann 2013)

1 - Ontologi og pragmatisk pluralisme

I nærværende forskningsprojekt har det været ønsket at forstå stedet Hirtshals som både fysik, geografi, betydning og mening, med særligt fokus på den transit, der præger stedet. For at opnå en dybere forståelse af forskningsobjektet Hirtshals og forholdet mellem fysik og betydning, sted og mobilitet, ophold og bevægelse, har det været frugtbart at belyse casen gennem forskellige perspektiver, der ikke nødvendigvis er overensstemmende i traditionel videnskabsteoretisk positionering. Pragmatismen tillader og ligefrem tilskynder det brede perspektiv. Pragmatismen har ifølge Brinkmann "den fordel, at den ikke tvinger os til at vælge blot én af disse [teoretiske perspektiver på kvalitativ forskning, eksempelvis fænomenologi, diskurs analyse, ANT, etc.]. Pragmatikere vil gerne have, at vi opfatter ontologier som praktiske redskaber, man kan tænke med, og det ville være lige så dumt at holde sig til en enkelt begrænset ontologi om det sociale, som det ville være at forlange af tømreren, at han eller hun kun brugte en sav i sit arbejde." (Brinkmann 2013, s. 56)

På denne baggrund advokerer pragmatismen for "pragmatisk pluralisme" (Brinkmann 2013, s. 57), der inddrager en række forskellige videnskabsteoretiske positioner i det kvalitative forskningsarbejde ud fra en anvendelighedslogik og idé om, at forskellige traditioner hver for sig har noget interessant og 'rigtigt' at byde ind med omkring det studerede. Svend Brinkmann demonstrerer med sin ontologiske trekant, der favner et henholdsvis fænomenologisk aspekt, diskursivt aspekt og objekt-aspekt, hvordan et forskningsprojekt kan beriges ved at tænke på det studerede fra flere vinkler. Det kan være en udfordring "at bevæge sig mellem trekantens forskellige vinkler […] og inddrage så mange forskellige ting som muligt – nogle symbolske, nogle oplevelsesmæssige og nogle materielle" (Brinkmann 2013, s. 59), men hovedpointen er for Brinkmann, "at det sociale består af alle disse ting: *oplevelse*, *diskurs* og *objekter*." (Brinkmann 2013, s. 59.

Som det fremgår, er Brinkmanns genstandsfelt *hverdagslivet* og *det sociale*. Mit genstandsfelt er stedet og byen, men pointen er den samme. I nærværende forskningsprojekt tilstræbes den pragmatiske pluralisme ved både at studere Hirtshals som oplevet og sanset sted, som et sted, der er konstitueret gennem historie, diskursive idéer og idealer og som materialiseret i fysiske bygninger og veje (se Figur 1 - Forskningsprojektets ontologiske trekant, der favner aspekter af forskellige videnskabsteoretiske positioner i en pragmatisk pluralisme, inspireret af Brinkmann (Brinkmann 2013)). Senere i kapitlet uddybes, hvordan jeg mere konkret har arbejdet med casestudiet og en bredspektret metodologi. Her skal det imidlertid opridses, hvad trekantens vinkler består af på et videnskabsteoretisk niveau, og hvordan de er relevante for dette forskningsprojekt.

Fænomenologisk aspekt
Som grundlag for at studere, hvordan Hirtshals fremtræder som oplevet og sanset sted, er fænomenologiens idealer fundet praktisk anvendelige. Det fænomenologiske aspekt giver indsigt i, hvordan subjektet oplever stedet. Menneskets bevidsthed og erkendelse er fænomenologiens genstandsfelt, hvorfor fænomener må forstås og fortolkes ideografisk (Egholm 2014, s. 104). Fænomenologien fordrer et førstepersonsperspektiv, hvor forskeren så vidt muligt sætter parentes om sig selv, sin teoretiske viden og forudfattede meninger. "Alle fordomme må lægges væk for reelt at forstå fænomener i et 1.personsperspektiv." (Egholm 2014, s. 113). Det er tilstræbt i studiet af Hirtshals, hvor jeg ved hvert besøg i byen altid har forsøgt at se stedets problemer og potentialer åbensindet uanset hvilke indtryk, jeg har fået ved tidligere lejligheder.

Diskursivt aspekt
Med henblik på at forstå Hirtshals som et sted, der er konstitueret gennem historie, diskursive idéer og idealer, er det relevant at inddrage den fortolkningsorienterede hermeneutik i læsning og forståelse af historiske tekster og dokumenter. Hermeneutikken fokuserer på fortolkningen af tekster samt af fænomener bredt forstået. Således er det hermeneutikkens force at fremanalysere den mening og betydning, som ligger gemt i materialet, gennem fortolkning. I modsætning til fænomenologien tager hermeneutikken netop udgangspunkt i fordomme og forforståelser udfra den opfattelse, at vi "[ikke] kan forstå noget uden at have noget at forstå det på baggrund af." (Egholm 2014, s. 95). Derimod må vi arbejde hen imod en horisontsammensmeltning af vores egne og de studeredes forforståelser hvilket opnås, når nye svar ikke længere flytter på vores (for)forståelse.

Objekt-aspekt
Studiet af Hirtshals søger særligt en forståelse af stedet materialiseret i fysiske bygninger og veje. Dette objekt-aspekt er naturligt tilstede i arkitektoniske studier, mens det i mindre grad er behandlet i human- og samfundsvidenskaberne. Der tales dog om en materiel vending indenfor human- og samfundsvidenskaberne, hvor interessen i de senere år er vokset for at forstå, hvilken rolle objekter af forskellig karakter spiller i forhold mennesker og samfund. Dette fokus findes blandt andet indenfor aktør-netværksteori (ANT), der undersøger, hvordan objekter er med til at skabe det sociale liv (Latour 2005). Professor i arkitekturteori Albena Yaneva argumenterer også for, at designet af de ting, vi er omgivet af, påvirker og *medierer,* hvordan mennesker agerer i bestemte situationer, og hvordan det sociale liv udspiller sig (Yaneva 2009).
Det har i lyset af ANT stor betydning for livet i en by, hvordan en facade er udformet (eksempelvis lukket eller åben med store vinduespartier), hvordan en vej eller gade er udlagt (med eller uden fortov, cykelsti, flere spor og fodgængerovergange) eller hvordan et byrum er designet (dets skala, opholdsmuligheder, solorientering, mikroklima etc.) Objektaspektet giver anledning til at studere de fysiske rammer i Hirtshals ud fra en forståelse af, at de på lige fod med mennesker har betydning for, hvordan vores liv formes.

Pragmatisk Pluralisme
De tre ovenstående aspekter er hver især brugt i forskellige analyser

af Hirtshals og præger studiets metodiske valg. Pointen med den pragmatiske pluralisme er, at vi ikke skal vælge mellem den ene eller den anden ontologi og i forlængelse heraf indsnævre vores studier til eksempelvis rendyrkede fænomenologiske oplevelses-analyser eller diskursive samtale-analyser. Derimod bør vi tilstræbe "the full situation of inquiry" (Clarke i Brinkmann 2012, s. 37). Med forståelsen af forskningen som "situational maps" inkluderes både mennesker og ting, diskursive og materielle elementer, der alle påvirker den studerede situation i Hirtshals. Endvidere er det centralt at forskeren forsøger at forstå relationerne imellem disse forskellige elementer, der i dette forskningsprojekt blandt andet indebærer interviews, beskrivelser af bygninger og omgivelser, mobiliserede diskurser og institutionelle selvforståelser fundet i officielle dokumenter. Denne forskningsform er alt andet end lineær, men afspejler i videst muligt omfang verden i sin rodede og relationelle fremtræden:

> "Arbejdet med situationelle kort er med vilje rodet, fordi verden er et rodet sted." (Brinkmann 2013, s. 61)

Hvilke metoder, der udgør mit situationelle kort, og hvordan det er blevet afgrænset, vender jeg tilbage til senere i kapitlet. I det følgende kommer jeg nærmere ind på, hvordan pragmatismen imødekommer arbejdet med de komplekse stedsopfattelser og afhandlingens ønske om at kunne bidrage med konkrete fremtidsperspektiver for transit- og levebyer.

Pragmatisk åbenhed og fokus på det anvendelige

I projektets stræben efter at finde mulige fremtidsperspektiver for transitbyer ligger uomtvisteligt en vilje til forandring og til konkret handling. Dette er helt grundlæggende for den pragmatiske tilgang.

> "A pragmatist [ ] turns away from abstraction and insufficiency, from verbal solutions, from bad a priori reasons, from fixed principles, closed systems, and pretended absolutes and origins. He turns towards concreteness and adequacy, towards facts, towards action and towards power (1981, p. 28)". (James i Jones 2008)

Praksis har i pragmatismen præcedens overfor teori, fordi viden ifølge pragmatismen opstår i praksis, i handling og i erfaring. Dette betyder ikke, at projektet afskriver den abstrakte tænkning i det teoretiske arbejde, men at den epistemologiske tilgang er pragmatisk funderet, og tager afsæt i empirien før teorien. Således har jeg tidligt i forskningsprocessen deltaget i lokale netværksmøder og studeret byens fysiske fremtræden og rumlige forløb, hvilket har skærpet mit fokus på projektets tematikker omkring transit og byliv. For at kunne undersøge dette nærmere er steds- og mobilitetsteorien blevet frekventeret, og teoretiske perspektiver har hjulpet til at stille skarpt på stedets udfordringer og potentialer. I pragmatismen anses teorier i høj grad som værktøjer, "der sætter os i stand til at forstå og mestre verden." (Brinkmann 2013, s. 16). I denne forståelse er teorier ikke endegyldige sandheder eller overlegne i forhold til det empiriske materiale.

> "Teorier er hverken mere eller mindre end forslag til forståelse af sammenhænge i verden (…)" (Hastrup 1999, forord s. iii).

Fremfor at afspejle verden, skal teorier som værktøjer tages i brug, hvor der er et behov for nye perspektiver i analysen, og hvor de rent praktisk hjælper på forståelsen af forskningsmaterialet. På denne måde indlejres den abstrakte tænkning og den konkrete empiri i hinanden (ibid).

Pragmatisme kan slet og ret ses som en ""idé om idéer" – det vil sige en forståelse, konceptualisering eller tilgang, der er brugbar i vores forståelse, konceptualisering eller tilgang til verden:

> ""ideer er ikke 'derude' og venter på at blive opdaget, men er redskaber – ligesom gafler og knive og mikrochips – som mennesker udtænker for at kunne klare sig i den verden, hvori de befinder sig." (Menand i Brinkmann 2013, s. 62)

Det er med disse 'tools' at afhandlingens viden er blevet skabt. Dette leder videre til, hvordan forskningsprojektet tager udgangspunkt i pragmatismens "relevanskriterium" (blandt andet Peirce i Bacon 2012, s. 22) hvilket betyder, at der stilles krav om at forskningsprojektet finder berettigelse og tager udgangspunkt i en problemstilling fra 'den virkelige verden'. Pragmatismen har i denne sammenhæng mennesker som omdrejningspunkt, hvilket Aikin beskriver som 'the humanistic requirement':

> "that the criteria for philosophical or scientific significance are the values and purposes of living human objects. The relevant data and purposes for theoretical reflection are the desires, failures, and hopes that naturally arise from everyday life. Philosophical reflections that extends beyond or spurns such relevance to life is arid, dry, and ultimately worthless." (Aikin 2006, s. 319).

I mit arbejde med begreberne *sted* og *mobiliteter*, og ikke mindst med det konkrete sted Hirtshals, har mennesket naturligt en central betydning. Når afhandlingen beskriver de fysiske fremtrædener af Hirtshals, er det altid med omtanke for, hvordan fysiske rammer påvirker menneskers færden og velvære. Forskningsprojektet bygger på den grundlæggende værdimæssige antagelse, at hvis der ikke eksisterede mennesker, at skabe bedre vilkår for, var der ikke noget projekt (eller projektet ville være 'værdiløst'). I naturlig følge heraf, får ethvert resultat af projektet også karakter af den situation (og de tilstedeværende mennesker), undersøgelserne er lavet i – "the situational character of inquiry" (Aikin 2006, s. 319).

Aiken, der refererer til John Deweys pragmatisme, beskriver, hvordan situationen omkring en undersøgelse/udforskning delvist består af de objektive enheder af verden, der forårsager et problem (som undersøgelsen bestræber at finde en løsning til), men at psykologiske og kulturelle elementer af den menneskelige væren i lige så høj grad er med til at skabe situationen (dem, som undersøgelsen bestræber at finde en løsning for). Dette er vigtigt at være bevidst om i behandlingen af den indsamlede viden: De mennesker, jeg vælger at tale med, og vælger ikke at tale med, har forskellige kulturelle forudsætning, politiske dagsordener, personlige mærkesager etc. De er så at sige med til at skabe den kontekst, forskningsprojektet er situeret i. Med det ønske at forstå kompleksiteten af Hirtshals som både transit- og leveby er der tilstræbt en videst mulig variation i de interviewedes personlige baggrunde.
Et væsentligt aspekt af pragmatismen er i forlængelse heraf forståelsen af, at data ikke er noget, der ligger og venter på, at vi finder det. Fremfor at være 'givne' ting, er empirien noget, vi aktivt 'tager' eller 'udvælger' (Dewey 1929 i Brinkmann 2013, s. 63) hvorved den fremkomne viden i højere grad skabes fremfor opdages (for eksempel ved at udvælge bestemte metoder, informanter og fokusområder). Viden er en menneskelig aktivitet og ikke en repræsentation af verden, som en passiv tilskuer kan observere og afspejle 1:1 (Bacon 2012, s. 16). Dette skal ses i overensstemmelse med hermeneutikkens begreber om *for-domme* eller *for-forståelser*. Viden må således betragtes som forståelser, der skal fortolkes.

Den abduktive slutningsform

> "[…] to begin research with a confident notion of "What is a case?" (or, more precisely, what *this* – the research subject – is a case of) is counterproductive. Strong preconceptions are likely to hamper conceptual development. […] What *it* is a case *of* will coalesce gradually, sometimes catalytically, and the final realization of the case's nature may be the most important part of the interaction between ideas and evidence." (Ragin & Becker 1992, s. 6)

Som det uddybes i næste afsnit, er dette forskningsprojekt bygget op omkring et casestudie, og som antydet i citatet ovenfor lader denne forskningsstrategi materialet udfolde sig undervejs i forskningsprocessen. I urban designforskning og i social- og samfundsvidenskabelig forskning generelt, er forskningsobjektet

ikke stabilt og afgrænset, hvilket altså også gælder for dette forskningsstudie af Hirtshals. Det gør det vanskeligt, for ikke at sige umuligt, at foretage valide gentagne tests, der kan bygge op til en generel viden (induktion) eller på forhånd have en generel viden, hvoraf der kan udledes specifik viden (deduktion). Derimod kan den abduktive slutningsform anvendes, da den ikke forudsætter lukkede systemer eller endegyldige sandheder. (Brinkmann 2012, s. 46)

I forlængelse af den pragmatiske og den hermeneutiske tilgang forstås, at kvalitative studier og deres forståelsesorienterede fokus som oftest opstår med udgangspunkt i en *ubestemmelig situation* (Bacon 2012, s. 96) eller et *brud* (break down) med den gældende forståelse (Brinkmann 2012, s. 44). Det er således den pragmatiske "undren" (Gimmler 2014) over et givent fænomen, der starter forskningsprocessen. Mats Alvesson og Dan Kärreman omtaler 'break-down-oriented research', og beskriver 'mysteriet' som en metodisk tilgang til kvalitativ forskning og teoriudvikling (Alvesson & Kärreman 2011). Mysteriet skal ses som første trin i en abduktiv proces stilet mod en forståelse af forståelsessammenbruddet og udvikling af en ny og bedre forståelse.

Abduktion er den ganske udbredte måde, vi mennesker i dagligdagen ræsonnerer os frem til en forståelse i situationer, hvor vi udsættes for noget uventet eller uforståeligt – det vil sige et break down i vores umiddelbare forståelse. Dette forskningsprojekt udspringer af et kontekstualiseret forståelsessammenbrud omkring vækst og tilbagegang på det samme geografiske sted, og ved at udfordre en række 'taget-for-givet-antagelser', omkring vækst og attraktive bosætningsmiljøer er forståelsessammenbruddet skærpet. (Scott i Brinkmann 2012, s. 44-45)

I abduktionsprocessen arbejdes med 'mulige forklaringer' i en form for itterativ hypoteseafprøvning (Bacon 2012, s. 97). Selve hypoteseskabelsen kalder Brinkmann 'et kreativt øjeblik' i den fortolkende proces. På baggrund af empiri, teori og forforståelser opstår en eller flere forklaringsmuligheder (hypoteser), der gennem videre efterforskning findes brugbare eller forkastes. Som beskrevet tidligere, findes der ikke en endegyldig sandhed eller definitiv løsning – derimod forstår den kvalitative forskning, der anvender abduktion som slutningsform, at "…vores analyser er valide, når de gør os i stand til at forstå og agere." (Brinkmann 2012, s. 47)

Den abduktive proces kommer i afhandlingen til udtryk gennem inddragelsen af nye metoder undervejs i forskningsprocessen. I begyndelsen forsøgte jeg at forstå Hirtshals gennem fakta og statistik, men det blev hurtigt klart, at de mennesker, der på forskellig vis bruger stedet skulle i tale for at opnå en dybere forståelse af stedets karakter. Dette skærpede problemstillingen omkring stedet, ikke blot som en by med en problematisk befolkningstilbagegang, men som en by, der var splittet som henholdsvis transit- og leveby. Derved blev et menneskeligt perspektiv øget. Mulige forklaringer på, hvorfor der både er vækst og tilbagegang i Hirtshals er søgt i den generelle samfundsudvikling, den lokale byplanlægning, stedets sociale udvikling og italesættelse, og forskellige metodiske vinkler har skærpet en samlet forståelse.

2 - Betydninger af det videnskabelige blik - refleksioner om forskerens rolle og forskningskvalitet

I dette afsnit fremlægges mine refleksioner med udgangspunkt i to spørgsmål, der har været centrale igennem forskningsprocessen. Det ene spørgsmål giver anledning til refleksioner angående min egen rolle i forskningen, det andet spørgsmål giver anledning til refleksioner omkring kvaliteten af den forskning, jeg har bedrevet. De epistemologiske refleksioner skal læses på baggrund af den ontologiske forståelse, at der ikke findes én sand virkelighed. Ifølge pragmatismen er noget "sandt, når vores undersøgelser slutter, og vores resultater er brugbare og nyttige til at forklare fænomener og begivenheder med" (Egholm 2014, s. 237).

Forskerens rolle som professionelt og privat individ
Følgende betragtningerne omkring den rolle, forskeren som subjekt spiller i forskningsprocessen tager udgangspunkt i en række selvrefleksive overvejelser udsprunget af mit arbejde med nærværende projekt. Et spørgsmål, der for mig er blevet aktualiseret igennem mit arbejde med sted og mobilitet i Hirtshals, omhandler betydningen af forskerens individuelle præferencer, habitus eller før-viden for de analyser, der produceres.

Spørgsmålet kan læses ind i en større videnskabsteoretisk debat om objektivisme og subjektivisme. Der ligger altså i spørgsmålet en underforstået opfattelse af, at det ikke er ligegyldigt, hvilket forskningsindivid, der går til en bestemt problemstilling, og at besvarelsen eller løsningsforslaget altid vil afhænge af dette subjekt. Mine refleksioner har primært drejet sig om mit *professionelle jeg*, men da jeg ikke mener at subjektpositioner kan adskilles, kommer overvejelserne heller ikke uden om mit *private jeg*.

I forhold til min faglige træning som urban designer, er det centrale spørgsmål, hvilken betydning denne baggrund har for udformningen og gennemførelse af analyserne i afhandlingen. Det er sandsynligt, at forskere med andre fagligheder ville angribe analyserne på en anderledes måde, men at der ligeledes var kommet en afhandling ud med en række løsninger eller fund, som ville være lige så 'rigtige' som mit bidrag. Ved at give problemstillingen til en urban designer, rettes fokus samtidig på de fysiske omgivelser i *Hirtshals* og de materielle aspekter af begreberne *sted* og *mobilitet*. Dette særlige blik gennemsyrer nærværende forskningsprojekt og kommer særligt til udtryk i den metodiske tilgang. Desuden indebærer min faglige habitus, at fokus til et vist omfang ligger på et konkret output, og at jeg er intuitivt drevet, hvilket uddybes i det følgende.

Forskningsprojektet tog afsæt i en undren over forholdet mellem befolkningstilbagegang og infrastrukturel vækst i Hirtshals, men det stod ikke klart, hvad det reelle problem bestod i. I Lawsons 'What designers know', beskrives "the designerly attitude towards problem solving" med udgangspunkt i Nigel Cross formulering 'a designerly way of knowing'. Et karakteristika ved tilgangen er, at designere "bring a great deal into the situation that was not in the original problem, however that might be expressed." (Lawson 2004, s. 8). I søgen efter 'gode løsninger' bliver designeren naturligt eksplorativ i sin metodiske tilgang, for at belyse problemstillingen fra mange og nye vinkler i forhold til klientens formulering. Denne tilgang rejser gerne flere spørgsmål, end den giver eksplicitte svar. Et andet karakteristika er ifølge Lawson, at designere, arkitekter og andre formgivere besidder en skærpet sans for at finde holistiske 'løsninger' på til tider uklare problemer. (Lawson 2004, s. 13). Designerens særlige blik indebærer ofte fornemmelser og erfaring frem for skarpe, afgrænsende formuleringer, der risikerer at udelukke nye perspektiver. Dette designer-blik er godt til at løse "not well-formulated problems but ones which are ill-structured, open ended and often referred to as 'wicked'." (Lawson 2004, s. 19)

I forhold til mig som privat person, skal det nævnes, at jeg selv er født og opvokset i et lille lokalsamfund, hvor gennemkørende lastbiler har præget landsbyen og skabt en barriere, jeg har måttet krydse dagligt. På denne måde er jeg selv vokset op i et miljø, der for de mange gennemrejsende mest af alt har været defineret ved sin tankstation, men for mig og mine klassekammerater har været rammen om vores livsverden. Dette betyder, at forskningsspørgsmålene resonerer i min egen erfaring. Samtidig er det relevant at bemærke, at jeg ikke er lokalt kendt i hverken Hirtshals eller Hjørring Kommune, og først fra mine studieår på Aalborg Universitet har fået en berøringsflade med Nordjylland. Dette betyder, at jeg i høj grad selv har måttet 'opdage' Hirtshals og lære stedet at kende i takt med mit Ph.d.-forløbs fremskridning.

Selvom vi ofte stræber mod at eliminere distance (som noget negativt, der forhindrer én i at komme i dialog med materialet), kan der være god grund til i videnskaben at arbejde med en

'analytisk distance' (Hastrup 1999). Gennem teori, metode, tid, observationer, fortællinger, tekst og billeder formidler vi forskningen og kommer via distancen frem til resultater, som man ikke kan se, når man står midt i det, hvilket både gælder for dem, der lever i Hirtshals og for mig selv undervejs.

Den kvalitative undersøgelsesform rummer "en stræben, der netop ikke søger at eliminere, men tværtimod inddrage, belyse og problematisere forskerens subjektivitet." (Karpatschof 2010, s. 419). Subjektiviteten bør behandles problematiserende, men samtidig som en mulig ressource (ibid.). Det samme angår intersubjektiviteten i interviewsituationer og andre forskningsmæssige sociale relationer.

Disse epistemologiske refleksioner omkring min rolle som forsker har været relevante i forhold til mit forskningsdesign og konkrete metodevalg. Den åbne opgaveformulering, og mit lille bekendtskab med Hirtshals, har i høj grad fordret en eksplorativ tilgang, min faglighed har skærpet mit blik på de fysiske repræsentationer af *sted* og *mobiliteter*, og min opvækst har præget mit blik på og opfattelse af steder som 'transit' og 'lokalsamfund'. Dette har yderligere haft indflydelse på min forskningsambition, som nævnes i det følgende afsnit.

Forskningskvalitet og idealer i videnskabeligt virke

Et andet spørgsmål, der har meldt sig i relation til mit arbejde, omhandler kvaliteten af kvalitativ forskning i forhold til forskningsverdenens dominerende ideal om den neutrale forsker.

Det, jeg studerer, om end placeret på det teknisk-naturvidenskabelige fakultet, ligger udenfor denne videnskabs kerneidealer, og kan ikke studeres i et lukket laboratorium. Om end observationer indgår som en del af mine studier, kan observationerne ikke stå alene, men må forstås i forhold til Hirtshals som et dynamisk og foranderligt sted og stedets indlejrede sociale, samfundsmæssige relationer. Den viden, jeg frembringer, er med andre ord kontekstuel, og således et brud med den empirisk-analytiske erkendelsesform.

I mine studier indgår en lang række normative holdninger og værdisæt blandt mine informanter, bag de politiske og planlægningsmæssige beslutninger, opfattelser bredt i samfundet og i tillæg mine egne indlejrede forståelser, præget af min opvækst og uddannelse som beskrevet ovenfor. Forskningen bliver således mere en del af en social og urban designmæssig debat – et bidrag til at forstå og anvise et fremtidsorienteret mulighedsrum frem for til at forklare situationen entydigt og diktere en færdig løsningsmodel.

Dette betyder ikke, at alt er *lige* gyldigt. Kvalitativ forskning må vurderes ud fra andre kriterier end kvantitativ forskning, der stiller krav om reliabilitet, validitet og generaliserbarhed. Som kvalitative pendanter fremhæver Thagaard respektivt transparens, gyldighed og genkendelighed som kvalitetskriterier, der giver mening i sammenhæng med den kvalitative forsknings præmisser. (Tanggaard & Brinkmann 2010, s. 490). Mere konkret fremhæver Tanggaard og Brinkmann 7 kvalitetsindikatorer (oprindeligt fremstillet af Elliott, Fischer og Rennie i 1999 som guidelines indenfor kvalitative studier i psykologien), der kan bruges som vejledning før, under og efter ethvert kvalitativt forskningsstudie. De 7 kvalitetsindikatorer, der ikke må forveksles med en tjekliste, opfordrer forskeren til at 1) specificere sit perspektiv, 2) situere sine deltagere, 3) give eksempler, 4) foretage troværdigheds-tjek, 5) opnå kohærens, 6) sondre mellem generelle og specifikke formål og endeligt 7) skabe resonans i læseren (Tanggaard & Brinkmann 2010).

Jeg har i overensstemmelse med ovenstående kvalitetskriterier og kvalitetsindikatorer bestræbt mig på at behandle både mine informanter og mit indsamlede materiale med åbenhed og respekt gennem hele processen samt at redegøre for, hvordan jeg metodisk er gået til værks. Mine analysekapitler er præget af mange eksempler for at give mest mulig plads til at materialet kan tale frit. Jeg har forsøgt så vidt muligt at fremskrive mine informanter som

individer af kød og blod, følelser og tanker, og formidle deres baggrund og den kontekst, de taler fra. Jeg har ligeledes gjort en dyd ud af at lægge min egen person frem for åbent at kunne diskutere forskningsresultaterne i lyset af mine for-forståelser og fordomme. Fremfor alt har jeg i overensstemmelse med Arthur Bochner og Yvonna Lincoln baseret min forskning på det ideal, at videnskaben skal være relevant for 'almindelige menneskers' liv, og i den henseende optages af at være meningsfuld, brugbar og indsigtsgivende mere end reliabel, valid og generaliserbar (Bochner i Tanggaard & Brinkmann 2010, s. 495). Samstemmende med Lincoln, mener jeg at:

> "Kvalitativ forskning er – eller bør være – relationel […], og bør stå i andre menneskers tjeneste, og i det perspektiv bliver det bl.a. relevant at vurdere forskningens nytteværdi (hjælper den til forbedring af lokale interesser?) og andre pragmatiske virkninger (siger den eksempelvis de udforskede noget?) som centrale kvalitetskriterier." (Tanggaard & Brinkmann 2010, s. 494)

'Den upartiske forsker' er et positivistisk ideal, der kritiseres fra blandt andet pragmatismen og hermeneutikken med det modargument, at vi altid vil bringe vores subjektivitet og normativitet ind i forskningsprocessen: vi er ikke neutrale forskere! Denne kritik af empirismen findes blandt andet som *perspektivisme*, der påpeger, at "viden altid skabes ud fra et bestemt perspektiv" (Hansen & Simonsen 2004, s. 35). Allerede ved at påbegynde et givent studie, begynder forskeren at 'transformere' det, der studeres (Bacon 2012, s. 96). Med andre ord bringer forskeren altid en eller anden form for 'interesse' eller forskningsambition ind i projektet, der farver hele forskningsarbejdet og det endelige resultat (Hastrup 1999). I mit tilfælde kan min forskningsambition formuleres som et ønske om at skabe bedre rammer for 'det gode liv' i transitbyer. Forskeren sætter således altid sit aftryk på casen, men kan godt søge at være så neutral som muligt i selve beskrivelsen af, hvad der er foregået metodisk. At mit forskningssubjekt påvirker forskningsresultatet gør ikke forskningen mindre rigtig eller god. I accept af, at forskningen altid vil farves af egen og andres normativitet og værdisæt, er det til gengæld som nævnt nødvendigt at skabe transparens omkring sin forskning, og hvem man lægger sin forskning op ad og refererer til. Det er derfor vigtigt i videst muligt omfang at beskrive og fremvise eksempelvis de anvendte metoder og valg i forskningen, og ikke gemme noget væk, blot fordi det ikke 'passer' ind i en konstrueret fortælling. Ligeledes er det nødvendigt at tydeliggøre ens for-forståelser, så læseren forstår baggrunden og konteksten for projektet.

Et er, om den upartiske forsker findes, noget andet er, om den upartiske forsker nødvendigvis bør tilstræbes i ethvert forskningsprojekt. Jeg mener, at der i mange tilfælde kan være sund fornuft i at søge det neutrale (vel vidende, at det aldrig er muligt helt at fralægge sig sine forforståelser og for-domme). Men det er ikke min overbevisning, at arkitekter, designere, planlæggere med flere altid bør tilstræbe en klinisk neutral position. Det er snarere deres samfundsrolle eller samfundsopgave at skabe en 'bedre verden' for de mennesker, der lever i den. Dette gælder også i forskningshenseende jævnfør phronetisk forskning, hvor analyse af værdier tages som udgangspunkt for handling (Flyvbjerg 1991, s. 73). Der ligger her et ønske om forandring og forbedring, som ikke kan beskrives objektivt, men må bygge på en ærlig, subjektiv tro på og omtanke for 'det bedre'. Jeg tilslutter mig Jon Lang, der argumenterer for vigtigheden af Urban Design som en integreret videns-disciplin og profession af praktiserende designere, og som en måde at adressere 'problems of the world':

> "A concern for urban design is a concern for the quality of life and future lives. A concern for life is exemplified by the empirical research on places, and on people's behavior in and appreciation of them. […] recognize urban design's potential role in creating a better world – in dealing with the multivariate impact of the built environment on people's lives." (Lang 1994, s. 465-466)

3 - En ekstrem case

> "…hvorfor skyde med haglgevær, når man i mange tilfælde kan ramme plet med en riffel?" (Flyvbjerg 1991, s. 147)

Ph.d.-projektet er opbygget omkring havnebyen Hirtshals som ét casestudie. Casen er med udgangspunkt i "Strategier for udvælgelse af stikprøver og cases" (Flyvbjerg 1991, s. 150) nøje udvalgt med et informationsorienteret sigte, og adskiller sig kategorisk fra de såkaldte 'tilfældige udvælgelser', der dækker forskellige varianter af stikprøver. På baggrund af mit eksisterende kendskab til de by- og mobilitetsmæssige konditioner i Hirtshals, og gennem forudgående dialog med lokale aktører og forskere fra blandt andet netværket 'MobilitetsUdfordring Nordjylland', blev det sandsynliggjort, at netop Hirtshals som case ville kunne give fyldig information om lokale steds- og mobilitetsudfordringer. Således er Hirtshals som gennemgribende case valgt "på grundlag af forventninger om informationsindhold, baseret på allerede eksisterende data samt på vurderinger ved involverede nøglepersoner og forskere" (Flyvbjerg 1991, s. 150), og dermed casens "opportunity to learn" (Stake 2003, s. 152). Ud fra dette kriterium beskriver Flyvbjerg fire typer informationsorienterede cases, hvis formål er at "maksimere nytten af information fra små stikprøver og enkeltstående cases": 1: Ekstreme eller afvigende cases, 2: Maksimum variation cases, 3: Kritiske cases og 4: Paradigmatiske cases (Flyvbjerg 1991, s. 150). Hirtshals er primært valgt og behandlet som ekstrem/afvigende case ud fra stedets påfaldende og markante forhold mellem befolkningstilbagegang og vækst i rejsende og gods gennem havnen. Samtidig kan casen dog forstås som henholdsvis kritisk og paradigmatisk og ifølge Flyvbjerg kan en case være alle tre typer på samme tid:

> "Tolkningen af en sådan case kan blive særligt indholdsrig, fordi man opnår forskellige perspektiver og konklusioner for casen, alt efter om den ses som den ene eller anden type af case." (Flyvbjerg 1991, s. 153)

I afhandlingen er der fokuseret på Hirtshals som en ekstrem case, hvilket skal uddybes i det følgende. Kvaliteten af omhyggeligt udvalgte 'ekstreme cases' (såvel som 'kritiske cases') er deres evne til at gøre en situation, et problem, en pointe etc. klar og tydelig, netop grundet det ekstreme ved casen – på den baggrund kan casens 'fund' i større eller mindre omfang overføres og bruges andre steder, hvor lignende betingelser gør sig gældende, men som er sværere at få øje på. Ifølge Flyvbjerg, kan atypiske og ekstreme cases ofte vise sig "at give mere information, fordi de aktiverer flere aktører og mere grundlæggende mekanismer i den studerede situation" (Flyvbjerg 1991, s. 149), som ofte kan være afgørende i forhold til indsigt i en given problemstilling samt fungere som afsæt for fremadrettede tiltag.

Som ekstrem case kan dette ph.d.-projekt udfolde en række problemer og potentialer, ikke alene for Hirtshals, men også for andre byer af lignende karakter og i lignende situationer. Faktum for Hirtshals er, at indbyggertallet falder markant samtidig med, at der registreres en stigning i fysisk mobilitet med et stigende antal mennesker i transit. Dette gør Hirtshals interessant som ekstrem case.
Hirtshals-casen er en rumligt bestemt case - til forskel fra socialt eller tidsmæssigt bestemte cases (Miles & Huberman 1994 i Johansson 2000, s. 67). "En rumslig bestämning […] kan vara *en byggnad*, *en gård*, *ett bostadsområde* eller *en stad*. Rumsligt definierade fall är naturligvis näraliggande inom arkitekturforskningen." (Johansson 2000, s. 67 - understreget hvor originalteksten er kursiveret). Den geografiske afgrænsning af Hirtshals er dog ikke entydig. I forhold til nogle delstudier har det været nødvendigt at afgrænse skarpt med foruddefinerede sognegrænser (særligt i forhold til registerdata) mens andre studier arbejder med mere flydende grænser.

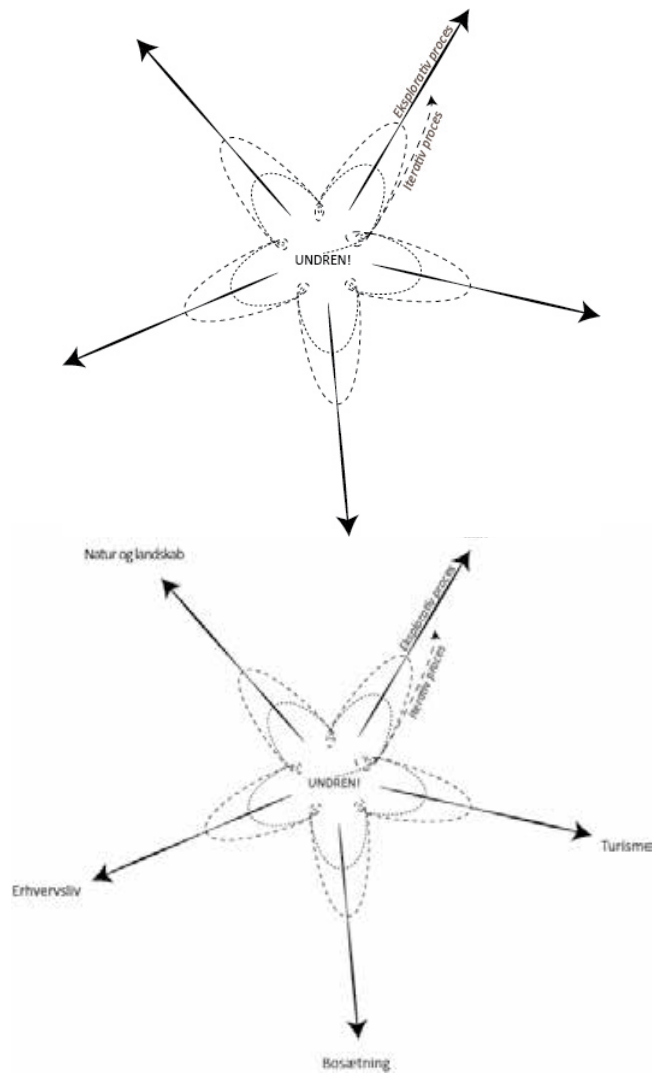
Casestudiets metoder skal bidrage til en dyberegående forståelse af casens karakter og de problematikker, der er forbundet hermed, samt til at skabe et solidt grundlag for forslagsstillelse omkring, hvordan der kan udvikles strategier, der imødekommer de analyserede problematikker. Dette vil ske på grundlag af den indsamlede empiriske data.

Indsamling af empiri

> "The case study's unique strength is its ability to deal with a full variety of evidence – documents, artifacts, interviews, and observations." (Yin 1989, s. 20)

Dette casestudie er baseret på et bredt udvalg af praktiske metoder. Jeg har gennem forskningsforløbet stillet det pragmatiske spørgsmål: *Hvad skal der til for at svare på mine forskningsspørgsmål?* I nogle situationer har der været behov for et fænomenologisk blik, andre gange et empirisk-analytisk eller et hermeneutisk fortolkende syn på casen, og metodisk har dette indebåret, at de bedste svar i nogle tilfælde har måttet findes i statistiker og registerdata, og i andre tilfælde i feltstudier eller interviews. Selvom Ph.d.-projektet overvejende må anses som et kvalitativt forskningsstudie, der søger at komme frem til en dybere forståelse af, hvad der ligger bag det statistiske materiale om befolknings- og erhvervsudvikling i Hirtshals, er der tale om en empirisk indsamling, der både trækker på kvalitative og kvantitative metoder.

Mixed methods
Blandingen af kvantitative og kvalitative metoder betegnes 'mixed methods' (Bryman 2008, s. 603, Hesse-Biber 2010, s. 3) og øger kompleksiteten i forhold 'multimethods', der dækker over sammenblandingen af metoder, der alle er enten kvantitative eller kvalitative (Hesse-Biber 2010, s. 3). Det kvantitative og kvalitative er ikke ligevægtigt i nærværende forskningsstudie, og afhandlingen må overvejende betegnes som et resultat af kvalitativ forskning. Imidlertid er der, som beskrevet senere i dette kapitel, gjort brug af både registerdata og surveys til at understøtte og supplere de kvalitative pointer.



Figur 2 - Egen model (generel): Eksplorativ og iterativ forskningsproces med afsæt i pragmatisk 'undren'.
Figur 3 - Egen model (specifik): Eksplorativ og iterativ forskningsproces med afsæt i 'undren', eksemplificeret gennem nogle af afhandlingens temaer.

Der er i samfundsvidenskaberne en lang tradition for at blande metoder, men begrebet mixed methods er relativt nyt, og litteraturen omkring mixed methods er først opstået omkring 1980erne (Frederiksen 2013, s. 18). Sammenblandingen af kvantitative og kvalitative metoder bygger bro mellem de ellers modsatrettede paradigmer, baseret på det pragmatiske fundament. Jævnfør pragmatismen bor metoderne ikke i et bestemt videnskabsteoretisk paradigme, og bør tværtimod inddrages, hvor de kan bidrage i henhold til forskningsspørgsmålene.

> "Fakta og regelbaseret viden er vigtig på ethvert område. Men at gøre dem til højeste mål er utilstrækkeligt og bagvendt." (Flyvbjerg 1991, s. 143)

Ifølge Flyvbjerg og Dreyfus-modellen er objektive fakta knyttet til de første trin i menneskets læreproces mens intuition og kvalitative forhold er knyttet til de højere niveauer. Hvor kontekstafhængig viden og erfaringer sættes i centrum af forskningen er der behov for at aktivere både kvantitative og kvalitative metoder (Flyvbjerg 1991). De kvantitative og de kvalitative metoder skal således tage afsæt i samme forskningsspørgsmål:

> "Mixed methods research forces the methods to share the same research questions, to collect complementary data, and to conduct counterpart analyses […]" (Yin 2014, s. 65)

Casestudiet som forskningsstrategi og dets bredde i metodebrug muliggør at studiet af Hirtshals bibeholder de 'holistiske og betydningsfulde karakteristika ved virkelighedens hændelser' (Yin 1989, s. 14).

Eksplorativ og iterativ forskningsproces

Forskningsspørgsmålenes karakter har medført et meget empiriorienteret/empiridrevet studie, hvilket er afgørende indenfor pragmatismen. I henhold til at opnå indgående forståelse omkring problemstillingen og nå frem til mulige handlingsperspektiver, har forskningsprocessen været eksplorativ og iterativ: *Eksplorativ*,

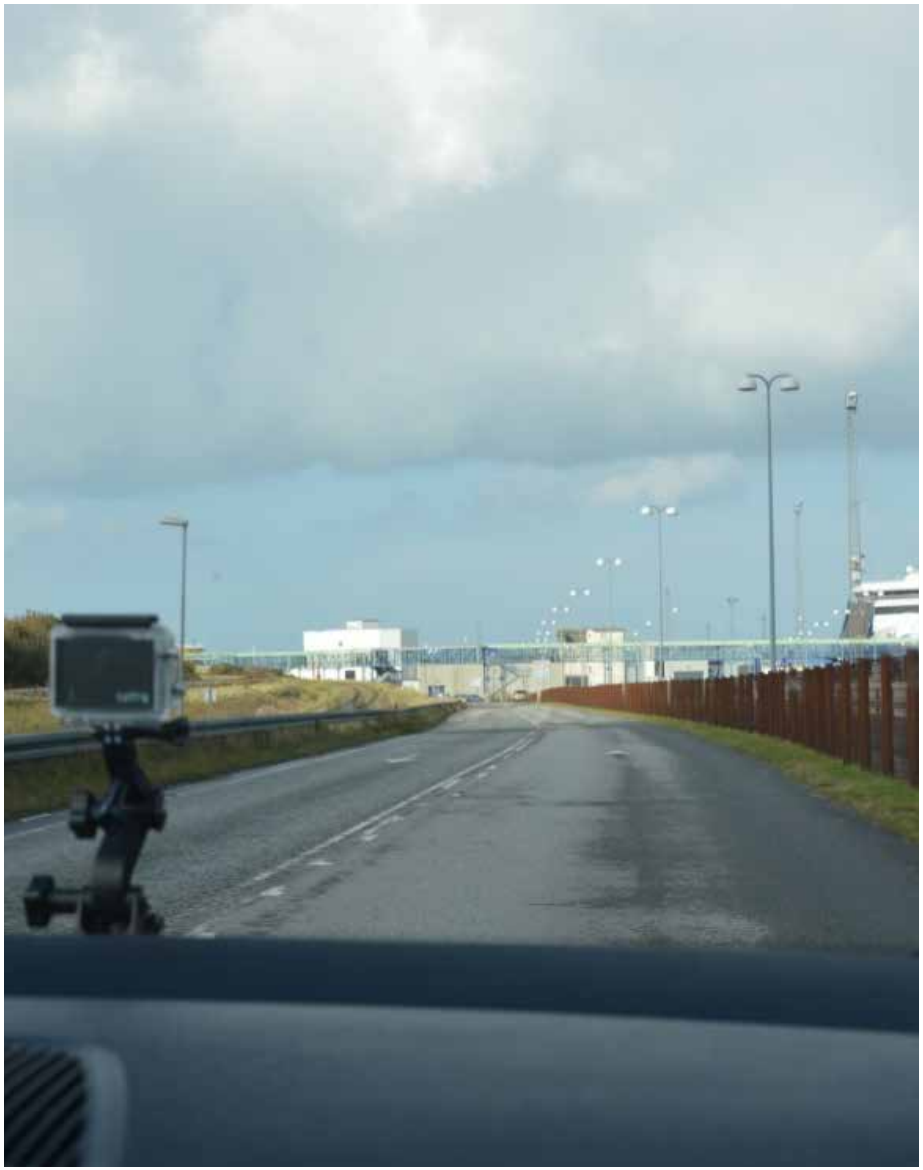
fordi den initierende undren i projektet ikke har peget i en entydig retning men tværtimod, som udtryk for en situation, der "forekomme[r] mærkelig eller overraskende for" (Det Danske Sprog- og Litteraturselskab 2014) forskeren, har fordret et åbent og afsøgende tankesæt. *Iterativ*, fordi enhver ny erkendelse eller forståelse påvirker den centrale undren og udvider horisonten for hvor og hvordan svar kan gives og ny viden produceres (se Figur 2 - Egen model (generel): Eksplorativ og iterativ forskningsproces med afsæt i pragmatisk 'undren'.). Dette betyder konkret for nærværende forskningsprojekt, at jeg med afsæt i og fokus på afhandlingens forskningsspørgsmål har bevæget mig bredt ud og visiteret en række forskellige temaer, eksempelvis turisme, bosætning, erhvervsliv, natur og landskab, havn, infrastruktur og byliv. De enkelte temaer er alle blevet gransket for deres indvirkning på og relation til et fysisk-rumligt perspektiv, og summen har givet en nuanceret forståelse for stedets kvaliteter og udfordringer. De enkelte temaer har gennem forskningsprocessen været belyst flere gange og er således blevet genbesøgt i takt med, at den samlede viden er blevet øget (se Figur 3 - Egen model (specifik): Eksplorativ og iterativ forskningsproces med afsæt i 'undren', eksemplificeret gennem nogle af afhandlingens temaer.).

Den eksplorative og iterative proces byder forskeren at gribe de metoder, der synes egnede i takt med, at forskningsprojektet skrider frem, og viden på området både øges og sofistikeres. Dette indebærer et samspil mellem en række praktiske metoder. Med andre ord findes der ikke et foruddefineret metodesæt, der kan føre forskeren sikkert i havn. Der har i udgangspunktet for dette forskningsprojekt være skitseret et udvalg af undersøgelser og metoder, men den iterative proces har medført gentagen vurdering af metodevalget således, at irrelevante metoder igennem forskningsforløbet er fravalgt, anvendelige metoder er skærpet og nye tilføjet efter behov. Eksempelvis havde jeg tidligt i forløbet planer om at gennemføre en meningsmåling omkring Hirtshals i forskellige provinsbyers gågader for at få et større datagrundlag omkring samfundsmæssige meninger, betydninger og fordomme. Men i takt med, at jeg dykkede ned i casen fremstod det mere relevant at fokusere på stedet og de mennesker, der på forskellig vis er i berøring med Hirtshals. Således har det tilfældige været styret af en overordnet plan med udgangspunkt i forskningsspørgsmålene. I tabel 1 ses en oversigt over de metoder, der i forskningsprojektet er anvendt til indsamling af empiri i arbejdet med at forstå byen og dens sammenhænge – fysisk, strukturelt, historisk, socialt, politisk med mere.

4 – Konklusion og perspektivering: Empirisk synergi

Afhandlingens ekstrem-casestudie bidrager med en relativt dyb forskning sammenlignet med den brede stikprøve-forskning eller blot valget af flere forskellige cases. Indenfor den valgte case er delstudierne dog udført bredt for at favne flest mulige perspektiver fremfor at gå i dybden med én metode. I forskningsprojektet er der blevet indhentet meget og forskelligartet empiri, hvilket har været en udfordring at behandle, men samtidig ses som en styrke for det samlede projekt, fordi de endelige resultater bygger på flere undersøgelser med forskellige kildegrundlag.

Igennem forskningsprocessen har jeg ikke arbejdet lineært fra forskningsspørgsmål til entydigt svar, men tværtimod arbejdet frem og tilbage mellem de forskellige empiriske metoder og forskningsspørgsmål, jævnfør pragmatismen og den abduktive slutningsform. Således har min første vidensindsamling gennem distancerede dokumentanalyser og mine første besøg og studier af byen skærpet mit fokus på byliv og gennemrejse, og på den baggrund påvirket de følgende studier og metoder, herunder min interviewguide. Det første interview gav ny viden om brugen af byen og som konkret eksempel skærpet min opmærksomhed på et igangværende byrumsprojekt. Den nye viden har igen påvirket det næste interview, hvor jeg har testet den første interviewpersons værdier og udsagn op imod den nye informants holdninger og viden. Hvert interview har på trods af den samme semistrukturerede interviewguide haft nye vinkler og pointer og påvirket mine spørgsmål og fokus for næste besøg.



Registerdata har informeret både spørgeskemaer og interviewguides, og tilsvarende har mine forskellige kvalitative fund givet anledning til, at jeg har udtrukket nye statistikker og kørt nye krydsninger for at undersøge, om mine fund kunne ske at være udtryk for en mere generel tendens. De forskellige metoder har generelt suppleret hinanden og er hver for sig valgt som det værktøj, der har syntes bedst egnet til den forestående 'opgave'. Man kan for eksempel spørge, hvorfor jeg har lavet spørgeskemaundersøgelse blandt de gennemrejsende men ikke blandt byens borgere. Og hvorfor jeg har lavet dybdegående interviews blandt borgere og nøglepersoner men ikke blandt de rejsende. Spørgeskemaet er kendetegnet ved at have stor repræsentativitet mens det i forhold til interviews er mere overfladisk. Dette har været velfungerende i forhold til de gennemrejsende, der generelt ikke har nær så mange erfaringer og forhold til stedet som de lokale, hvor interview så til gengæld har været bedre egnet, dog på bekostning af antal respondenter. I den forbindelse er interviewpersonerne omhyggeligt udvalgt for at sikre bredden af de interviewedes private og professionelle baggrunde. Kombinationen af registerdata, interviews og spørgeskemaundersøgelser med mine egne rejser gennem, til og rundt i byen og de i den forbindelse etnografiske studier og urban design-faglige mappings har givet et nuanceret billede af den belyste problemstilling.

I løbet af forskningsprojektperioden har jeg deltaget i en række møder på Hjørring Kommune for at udveksle viden om Hirtshals. Det første møde lå tidligt i opstartsfasen (21/2 2013) og havde lighedspunkter med et semistruktureret ekspertinterview, (uden dog at blive behandlet som et reelt interview med efterfølgende transskribering og citeringer). Mødet havde til formål at skabe et initierende overblik og indsamle en bred viden om Hirtshals, og som forsker var jeg på dette stadie mere på 'rejse' i en fremmed kultur end på 'minearbejde' for at grave efter specificeret viden (Kvale & Brinkmann 2009, s. 66). Mødet resulterede blandt andet i, at jeg tre uger senere fik adgang til en stor mængde materiale fra den tidligere Hirtshals Kommune, hvilket er brugt i mine

historiske dokumentanalyser. To gange er jeg blevet inviteret til at fremlægge mine foreløbige resultater på Hjørring Kommune (7/4 2014 og 24/6 2015) hvilket har givet brugbar feedback og en klar tilkendegivelse om, at min forskning ikke alene har interesse i akademiske kredse men i høj grad kan bruges i praksis som grundlag for debat og direkte handling. Tydeligst er dette kommet til udtryk ved at kommunen som følge af mine studier i øjeblikket overvejer en omdirigering af dele af trafikken, så turister i mindre grad sluses direkte til færgeterminalen men får bedre mulighed for at besøge byen på vejen. Imellem de to resultatfremlæggelser har jeg endvidere været inviteret til og deltaget i et møde omkring strategi og byfornyelse af Hirtshals by (9/10 2014). Den jævnlige kontakt med Hjørring Kommune har bidraget til, at jeg har været informeret om kommunens politiske udfordringer og ønsker sideløbende med, at jeg har øget min egen vidensproduktion gennem blandt andet borgerinterviews og lokale stedsanalyser.

Oveni mine møder på Hjørring Kommune har jeg i løbet af den treårige forskningsproces besøgt Hirtshals mere end 20 gange, og de mange besøg har været en vigtig del af at blive fortrolig med min case.

Som det er gennemgået i dette kapitel bygger forskningsprojektet "Transit- eller leveby?" på et omfattende casestudie af én konkret by med henblik på at skabe mere viden omkring forholdet mellem det komplekse sted og dets mobiliteter. Som det er anført i den skematiske oversigt over projektets bestanddele samt i indledningen til kapitlet arbejder afhandlingen teoretisk med en relationel stedsforståelse. Denne forståelse hænger netop sammen med ønsket om at belyse casen fra mange vinkler og undersøge forbindelserne mellem de forskellige aspekter af stedet (socialt, fysisk, historisk, kulturelt med mere). Mixed methods har på den baggrund været nærliggende for ikke at begrænse analysen til et udelukkende kvalitativt eller kvantitativt blik. Den pragmatiske pluralisme understøtter denne fremgangsmåde og forståelse for at give empirien en fremtrædende placering i afhandlingen.

Som nævnt har forskningsprojektet allerede haft en direkte implikation i praksis indenfor rammerne af den konkrete case, Hirtshals. Som nævnt tidligere er den producerede viden til en vis grad kontekstafhængig, men det er endvidere ønsket, at også andre byer med lignende udfordringer, kan bruge projektet til inspiration, som debatoplæg og som input til strategier for stedsudvikling og mobilitetsplaner.

Desuden kan afhandlingen fungere som afsæt for yderligere forskning omkring transit og levesteder i en bredere forstand. Det kan være andre havnebyer eller grænsebyer, men det kan ligeledes være rastepladser, lufthavne eller andre steder, der om end de er karakteriseret ved gennemrejse, samtidig skal kunne tilbyde gode rammer for ophold.

Metoder	Kategorier	Specifikation	Empirisk bidrag	Videnskabs-teoretisk input
Dokument-analyse	• Historiske skrevne og tegnede dokumenter	Arkitektkonkurrenceprogram og -forslag	Oprindelige strategier og visioner	Hermeneutisk
	• Politiske dokumenter	a) Landdistriktsredegørelser b) Kommuneplaner	Nutidige politiske strategier og visioner	
	• Luftfotos og skråfotos	Luftfotos fra 1944, 1964, 1979, 1985, 1992, 2013	By- og havneudvikling i relation til tidligere og nye visioner	
	• (Nyheds)medier	Avisartikler og tv-udsendelser	Nyhedsværdier med udgangs-punkt i Hirtshals	
	• Officielle hjemmesider, brochurer og sociale medier	a) Hjørring Kommune b) Hirtshals Havn c) Hirtshals Turistforening d) Hirtshals Handelsstandsforening	De største aktørers selvforståelse og visioner	
	• Teoretiske tekster	Stedsteori og mobilitetsteori	Begrebsdannelse	
Interviews	• Semistrukturerede livsverdensinterviews • Elite-interviews	3 kombinerede interviews 1 semistruktureret livsverdensinterviews	Lokalt blik på og oplevelse af Hirtshals	Fænomenologisk og hermeneutisk
Spørgeskema-undersøgelser	• Afkrydsningsbaseret med uddybende kvalitative besvarelsesmuligheder	2 undersøgelser, hhv. a) privatrejsende, n=675 b) erhvervsrejsende, n=58	Udefrakommende blik på og oplevelse af Hirtshals	Hermeneutisk og empirisk-analytisk
Registerdata	• Befolkningsudvikling og prognoser • Skibsanløb, passagerantal og godsomsætning	Data og prognoser fra a) Danmarks Statistik b) Hjørring Kommune c) COWI og KUBEN	Statistisk materiale at forholde den kvalitative data til	Empirisk-analytisk
Fysisk-rumlige stedsanalyser og mappings	Registreringsmetoder inspireret af urban design og etnografi	a) Retningsbestemt drifting: Rejser ind til Hirtshals med bil, tog og færge b) Eksplorativ drifting: Gåture rundt i og omkring Hirtshals --> fotos og produktion af strukturkort	Forskerens blik på og oplevelse af Hirtshals	Fænomenologisk og empirisk-analytisk

Tabel 1- Metodeoversigt for afhandlingen

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Chapter 6 : Environmental Tectonics: Design Research Methods

By Isak Worre Foged

Timeline: March 2012 to March 2015 (defended June 2015)

Keywords: Environmental Architectures, Tectonic Architecture, Computational Architecture

Supervisors: Professor Mary-Ann Knudstrup, Aalborg University & Professor Dr. Michael U. Hensel, Oslo School of Architecture

Collaborators: text

Biography: PhD (2015) AAU, M.Arch (2009) UIC, MSc.Eng.Arch (2008) AAU

Project/chapter	Theory input	Method	Epistemology
Environmental Tectonics: Matter Based Architectural Computation	Architcetural, Engineering and Computational theories (Aesthetics, Acoustics, Tectonics, Thermodynamics, Simulation, Evolutionary Systems, Material Systems	Deductive theory studies, deductive case studies, Inductive design experiments.	Critical rationalism, phenomenology

INTRODUCTION

This chapter intends to clarify and argue for the approach to research taken within the PhD thesis 'Environmental Tectonics' by elaborating on an architectural research methodology that is based on the objective of the thesis as described in the associated abstract. Environmental sustainable architecture, with its broad scope, can be understood differently from the perspective of natural and engineering sciences' intense delimiting into quantitative isolated research inquiries and from the humanistic perspective of inclusive qualitative inquiries. The research design approach is therefore broad in character. However, there is a need for specificity to allow concrete methods of testing, as is central to scientific production. With this in mind, a research position is stated below, which is advanced into a research design. The research design integrates methods and models from the sciences and humanities, with the attempt to address the two objectives of the project being an architectural theoretical framework and a specific set of applied methods and models. The outline of the research methods illustrates a mixed-model approach, including theoretical-conceptual research *into* design, methodological-instrumental research *for* design and experimental-hypothetical research *through* design (Frayling 1993). Specific research inquiries within the thesis are approached according to the research method considered most suitable.

Research span

The thesis is rooted in architecture, with a strong relationship to engineering science, computational science and the natural sciences through biology. While each scientific field could be studied alone with substantial work to be pursued as agendas related to the built environment, it has been a fundamental principle to work across disciplines. It is believed that the correlations and overlaid knowledge fields produce more fertile conditions for a framework description and exploration of what is proposed as Environmental Tectonics. This approach to architectural research is not new and is, if anything, argued to be the most adequate research approach within the field (Groat & Wang 2011) due to its interdisciplinary nature and scope. In terms of the research methodological perspective, the selected methods of inquiry rooted in each of the above fields are utilised as the means of the research work in general. The objective is not, however, to constitute whether one method belongs more to one field than to another; rather, it is to clarify that the methods have been chosen to support both the broad objective of the project and the specificity of each study within the thesis.

The project situates itself between the conventional scientific domains of natural sciences and humanistic sciences, figure 1. This, as described above, is no different from most other architectural research agendas, though it is important to stress that all studies conducted are based upon this research domain integration, which entails a qualitative reading in art- and architecture-related perspectives and a quantitative approach related to the natural and engineering sciences tied together as described below under Research Design. Furthermore, Archer (Archer 1995:3) suggested that the sciences have recently become less reductionist, commonly as a way to isolate and study a subject matter, while the humanities have become more empirically rigorous through the use of information technology. This work builds upon this philosophy of science development. Yet the research work does not suggest bringing either of the research method domains closer together; rather, it indicates that architecture is positioned across both domains at the same time and thus needs to work in both domains simultaneously with the relevant research methods and, from this combination, approaching an architectural scientific discourse. If qualitative and quantitative approaches are used in combination, it is suggested that a highly synergistic potential is reached, allowing a more rich and elaborate research inquiry (Mintzberg 1979; Jick 1979; Eisenhardt 1989:538).

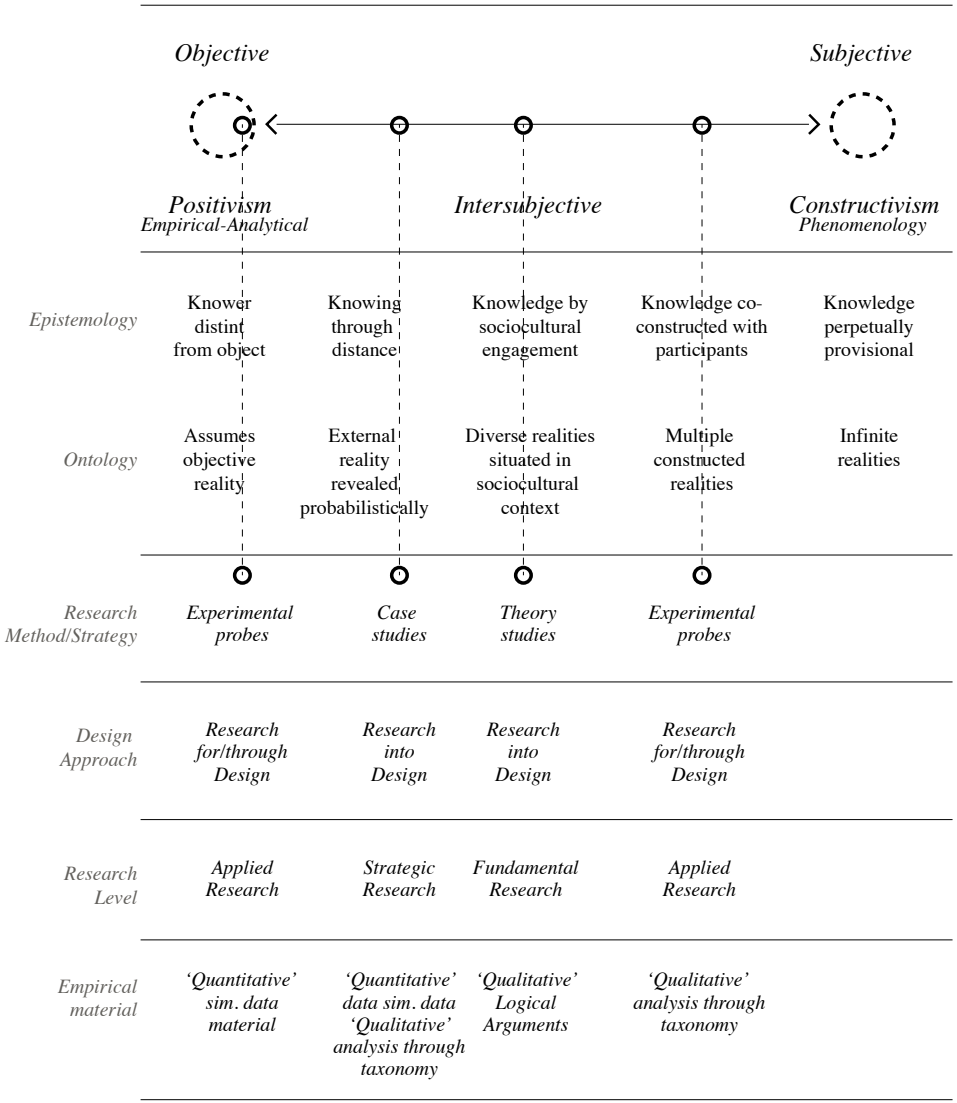

Figure 1. Diagram of thesis research philosophy of science positioning based on Wang and Groat's model of research continuum between Positivism and Constructivism research orientations. (Groat and Wang, 2013: 76) Diagram by Isak Worre Foged.

Research position

Another aspect that should be mentioned is the relatively broad investigative position, which can be described in segments (Archer 1995). A first segment is fundamental research, exemplified by the theoretical arguments and propositions provided in the theoretical chapters of the thesis. A second segment is strategic research conducted through investigations into the applicability of developed methods to the generation of architectural environmental compositions. A third segment is applied research, in which the work is suggesting explicit applications of a building envelope. A fourth segment is action research, in which physical prototypes are constructed and situated in the environment as demonstrators and for potential observation in a specific context. It has not been attempted to restrict the studies to one research level, but rather the methodological approach to pursue an idea from initial basic observation, its axiom, to as applied a construct possible. This is deemed fruitful, as it allows an exploration of the individual study from different research perspectives and what that might mean in relation to the understanding and development of the overall thesis project. American philosopher of science Eric Winsberg stated the following concept regarding similar approaches:

> …a form of what philosophers call confirmation holism. Confirmation holism, as it is traditionally understood, is the thesis that a single hypothesis cannot be tested in isolation, but that such tests always depend on other theories or hypotheses. It is always this collection of theories and hypotheses as a whole, says the thesis, that confront the tribunal of experience. (Winsberg 2010:105)

Research Design

The research work follows scientific conduct by way of a systematic and goal-oriented inquiry from a humanistic perspective, by a systematic analysis of discrete and correlated understanding of the three primary subject fields. The three fields — Environmental Architecture, Tectonics in Architecture and Computational Architecture — are addressed and expanded upon via 'advances by the conduct of logical argument. Propositions are validated or refuted by exemplification and citation' (Archer 1995:3). And with the same objective from a natural and engineering science perspective, are systematic analysis of observed discrete and correlated phenomena and data-based architectural design experiments conducted.

This largely follows the research approach described by the German philosopher and mathematician Karl Popper (Popper 1959), asserting, beyond his argument of falsification over verification, that the initial research idea is based on 'inspired guesswork' followed by empirical analysis, figure 2. From this follows the methodological research cycle of:

(1) Problem statement
(2) Tentative theory
(3) Testing
(4) Re-formulation of problem statement

Problem Statement
Problem statement is also known as hypothesis statement. When converted to an architectural research design, it can be stated as follows.

(1) Hypothesis statement
Hypothesis statement is based upon 'inspired guesswork'. A Popperian formulation of inspired guesswork would be based on rational and explicit descriptions. A different approach is presented by research design author Christopher Frayling (Frayling 1993). He suggests, based on historian David Gooding's studies of Michael Faradays methods, that research, even in the field of natural sciences, is less explicit and more based on imagination

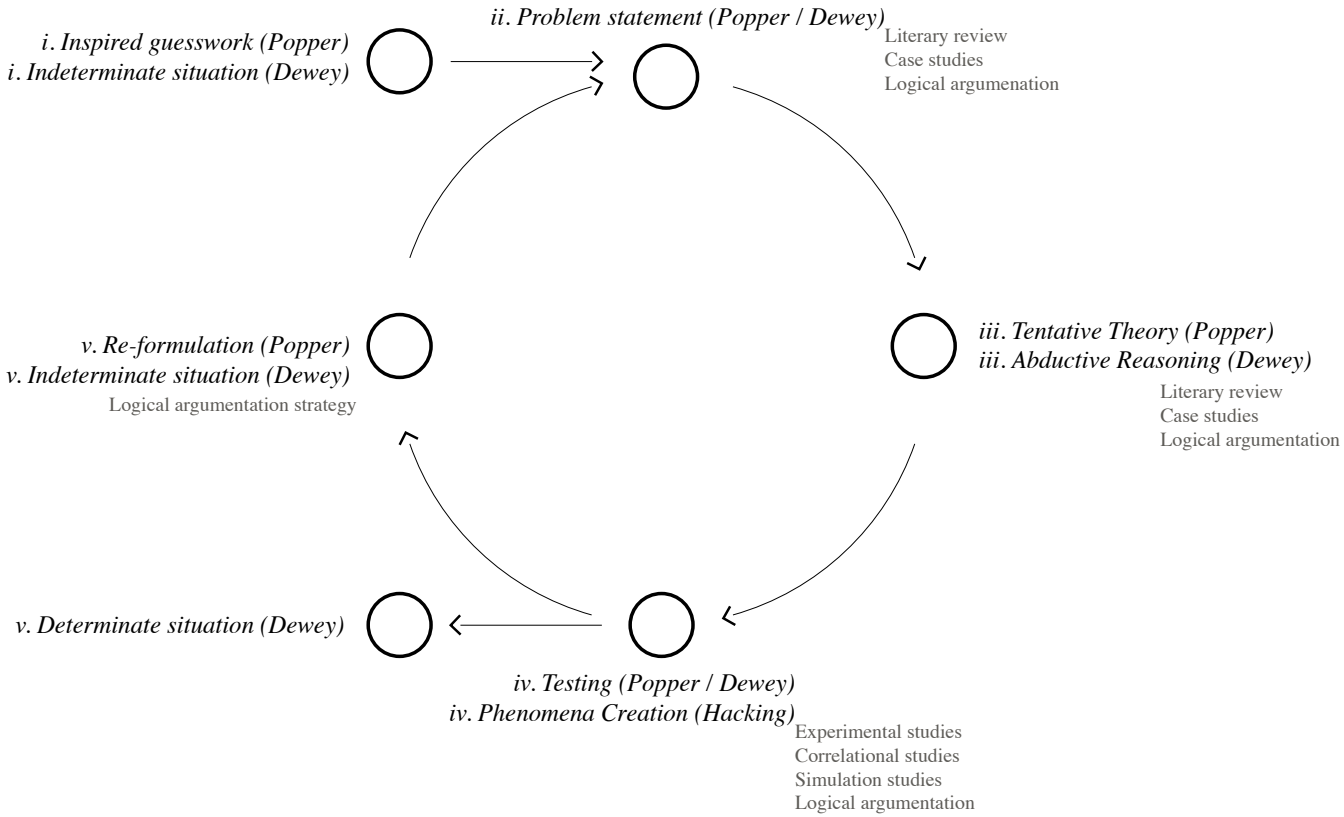

Figure 2. Diagram based on Dewey and Popper's cycles of research progression, from axiom indeterminate situations to theory, testing, re-formulation and determinate situations. Diagram by Isak Worre Foged.

and intuition. Such arguments relate the to philosophy of science theories of Thomans Kuhn (Kuhn 1962) and Michael Polanyi (Polanyi 1967). In this work, 'inspired guesswork' is based on previous knowledge, observations and intuitive ideas, initialised from literary reviews and case studies and through classical Baconian observations of the real world, or of simulated worlds. A further elaboration of this research process, situated in a pragmatic research discourse, is described by John Dewey using the phrase 'indeterminate situation', figure 2, to describe a condition wherein a person enters a new situation in which something is unclear when related to existing knowledge (Strübing 2007). The point of indeterminacy becomes the critical context for initiating studies that support the formulation of research hypotheses and questions. The formulation of indeterminate situations is also seen to be operational in formulating the research endeavor as the process of successive steps through normative truths, rather than the pursuit of a singular universal truth determinable by a single all-encompassing research question.

Literary review

Even though the literary review is listed as the first method applied within this work, it is not limited to the initial foundation of the PhD research project but should rather be seen as a continuously applied method to be used cyclically for explanatory and exploratory actions in its own right and as part of all other methods used in the thesis. While the literature, in principle, is the informational background and qualitative content of the method (Archer 1995), it is not a generally accumulated bibliography. Rather, it is an ever-increasing concretising of literary sources that takes part in shaping the core of the research study during all studies performed as part of the overall project (Wang 2011:48). In this way, the literary review informs and at the same time helps to identify and formulate the concise and instrumental research question (Wang 2013:51).

As stated above, the literary review for this dissertation is based on a preamble segmentation of the overall field of architecture into the three core literary fields. These fields have been identified through a 'back-and-forth' process (Wang 2013:56) rendering their increasing relevance to the thesis project from previous architectural studies during my MSc.Eng.Arch. project entitled 'Computational Sustainable Architecture' (2008), my M.Arch. project 'Encoded' (2009) and the following two-year research activities focused on adaptive architectures as a university research assistant.

As an instrumental research method in the clarification and dissemination of the literary sources, a specific diagram for the project is produced during and towards the end of the project. The diagram, figure 3, represents the selected literary sources of the overall project. These are categorised into subject fields one level under the three primary literary fields, including themes of energy, acoustics, thermodynamics, generative systems, simulation, transformation, et cetera. Sources are considered as input and are organised in a circular form, framing the literary arena of the thesis project. Inside this merged field, theories across the fields are connected to form an increasingly specific notion of the basis for Environmental Tectonics as an architectural approach to environmentally sustainable architecture. The objective of this diagram is to categorise and map the fields of existing knowledge and references into the project and explicate when, and for what, these sources are utilized, supporting the textual formulations. More importantly, it tracks the theory paths and serves indirectly as the underlying structure of the thesis. The difference is that the diagram illustrates a truer web of relationships as a non-linear interlayered platform, while the dissertation is naturally laid out in a linear manner through the linear reading style. This in turn illustrates the holistic research design method integrating multiple and diverse arguments, as stated by Winsberg.

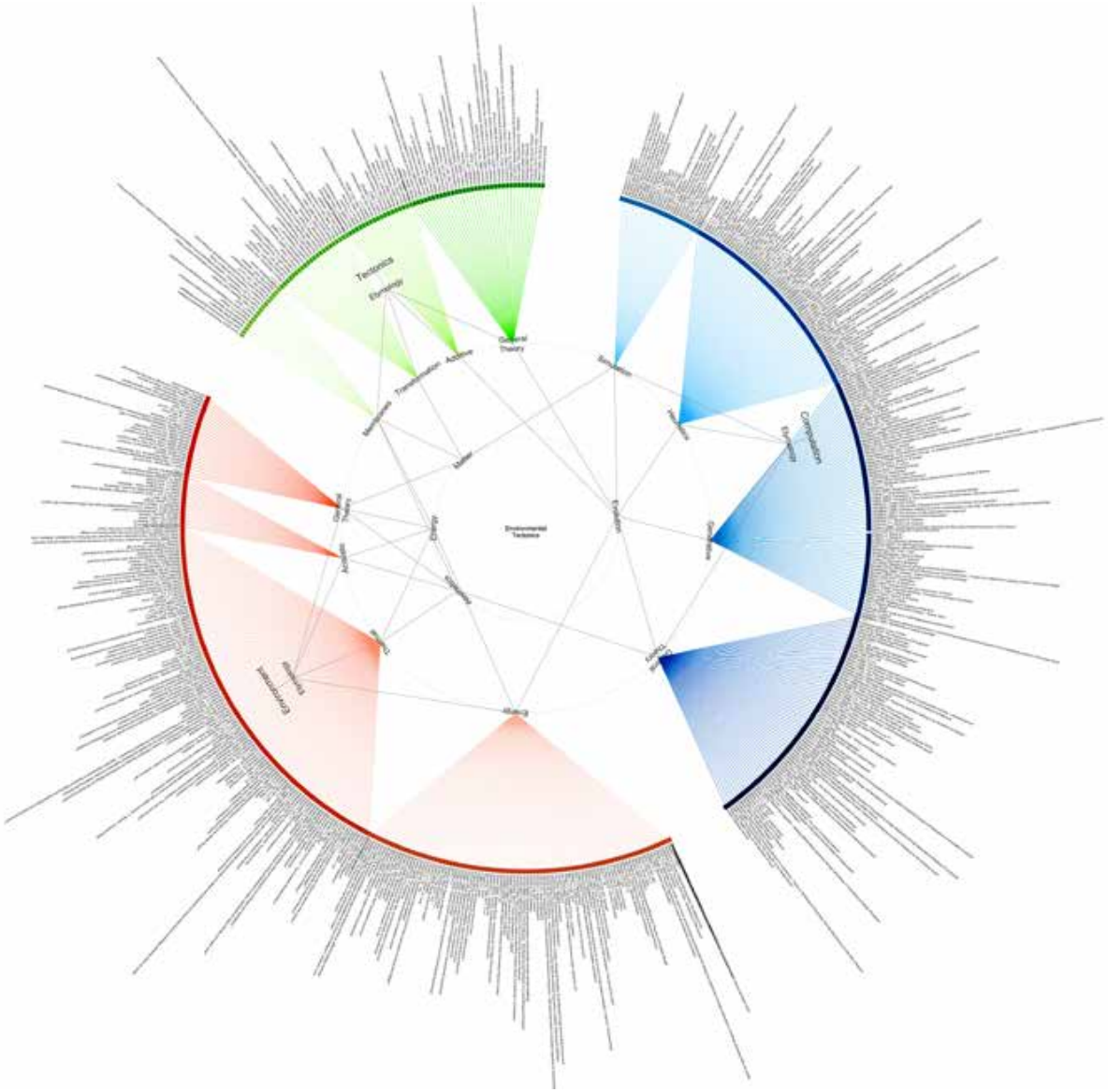

Figure 3. Theory Path Mapping of literature sources based on my Mendeley library illustrating the literature seg¬ments, relations and platform for a theoretical framework for Environmental Tectonics. The diagram is inspired by the diagram constructed by Christian Norberg-Schulz when illustrating his theoretical path to the formulation of his theories. This is particularly relevant in interdisciplinary work (Groat & Wang 2013:156). Parametric diagram by Isak Worre Foged.

Case studies

Case studies constitute the method by which the hypothesis statement can be tested. The intention is hypothesis clarification, exemplification and exploration. From Eisenhardt: 'The case study is a research strategy which focuses on understanding the dynamics present within single settings' (Eisenhardt 1989:534). More specifically, case studies offer the advantage of conducting different investigations within the same example or a few others. Explicitly, it provides and extends the description of the subject, the target being to test preliminary theories or generate theories. (Eisenhardt 1989:535).

While the broad scientific community has accepted the case study as a method for initial hypothesis statement and early formulation of the research problem, significant critique has been raised against the method in later processes of the research, such as verification, falsification and documentation (Flyvbjerg 2006:220). The problem with the method, according to its opponents, is its singularity and context specificity, as is mentioned above. In sum, Danish scientist Bent Flyvbjerg lists five aspects that have demarcated the case study method as a method unfit for scientific inquiry (2006:221). Conversely, it is found that these criticisms can all be refuted and that the case study has indeed been used as an effective architectural research method for theory building, generalisation and documentation (Groat 2011a) from the natural sciences to the social sciences (Flyvbjerg 2006:229).

In this research work, Flyvbjerg's taxonomy (2006:230) of case study methods is adopted to clarify the case study aim. Here, an 'information-oriented selection' of cases has been chosen, which is based on the aim of maximising the utility of information from small samples and single cases. Within this group, critical cases are selected to achieve information that permits logical deductions of the type investigated. Case studies are used for hypothesis development and theory building, from small sample cases related to matter as an environmental organisational principle in architecture and systemised elements as a tectonic organisational principle in architecture. Furthermore case studies are applied as design experiments of physical and digital probes, allowing the case study method to be used in hypothesis development and theory building and as a test bed.

Observations

Problem statements, or indeterminate conditions, as an axiom for new inquiries are based on observations of all kinds related to the research fields. While typically located in the beginning of a research project, the process of determining indeterminate aspects is seldom bound to the initial phase of problem framing; rather, it is a recurring event in all four phases. This has been particularly visible in the design experiments, functioning as both exploratory and verifying processes of architectural research, often pointing to additional and unexpected problems and unexplainable conditions through simply observing the 'feedback' from experimental models. In this way, observations become the registration of known and unknown phenomena.

(2) Tentative theory
A tentative theory based upon the initial hypothesis is elaborated through further description of the hypothesis/problem statement based on literary reviews and case studies.

While the primary hypothesis can be unambiguously expressed, it is not necessarily (though they should be according to Moore (Moore 1997)) possible to test unless it is separated into testable portions through a reductionist approach and (potentially) correlated afterwards, as is common in the sciences.

An example would be to test whether a suggested method, and from it a generated model, can be formulated, on the basis of which it is able to accomplish improved thermal sensation for humans.

Experimental studies	Setting	Strategy / Tactic	Outcome measures
Thermal Tectonics 0	Laboratory	Computational probe > GA Simulations > Energy Simulations	Architecural spatial forms
Acoustic Tectonics I	Laboratory / Field	Computational probe 1:1 Physical probe > EA Simulations > Acoustic Simulations	Architectural spatial forms/structure Simulated measures > Reverberation time (RT60)
Acoustic Tectonics II	Laboratory / Field	Computational probe 1:1 Physical probe > EA Simulations > Acoustic Simulations	Architectural spatial forms/structure Simulated measures > Reverberation time (RT60) > Sound pressure (dB)
Thermal Tectonics I	Laboratory	Computational probe > GA Simulations > Thermal Simulations > Energy Simulations	Architectural spatial forms Simulated measures > Surface/Volume relations for solar energy accumulation > Volume thermal mass for solar energy accumulation
Thermal Tectonics II	Laboratory / Field	Computational probe 1:1 Physical probe > EA Simulations > Thermal Simulations > Energy Simulations	Architectural envelope structure Simulated measures > Comfort temperature (Fanger integration) > Algoritmic responsiveness (iterations) > Construction constraining algorithm domain
Thermal Tectonics III	Laboratory / Field	Computational probes 1:1 Physical probes > EA Simulations > Thermal Simulations > Energy Simulations	Architectural envelope structure Simulated measures > Irradiance/Insolation > Thermal sensation (Fanger integration)
Thermal Tectonics IV	Laboratory / Field	Computational probes 1:1 Physical probes > EA Simulations > Thermal Simulations > Energy Simulations	Architectural envelope structure Simulated measures > Thermal sensation (Fanger+ integration) > PMV/PPD/OP temp > Bonding temperature between layers
Thermal Tectonics V	Laboratory / Field	Computational probe 1:1 Physical probe > EA Simulation > Thermal simulations > Energy Simulations > Thermal monitoring (physical)	Architectural envelope structure Simulated measures > Thermal sensation (Fanger+ integration) > PMV/PPD/OP temp > Layer lengths of composite material

Figure 4. Summary of experimental studies, settings, tactics/input treatments and outcome measures. Diagram by Isak Worre Foged.

This is a complex problem to which architectural studies have a typical approach, that is, singular descriptions such as describing the light measure, rather than a unified measure of human thermal sensation that is based on a more inclusive approach, as is the case with the Fanger (Fanger 1970) equations integrating six different aspects in one description. While the inclusive approach offers a more holistic description, the singular description offers a more isolated reply to the problem statement. The more general the hypothesis, the closer it may lie to the nature of architecture as an interdisciplinary field. As an open discipline, which interweaves, adopts and informs other disciplines, it is difficult to meaningfully isolate the inquiry from the many interrelated aspects. The more specific the hypothesis, the more testable it is through verification or Popperian falsification, and thus an architectural research dilemma presents itself. For this reason, the research project attempts to mount a broad architectural framework, which is progressively tested and explored in specified architectural cases and experiments. Approaching a problem statement that balances these poles of generality and specificity, enabling it to be addressed as part of a tentative theory, David Wang (2013:54) proposes that a problem statement is described in a way that says something about the theme, the elements that need to be studied and how they could be studied. Following the notion that 'a theory is a model' (Friedman 2003:513), it can be suggested that tentative theories are identical to tentative models. In this line, one can follow Albert Einstein's lead in the description of research models stating that: 'everything should be as simple as possible but no simpler' (Friedman 2003:519).

Discretising the proposition of a theoretical model into its constituent building blocks may serve to identify key aspects and indeterminate situations during the project development and concluding argument, if the work presented can indeed be classified as a theory (Wang 2011b:76). Gary Moore has defined the constituents as follows:

(a) Proposition,
(b) Logical connections,
(c) A set of conclusions from (a) and (b),
(d) Linkage to empirical reality,
(e) A set of assumptions underlying the theory, and
(f) Testability of the theory.

From the aforementioned described overall research design, it appears that the research work is geared towards the formulation of architectural theories, which in turn support the claim that the project process and final documentation can be described as a systematic and goal-oriented research inquiry.

The outreach of an architectural theory is important to consider, as architectural hypotheses that are too narrow set the theoretical platform and potential normative truth-finding in a restricted condition, in which the hypothesis can be explicated without studies. Furthermore, an approach that is too narrow limits the potential for a general impact on architecture as a field, as a result defining only what is true for a singular building (Wang 2011b:80). Conversely, a model that is too general may not be applicable to concrete application in architecture and exceeds the ability to be tested. The general hypothesis of this work, that 'Environmentally sustainable architecture can be understood as solid, fluid and gaseous matter that interacts, exchanges and forms into structure and space for the betterment of the human environment. Thus, a human-oriented environmentally sustainable architecture can be achieved by the organisation of matter' is seen as balanced in relation to the scale of architectural theory building and research approaches. It is not limited to a set of singular buildings or singular contexts; however, it is considered a testable theory due to its ability to be constructed as physical or simulated architectural experiments that relate both to the humanistic sensation of environment and the natural science of energy relationships in discrete and unified methods and models.

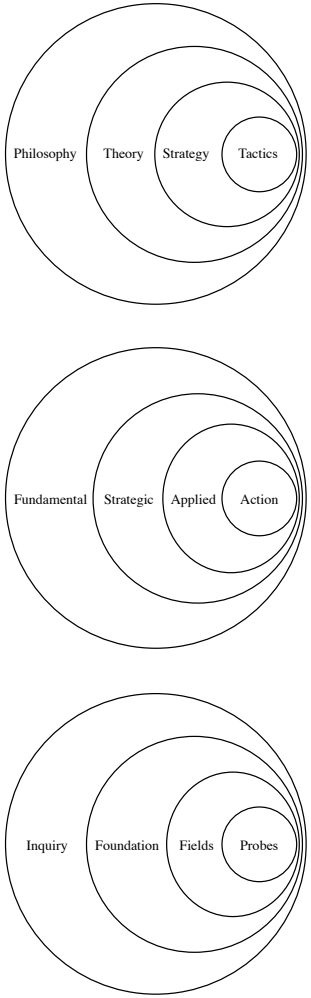

Figure 5. Top figure, structure of research levels by Wang (Wang 2011:87). Center figure, organisation of research types. Bottom figure, thesis parts and structure. Diagram by Isak Worre Foged.

While the research is considered a web of knowledge fields, methods and propositions, as stated above, the thesis research and dissertation is constructed in a similar way to the research movement described by Wang (Wang 2011:87) moving from Philosophy, to Theory, to Strategy, to Tactics, reformulated in this work as the dissertation parts Foundation, Fields, and Probes, figure 5.

(3) Testing
Following the research design notation of Groat and Wang (Groat & Wang 2011), the testing of general and specific theories of this thesis is conducted by the use of five research strategies, Experimental Research, Correlational Research, Simulation Research, Logical Argumentation Research and Case Study. These methods are often combined into a mixed-method approach, thus making possible an inquiry that addresses both qualitative and quantitative aspects within the same study.

Experimental research strategy

An experimental research strategy is a 'seeking of causal connections between two or more variables. By the manipulation of a variable within a controlled setting, the effect of that variable's behavior upon other variables are observed, as certain conclusions are drawn from these observations' (ibid). The method serves as a fundamental approach within this work as a vehicle to construct probes of both physical and digital character, which are used as means for verification/falsification and phenomena creation. In all experiments included in this thesis, studies are measured against a base model in order to enable comparative analysis. A comparative analysis can be performed either in relation to existing proposals, such as the comparative analysis between conventional architectural building typologies and the forms generated in a case study, or in relation to previous versions of the same model, which is the underlying principle of the evolutionary model, as implemented in many of the models developed throughout this research project.

According to Groat (Groat 2011b:253), a further distinction can be made between the types of experimental research work conducted, here roughly divided into laboratory work versus field work. In a laboratory, variables, conditions and constraints can easily be controlled and observed, which allows an improved condition for causal argumentation, whereas fieldwork situated in the 'messiness' of reality is under the influence of many aspects not under direct examination. In this work, all design experiments have been conducted in a 'laboratory setting', on a computer, while several of the successive studies have been further developed for field studies by the construction of physical probes. As stated by Groat, the experience derived from this research shows that physical probes can be difficult to establish as explicit causal models when the investigation objective is to measure and understand environmental aspects related to architecture.

Hence, it can be asked, what is it that makes the physical and representational probe so valuable in environmental architectural research? Philosopher of science Manuel Delanda posited as he explained the mode of operation of experimentalists:

> In learning by doing, or by interacting with and adjusting to materials, machines and models, experimentalists progressively discern what is relevant and what is not in a given experiment. (DeLanda 2013:172)

Such an orientation to research inquiry is described by anthropologist Tim Ingold, as he foregrounds making as a way of constructing knowledge in anthropology, archaeology, art and architecture (Ingold 2013). To Ingold, direct making, a form of experimenting, is central to the ability to understand and construct knowledge beyond information.

The theoretical/computational model of the case study Thermal Tectonics II gained, in this manner, significant input from the physical probe. However, this input came not from the registration

Figure 6. Full-scale prototype, measuring approximately three by eight meters as installed next to the Danish Architecture Centre, Copenhagen, for two months, for demonstration, measuring and observation. The image illustrates the articulation of the composite and its resultant bending behaviour. Photo by Isak Worre Foged.

of environmental performance but from the reformulation of the algorithm devising the rotational position of a brick. This created the basis for a redefinition of the algorithmic solution space, understood during the physical construction of the brick wall. The same can be said for the model of the case study Thermal Tectonics IV where the making of the physical probe resulted in discussions on the manufacturing processes of the bi-material composites. This introduced the aspect and impact of gluing temperature on the bending capacities, which subsequently could be explored as an extended dimension within the digital probe. This in turn allowed a much-improved architectural method and increased solution space, permitting a more generalised application through specification of the variables at work. These physical probes allowed the Thermal Tectonics IV study to progress across three phases, with each phase identifying new aspects for each physical setup.

Other examples can be provided by descriptions of mathematics-based core methods in science, as these lend themselves to the same use of experimental side effects and additional gains by the experimental approach, as they serve to identify, present and argue for indeterminate conditions. Charlotte Bigg pointed to prominent physics research methods for the understanding of physically complex phenomena, such as Brownian motion, by the use of visual representations.

> Einstein's and Perrin's Brownian motion work is justly famous for raising a number of issues central to the epistemology and historiography of the physical sciences, in particular, related to the nature of evidence, the relationship between theory and experiment, and realism. Rather than investigating the detailed ways in which a perfect fit between Perrin's experiments and Einstein's theory was realized, this paper explores the gap …. (Bigg 2011:157)

In architectural practice and research, such methods are increasingly used to address issues of communication, analysis, synthesis and simulation, allowing a visually-based approach of examination to be paired with experimental modeling of architecture (Achten 2009).

To delineate the experimental approach in this work, there has been a goal of maintaining the architectural envelope as a subject for experimental testing of general and specific questions, thereby concretising the experimental studies into one architectural aspect. This carries the advantage of continuous investigations of the general research inquiry through a specified object addressed by different measures.

Correlational Research strategy

From an experimental probe as a vehicle for investigation, it is possible to identify differences and weights of the design variables in each specific study, or, more specifically, relationships studies (Groat 2011a:212). This includes, for example, studies of the effect of spatial geometry related to material sound absorption and algorithmic search performance in the case studies Acoustic Tectonics I and II or studies through sensitivity analysis of the six factors determining thermal sensation as explored in the experimental studies of Thermal Tectonics II, III, IV and V. The correlational method is additionally used to construct the boundary conditions for a logical argumentation model described below by determining what aspects might assert the largest influence within a system. An advantage here is to reduce the variables that constitute a research model while, nevertheless, maintaining the diversity required for the specific investigation. This aspect has been emphasised with the quotation from Albert Einstein stating the importance of model simplicity. Another aspect, perhaps most known in relation to correlational research methods, is the ability to trace patterns and thus identify variable behavior.

The specific tactic of this strategy is to use mathematical models

based on previous empirical studies. These are paired with architectural experimental models, computational probes, intending to reveal the capacities of the variables in relation to the general hypothesis of the project and the specific aim of each study. While this method does not allow for the exploration of a given problem in depth, it helps to clarify relationships between constituents of a given method and model. This allows for improved further studies during the construction of an instrumental model and simulation. Further, Linda Groat (Groat 2011a:238) argues that causality is not observed in correlational studies, meaning that it is possible to determine what is happening but not why it is happening.

Simulation strategy

The presupposition for simulation research is that knowledge of 'a reality' can be obtained by reproducing that reality in some substitute medium. David Wang has stated, 'In a general sense, simulation research is useful both in developing theory and in testing theory…This is particular true for theory-driven proposals for how physical environments can enhance (or otherwise alter of benefit) some aspects of life' (Wang 2013:278). More specifically, in this work, mathematical simulation models are used on the basis of their ability to capture real-world relationships with abstract numerical expressions (Clipson 1993). While most aspects of analysis, such as reverberation time for acoustics and mean radiant temperature for thermal sensation, are based on mathematical descriptions, other parts of the utilised and developed methods and models cannot be said to be limited to analytical mathematical and numerical expression. Several simulation models of this work are based on algorithms, which can be described analytically through mathematics, but are based on logical procedures with solving properties, such as evolutionary algorithms.

Claims to the imprecision of simulation as a research method have been made, based on the lack of interference with the real world as compared to physical experiments. This, however, has subsequently been refuted by the explication of the reductionist procedures that are often a necessary part of constructing a physical experiment, while a simulation can be more inclusive (Winsberg 2010:61). While this is certainly the case for the investigation of 'intergalactic gas exchange processes', it is arguably, in architecture, a rather different case, as the objectives of architectural inquiry are more tangible and compatible with physical experiments. Nevertheless, simulation is used as a method throughout this thesis, to pair generative and evolutionary processes (these being simulations in themselves) with environmental simulations. Inquiries with this objective would simply not be possible to pursue by way of physical experimentation on an architectural scale. Secondly, the simulation enables prescriptive research, in that it supports complex non-linear time-based integration processes. Within these processes, the mere complexity and timespan considered would be, if not impossible, infeasible in physical models.

In support of this approach, the aforementioned philosopher of science, Eric Winsberg, in his book Science in the Age of Computer Simulation, elaborated further on the notions and implications of simulation methods as an approach to research (Winsberg 2010). Numerous examples supporting the claim are given illustrating simulations as a method for hypothesis generation, theory building, verification and validation, thus underlining an epistemology of simulation as a whole. Beyond these aspects, he demonstrated the need for representational methods used by the simulationist. As data is produced during simulation, it can only be observed and understood through a conversion to visual identification of the human who interprets and potentially interacts with the simulation outcome. While this aspect may seem secondary, the success of simulation as a research strategy for observation of phenomena relies heavily on the graphical communication of data (Winsberg 2010:18). Simulation is used predominantly as a tactic related to experimental research and the construction of 'Logical Argumentation' models.

Logical Argumentation strategy

'Logical argumentation models attempt to situate a well-defined thing or issue in a systemic framework that can have explanatory or utilitarian power over all instances of that thing or issue' (Wang 2011b:301). In this sense, the method aligns with the objective of the project by attempting to establish a framework that includes both a theoretical platform and a set of instrumental approaches. The method supports the interconnection of three architectural fields where the instances presented in each field can be traced back to isolated empirical appearances, either directly, by case studies, or indirectly, through previous observations by others.
The logical argumentation strategy is therefore not bound by testing phases but applied throughout the thesis, operating at different descriptive and explanatory levels. In the theoretical chapters of the thesis, discursive language is used to anchor and position sub-fields, such as 'energy', in the definition of Environments as a whole. The robustness and clarity of the logical argument are based on its definitions and its relationships. Definition is 'the conceptual delimitation, in the form of words or signs, of the scope of a system as well as its constituents' (Wang 2011b:312). This means using exact formulations of a given term, resulting in this work in etymological studies within each of the three theoretical fields. For this reason, the definitions provided in the theory-based work are elaborated to construct the theoretical chassis, which also includes sizeable technical nomenclatures.

Relationship is 'a systemic framework that must demonstrate certain rational propositions that go a long way toward making the system logically coherent' (Wang 2011b:316). From relationships, we are able to establish conclusions from deductive reasoning, performed in different case studies presented through the thesis. These are descriptive processes; however, as the project also aims to be instrumentally prescriptive, induction is used, as a basis for later experiments. This combined duality of deductive and inductive procedures is considered stronger from a research perspective, as the risk of stating the obvious during deduction and the risk of contingency – uncertain prediction – during induction is addressed within the same project (Wang 2011b:317).
Important to mention is the ability of the experimental work, not only to exemplify and potentially verify or falsify the logical argument presented in theoretical work, but also to question, explore and extend other aspects of the logical argument, which is not accessible through overarching larger discursive arguments alone. This assumption as a research strategy is elaborated upon below in Verification, Falsification and Phenomenon.

(4) Re-formulation
Upon testing, by its various methods described above, a new singular condition or a series of indeterminate situations may be identified, which enabled the process as a research cycle when re-questioned. Re-formulation of the research question and inquiry thus entails not only a rephrasing, but also further critical delineation. In this work, both conditions are present, in which an identified aspect can be addressed in a subsequent experiment, while other aspects are investigated in later experiments. The experimental work, while progressive in character, illustrates how it has been necessary to distill some aspects for later studies to maintain a specific examination throughout the project. In the same manner, some indeterminate aspects and questions that have been identified but not further addressed within this project inevitably point to further research work beyond this thesis. Importantly, this also illustrates the nature of experimental research, as the notions of verification and falsification do not stand alone but rather, to a large degree, are paralleled with phenomenon identification and creation.

Verification, Falsification and Phenomenon

While case studies can be seen as biased towards verification, it is often the case that they, surprisingly, result in falsification (Flyvbjerg 2006:235) of the studied subject and thus present new conclusions

and new insight. This process allows for not only a verification or falsification, which initially can be seen as the aim of presenting a research hypothesis, but also, according to philosopher of science Ian Hacking (Hacking 1991), a much-overlooked aspect of research, namely the construction of phenomena, creating the potential for new insight and further studies. Hacking argues for the observation of unexpected phenomena as an essential aspect of research in that it reveals potential elements that are otherwise intangible. Thus, two research strategies relevant to this thesis related to phenomena in architectural research can be mentioned. Firstly, instead of dismissing non-explanatory noise or abnormalities within a research study performed as experimental error, these factors can become a source for new investigations. Secondly, this approach can be activated, rather than being a by-product, in which studies can be performed to allow the potential creation of phenomena as a catalyst for new insight. This approach is linked closely to current architectural experimentalist research agendas through the construction of research probes with the objective of phenomena creation aligned with the objective of verification or falsification.

While natural science aims to understand and explain phenomena that can be observed, an architectural science may allow the pursuit and understanding of what we are unable to observe directly. This statement relates to Herbert Simon's notion of the 'science of the artificial' (Simon 1996), or everything that is not to be observed in nature. This is the case with fields such as economic systems and cultural systems, in which phenomena can be derived from nonexistent future conditions, hence not observable, unless prescribed within a given system. An architectural scientific agenda, being, among others, related to both economic and cultural prescriptive systems, may therefore position itself as much by the creation of phenomena to understand potential paths ahead as by verification and falsification of existing conditions. In this context, Tim Ingold promoted the notion that knowledge growth could be achieved by positioning the research method to learn something 'from' what is studied, rather than only about 'what' is studied (Ingold 2013:8). This, he stated, is particularly linked to practical making processes that enable knowledge growth processes while inside the inquiry, rather than observing it from afar. As a making action is carried out, the active engagement increases the ability to understand what aspects that might be indeterminate, using Dewey's terminology, instead of understanding what was intended to be studied at the inquiry's outset. Hence, the active engagement within architectural research by experimentation may promote architectural findings that would otherwise not be tangible.

Conclusion

With the intent to approach architectural research through the building of a theoretical framework and distilled specified instrumental experiments, a set of scientific methods have been selected for the purpose of the intended research. This entails a broad set of epistemological and methodological approaches, which, according to Wang and Groat, serves architectural research well. While parts of this thesis are strongly theorist-oriented and other parts are situated in an empirical experimentalist approach, the epistemological foundation remains the same.

While the research approach of Popper and Dewey can be seen as a linear, cyclical process, it can also be understood as nested cycles, in which a cycle is situated within another cycle. The overall objective of the research can, in this way, be understood as an overarching cyclical process, while each case design research study and experimental setup can be understood as the same cyclical process, but imbedded into the larger process of theory building, testing and reformulation, by verification, falsification and phenomena creation. As theory building has been advanced by experimental studies and experimental studies have been challenged and formed by theory, this non-linear, at times disconnected research application seems more adequate to the nature of architectural research – or at least, that is the tacit experience of this thesis.

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Kapitel 7 : Limfjordens havnelandskaber - regionale strategier for havneomdannelsesprojekter i Limfjordsområdet

Af Jacob Bjerre Mikkelsen

Tidsperiode: 01.04.2014 - 01.04.2017

Keywords: Transformation, strategisk planlægning, mobilitet

Vejledere: Professor Ole B. Jensen og Lektor Lea Holst Laursen, Institut for Arkitektur og Medieteknologi, Aalborg Universitet

Samarbejdspartnere: Dette projekt udføres i samarbejde med det tidligere ministerium for by, bolig og landdistrikter og samtlige kommuner omkring Limfjorden

Baggrund: Msc. Urban Design, Arkitektur og Design, Aalborg Universitet

Projekttitel	Teori input	Metoder	Epistemologi
Limfjordens havnelandskaber - regionale strategier for havneomdannelsesprojekter i Limfjordsområdet	Stedsteori, mobilitetsteori, design teori	Mappings, Komparative studier, interviews, research through design, workshops	Pragmatisme, hermeneutik

INTRODUKTION

Kapitlets opbygning

Teksten indledes af en introduktion til nærværende Ph.d. projekt, herunder problemfelt, forskningsspørgsmål og teoretisk udgangspunkt. Herefter diskuteres det epistemologiske grundlag og konceptualisering af, hvad viden er i dette projekt, og hvordan denne produceres igennem forskningsmæssige undersøgelser. I disse diskussioner inddrages projektets videnskabsteoretiske positionering med hovedvægt på pragmatismen. Denne kobles med grene af designforskningen, der fokuserer på praksis og forskningseksperimenter, nærmere betegnet 'research through design'. I anden del søges det at udvikle en model for forskningsmæssig undersøgelse i nærværende projekt med pragmatismen som filosofisk grundlag og 'research through design'-tilgangen som faglig optik. Herefter anvendes modellen til analyse af en konkret aktivitet i projektet, en workshop omhandlende havneomdannelsesprojekter i Limfjordsområdet. Der reflekteres herunder over hvilke typer af viden denne workshop frembragte, og hvordan denne forskningsaktivitet kan positioneres metodisk. Her er det blandt andet interessant at diskutere forskerens rolle i vidensproduktionen.

Introduktion til Ph.d. projektet 'Limfjordens havnelandskaber'

Diskussioner i denne tekst vil omhandle Ph.d. projektet 'Limfjordens havnelandskaber'. Projektet tager udgangspunkt i en Limfjordsregion under forandring, hvor Limfjordshavnene omdannes fra industrihavne til nye byområder ved vandet. Fra at være livskilde og udgangspunkt for fjordbyernes placering og udvikling ændrer Limfjordens havne nu funktion og betydning. De nye byområder på de centrale havnearealer bebygges nu flere steder med boliger, kontorer og rekreative områder, og synes i mange tilfælde i form og funktion at minde om andre af byens områder blot med fjorden som kulisse.

Vandet i Limfjorden er ikke længere en vigtig transportåre for gods, men får ny betydning for byerne. Limfjordens vande samler og adskiller; det er en barriere, man skal overvinde men også en samlet identitet, der bygger på en fælles historie. I diskussionen af Limfjordshavnenes omdannelse er mødet mellem dette vand og landet afgørende og i projektet udfoldes disse elementers kompleksitet. Fra vandsiden indebærer dette en kvalificering af vandet som et dynamisk og forskelligartet element med særegne potentialer i mødet med kystlandskabet. Fra landsiden udfoldes havnelandskaberne som et flerartet kludetæppe af komponenter med indlejrede karaktertræk og potentialer.

Projektet har fokus på at undersøge strategier for omdannelse af de industrielle havnelandskaber og hvordan disse omdannelser bruger vandets nærhed og miljø samt havnenes stedslige kvaliteter. Igennem forskningseksperimentet 'OM:FORM' på den tidligere Limfjordsfærge 'Plagen' udforskes vandets potentialer for byens borgere og besøgende. Med tesen om at fjorden indeholder uudnyttede potentialer for byerne udforskes stedspotentialer og -kvaliteter igennem inddragende udstillinger og workshops på tværs af fjorden i forskellige fjordhavne. På denne måde afsøges potentialer for brug af vandet i transformationen af Limfjordshavnene som et mere aktivt og inddragende element for beboere og besøgende. Resultaterne af eksperimenterne informerer diskussionen af nuværende strategier for omdannelse og hvordan disse i højere grad kan indarbejde vandet. Projektet søger dermed at besvare følgende forskningsspørgsmål:

> Hvordan kan havnens og vandets stedslige og sammenhængsgivende potentiale anvendes i omdannelsesprojekter på Limfjordshavnene, og
> hvordan kan denne viden danne grundlag for fremtidige omdannelsesprojekter i mindre kystbyer?

Hovedspørgsmålet suppleres af følgende underspørgsmål:

> 1: Hvordan kan en holistisk, netværksorienteret stedsforståelse med vandet som sammenbindende element bidrage til en helhedsorienteret forståelse og tilgang til havneomdannelse i Limfjordsområdet?
>
> 2: Hvilke rumlige og oplevelsesmæssige kvaliteter og potentialer findes på, og på tværs af, udvalgte Limfjordshavne, og hvordan kan disse belyses metodisk?
>
> 3: Hvordan kan interventioner i forskningseksperimentet OM:FORM udforske havnens og vandets potentiale i omdannelsesprojekter i mindre kystbyer?

Projektets mål er at undersøge, hvordan havnene og vandets stedslige potentialer anvendes i omdannelsesprojekter på udvalgte Limfjordshavne og igennem forskningseksperimentet OM:FORM at bibringe viden, der kan anvendes i omdannelsen af havneområder i mindre kystbyer. I dette kapitel diskuteres færgen Plagen som ramme om en konkret workshop for aktører fra kommuner, der deltager i projektet.

Projektets teoretiske udgangspunkt

Projektet udforsker en netværksbaseret stedsforståelse som ramme om transformationen af havnene ved Limfjorden. Denne tilgang til stedet nedbryder stedets grænser i en søgen efter forbindelser til rum, steder og historiske lag uden for stedets umiddelbare fysiske afgrænsning (Burns & Kahn 2005). Stedets identitet defineres af relationer og netværk til andre steder og dermed opløses stedernes afgrænsning (ibid.). I kontekst af Limfjorden forstås dette i forbindelse med havnenes indbyrdes relationer med vandet som sammenbindende element. Doreen Massey understøtter denne ekstroverte stedsforståelse, hvor steder forstås i en større geografisk kontekst og det lokale og globale integreres. Massey påpeger, at relationer, oplevelser og forståelser altså produceres i en langt større skala end det afgrænsede område stedet fysisk udgør (Massey 1994, p. 154). Frem for et fokus på den enkelte havns særegne stedslige kvaliteter søges derfor en forståelse af regionale stedskvaliteter og deres potentielle betydning for Limfjordshavnene som fundament for destinationsudvikling i Limfjordsområdet. Det er projektets mål at identificere og fremhæve disse forbindelser igennem metodeudvikling, hvilket analysen af en workshop i projektet eksemplificerer nedenfor.

I dette netværk af havne placerer subjektet sig – i dette projekt særligt med fokus på den sejlende turist. Den relationelle stedsforståelse følger turistens opfattelse af stederne; eksempelvis oplever den sejlende turist havnene i serie på tværs af kommunegrænser, som steder omkring et farvand – Limfjorden. Den sejlende turist har et særligt 'blik' på stedet, og dette blik identificerer det, der adskiller sig fra turistens hverdag (Urry og Larsen 2011). Således søger turisten opfyldelse af konstruerede forestillinger om stedet (ibid.). Den 'forestillede' mobilitet bygger på individets forestillinger om stedet influeret af stedets markedsføring, identitet og branding fra officiel side såvel som virale fortællinger og diskurser om stederne (Lassen et. al. 2011).

Det er derfor målet at tænke Limfjorden som en sammenhængende destination og skabe nye forbindelser imellem havne ved Limfjorden ved at fokusere på vandet. Der udvikles et metodisk greb til synliggørelse af forbindelser på tværs af Limfjorden og som laboratorium for koblingen mellem havnens brugere og vandet. Det metodiske greb er forskningseksperimentet OM:FORM på den tidligere Limfjordsfærge 'Plagen'. Her afsøges potentialer for udveksling på tværs af fjorden byggende på et tidligere transportmiddels egenskab som sammenbindende element (se Artgineering 2007). 'Plagen' indlejres således i en stedsforståelse, der tager udgangspunkt i, at steder produceres af fysiske såvel som humane aktører og udgøres af statiske såvel som mobile fysiske rammer (se Cresswell 2004).

I det følgende sættes projektets metoder og vidensproduktion i en videnskabsteoretisk ramme. Teksten fokuserer på 'eksperimentet' som den drivende kraft i designforskningen og trækker både på designfaglige refleksioner og pragmatismen som videnskabsteoretisk grundlag. Diskussionerne konkretiseres omkring en specifik situation, en workshop på færgen 'Plagen', der eksemplificerer projektets arbejde med at udvikle eksperimenterende metodiske greb til identifikation af forbindelser på tværs af Limfjorden.

Projektets epistemologi

Det epistemologiske udgangspunkt for nærværende projekt fokuserer på 'eksperimentet' som den centrale og drivende kraft i designforskningen. Med dette udgangspunkt i vidensproduktion igennem eksperimenter i praksis vil diskussionen hovedsageligt bygge på pragmatismens forståelse af, hvad viden er og hvordan den produceres igennem forskningsmæssige undersøgelser. I teksten udvikles en model for denne undersøgelsesproces med udgangspunkt i pragmatismen og modeller udviklet inden for designforskningen, nærmere bestemt inden for 'research through design'-tilgangen. Pragmatismen danner derfor filosofisk grundlag for diskussionerne og 'research through design'-tilgangen anvendes som faglig optik på forskningsaktiviteter i projektet.

Ifølge pragmatismen produceres viden igennem iterative forskningsmæssige undersøgelser. Formålet med undersøgelserne er at transformere problemstillinger fra en 'ubestemmelig situation' til en 'bestemmelig situation'. Disse undersøgelser skal bibringe viden igennem abduktion af hypoteser, der i undersøgelsesprocessen testes på empirisk data. Er hypotesen succesfuld vil den transformere den ubestemmelige situation til en bestemmelig, men er den ikke, vil undersøgelsesprocessen starte forfra i en ny iteration. I tilfælde hvor hypotesen viser sig underbygget af empirien i en tilfredsstillende grad vil en bestemt opfattelse i Deweys termer være 'garanteret' eller 'berettiget':

> 'If inquiry begins in doubt, it terminates in the institution of conditions which remove the need for doubt. The latter state of affairs may be designated by the words belief and knowledge … prefer the words "warranted assertibility" ' (Dewey i Bacon 2012, p. 97)

Som modreaktion mod sandhedsbegrebet og sandhed som mål for den forskningsmæssige undersøgelse beskriver Dewey resultaterne af undersøgelserne som velargumenterede opfattelser ('beliefs'). Disse opfattelser er sande indtil bedre argumenterede opfattelser fremkommer igennem hypotesedannelser og eksperimenter:

> '…propositions are but the summaries of prior inquiries and testings, and therefore subject to any revision demanded by further inquiries.' (Dewey i Bacon 2012, p. 99)

Disse opfattelser er altså resultater af forskningsmæssige undersøgelser og er stabile indtil de erstattes af nye opfattelser. Opfattelser er ikke permanente, 'Cartesianske' grundpiller, men ifølge Dewey er viden et netværk af opfattelser, som vi midlertidigt kan styre efter, indtil de erstattes af nye opfattelser (Bacon 2012).

Eksperimentet i centrum

Dewey udfolder et tankesæt med fokus på efterprøvning af hypoteser igennem eksperimenter med afsæt i den naturvidenskabelige vidensproduktion. Teorier skal i høj grad anses som værktøjer, der først viser sig brugbare igennem eksperimenter:

> 'Significantly, Dewey thinks experimentalism, although modelled on laboratory science, is of relevance to all areas of human life in order to address the 'problems of men'. Whatever the question might be, the way to address it is to propose hypotheses and attempt to test them with a view to determining the utility of adopting them.' (Bacon 2012,

p. 99)

Pragmatismen kan altså siges at gøre op med den aristoteliske opdeling af teori, praksis og poesis (fremstillende gøren) og underordne teorien i forhold til praksis i vidensproduktionen (Gimmler 2012).

Inden for designforskningen pågår epistemologisk arbejde med henblik på at sætte ramme om designeksperimentet og dets gyldighed i en akademisk kontekst (Jensen 2010). Dette fokus på eksperimentet kan relateres til begrebet 'Research through Design' udviklet igennem de sidste tre årtier (Frayling 1993, Archer 1995). Begrebet ses i flere varianter, hvor ordet 'through' erstattes med 'by' eller 'for'. I denne diskussion er 'through' valgt, da det henviser til en særlig optik, tankesæt og metodologi, der knytter sig til urban design faget og dermed også tilgangen til forskningsobjektet (se Fallan 2010, Lawson 2004 samt refleksionsafsnittet sidst i denne tekst). Begrebet 'design' er derfor bredt defineret og henviser ikke snævert til fysisk design af artefakter men som en bredere faglig tilgang til problemstillinger. I dette projekt omhandler dette altså ikke kun fysisk design af havneområder men også en designtilgang til mere overordnede strategier, som nedenstående workshop er et eksempel på. Design er relateret til Lawsons (2004) konceptualisering af designtilgangen som 'design thinking', hvilket udfoldes nærmere i næste afsnit.

Ifølge Bang et. al (2012) er designeksperimentet i designforskningen lige så vigtig som observationsstudier i socialvidenskaben, tekstanalysen i humanvidenskaben eller laboratorieforsøgene i naturvidenskaben. 'Research through design'-tilgangen sætter netop en ramme for designpraksis og designeksperimentet i centrum for den forskningsmæssige undersøgelse:

> 'The notion of Research-through-Design framed the possibility of design research being done on the basis of design practice or through practice, i.e. by artistically/creatively making objects, interventions, processes etc. in order to gain knowledge.' (Bang et. al. 2012)

Bang et. al. efterspørger en sammenhæng imellem de overordnede metodologiske diskussioner omkring 'Research through design' og de konkrete projekter og cases metoderne anvendes i. I denne sammenhæng argumenteres for hypotesens nødvendighed som et vejledende redskab for undersøgelsen. Med reference til Peirce (1958) opstår disse hypoteser i pragmatismen som eksperimentelle processer af abduktiv ræsonnering. Derudover understreges vigtigheden af motivation, der leder forskeren ind i forskningsprocessen. Denne motivation kan være funderet i faktorer som praksis, kunstnerisk inspiration, have politiske eller etiske hensigter og opstår oftest i en kombination af flere faktorer. Diskussionerne konkretiseres hos Bang et. al. i en model for 'Research through design' (af forfatterne betegnet 'Constructive design research'). Eksperimentet bliver altså drivkraft for den forskningsmæssige undersøgelse og kan påvirke, og blive påvirket af, alle niveauer af undersøgelsen.

En model for forskningsmæssige undersøgelser i nærværende projekt

Med afsæt i ovenstående diskussioner præsenteres en model for forskningsmæssige undersøgelser i nærværende projekt. Modellen er opdelt i fem faser i en spiralformet proces. Modellens faser skitseres indledningsvist og uddybes herefter. Overordnet tager modellen udgangspunkt i en åben eller uafklaret situation (fase 0), der blandt andet igennem forskerens baggrund og faglige optik indsnævres til en konkret problemformulering (fase 1). Fra fase 1 til 2 udvikles et forskningsdesign, der danner grundlag for hypotesedannelse igennem abduktiv ræsonnering i fase 2. De indledende faser bygger op til eksperimentet eller delstudiet i centrum for den forskningsmæssige undersøgelse. Delstudiets output kan både produceres i form af nye opfattelser (hvad Dewey kalder 'beliefs') i fase 4 eller generere nye spørgsmål til

nye undersøgelsesiterationer i fase 0. Modellen er altså iterativ, således at tidligere iterationer kan informere nye undersøgelser og tidligere opfattelser kan erstattes af nye, bedre argumenterede opfattelser. Modellens faser er en overordnet inddeling, der naturligvis forsimpler den faktiske proces, ligesom faserne i høj grad vil overlappe hinanden i større eller mindre grad. Ligeledes kan modellen ikke repræsentere alle typer af studier i projektet, da hvert delstudie vil have variationer i gennemførelse samt størrelse og afgrænsning af de enkelte faser. Modellen er præsenteret som diagram nedenfor, og hver fase, deres teoretiske grundlag og indbyrdes sammenhørighed vil efterfølgende blive præsenteret.

Fase 0: Fra den åbne situation til konkret problemformulering

Modellens udgangspunkt er en åben/uafklaret situation inspireret af hvad Dewey betegner som en 'indeterminate situation' (Bacon 2012). I kontekst af dette projekt er denne åbne situation Limfjordens havne som forskningsobjekt eller fænomen. Dette fænomen kan anskues fra et væld af forskellige perspektiver og fagligheder, og her spiller forskeren en vigtig rolle i indsnævringen af problemfeltet imod en egentlig problemformulering, der videreudvikles i et forskningsdesign. I processen fra fase 0 til 1 i modellen anvender forskeren sin faglige optik til at isolere problemstillinger i et åbent problemfelt. Problemformuleringen inden for designfaget kan ikke nødvendigvis struktureres i velordnede problemstillinger:

> 'Such problems can be extraordinarily complex, such as those found on a chess board, and so it has appeared as if this understanding applies to all instances of problem solving and thus to design. Sadly this is not so. Designers (…) solve not well-formulated problems but ones which are ill-structured, open ended and often referred to as 'wicked' (Lawson 2004, p. 19).

Lawson sammenligner endvidere design med problemløsning af disse komplekse eller 'wicked' problemstillinger. Designeren må altså identificere problemstillinger med henblik på 'forbedringer'. Det er dog ikke fra begyndelsen i det åbne problemfelt givet, hvilke metoder og processer, der fører situationen fra et 'unsatisfactury state' til et 'improved state'. Dette 'improved state' kan ikke defineres som en endegyldig sandhed – der kan findes en endeløs række af stadier, der på hver sin vis udgør en forbedring af den konkrete situation (Lawson 2004). Der kan drages paralleller imellem Lawsons beskrivelse af designprocessen gående imellem disse to stadier og Dewey's beskrivelse af videnskabelige undersøgelsesprocessor i en udvikling imellem ikke-determinerede og determinerede situationer som beskrevet ovenfor.

Processen imellem fase 0 og 1 er i høj grad influeret af forskerens subjektivitet og normative holdninger til problemstillinger, og i de senere faser influerer denne subjektivitet kombineret med den faglige optik også dannelsen af hypoteser for 'problemløsning'. Vejen til indsnævringen af problemfeltet kan beskrives som en 'undren' (Gimmler 2005) over tingenes tilstand. I nærværende projekt kunne en sådan undren formuleres som umiddelbare spørgsmål, eksempelvis 'Hvorfor er bolig- og kontorområder langs havnefronten afkoblet fra vandet fysisk og programmæssigt?', 'Hvorfor anvendes vandet i midtbyerne i høj grad kun som udsigt?' eller 'Vandets rekreative og oplevelsesmæssige potentialer må kunne udnyttes og udvikles yderligere igennem design´. I kontekst af nærværende projekt kunne min rolle siges at være influeret af en særlig faglig optik afledt af Lawsons begreber om designmæssige tankegange og design-viden.

I denne proces er faktorer som motivation som beskrevet af Bang et. al. (2012) ovenfor også af stor betydning. Mit personlige og faglige engagement i den gamle Limfjordsfærge Plagen som 'urbant laboratorium' er afgørende for min tilgang til problemfeltet og min formulering af konkrete problemstillinger.

Fase 1 og 2: Udviklingen af et forskningsdesign som grundlag for hypotesedannelse

I fase 1 og 2 udvikles forskningsdesignet, og her appliceres relevante metoder og teori i forhold til forskningsspørgsmål, der formuleres i fase 1. Metodeudviklingen foregår i en iterativ proces, hvori metodeudvikling og afprøvning af én metode i én undersøgelse også kan informere udviklingen af en anden metode i efterfølgende undersøgelser. Forskningsdesignet danner grundlag for dannelsen af hypoteser igennem abduktiv ræsonnering i fase 2. Denne proces kan ses som et fortolkningslag over det empiriske materiale, altså for-forståelser inden delstudiet i fase 3, inspireret af hermeneutikken (Gadamer 1960, Egholm 2014, se mere under afsnittet 'refleksion'). I fase 2 leder dette arbejde til en hypotesedannelse, der sammen med projektets forskningsdesign danner grundlag for eksperimentet eller delstudiet i fase 3. Her spiller forskerens baggrund og de tidligere undersøgelser en afgørende rolle og hypotesedannelsen er derfor en normativ proces, der indskærper et specifikt fokus for delstudier og de efterfølgende resultater og nye spørgsmål til videre undersøgelse.

Fase 3: Delstudiet

De formulerede hypoteser afprøves empirisk via delstudier baseret på udvalgte metoder. Delstudierne i fase 3 er centreret i spiralen med reference til pragmatismens ideal om, at viden skabes igennem praksisser og handlinger (Bacon 2012) samt modellen af Bang et. al. (2012). I denne proces er forskeren personligt involveret i den forskningsmæssige undersøgelse:

> 'We are not spectators looking at the world from outside but rather agents operating within it' (Bacon 2012, p. 108)

Forskeren kan altså ikke sige sig fri for involveringen i forskningsobjektet, men påvirker denne igennem handlinger og praksisser. Endvidere er en forudsætningsløs tilgang ikke mulig og forskeren kan ikke udelukke egne livserfaringer fra situationen (Tanggaard og Brinkmann 2010, p. 498). Men i pragmatismen ses dette subjektive udgangspunkt som en styrke i den forskningsmæssige undersøgelse:

> 'In the act of inquiry the researcher is actively experiencing the world, interacting with it and transforming the situation that is being studied (Bacon 2012, p. 52)'

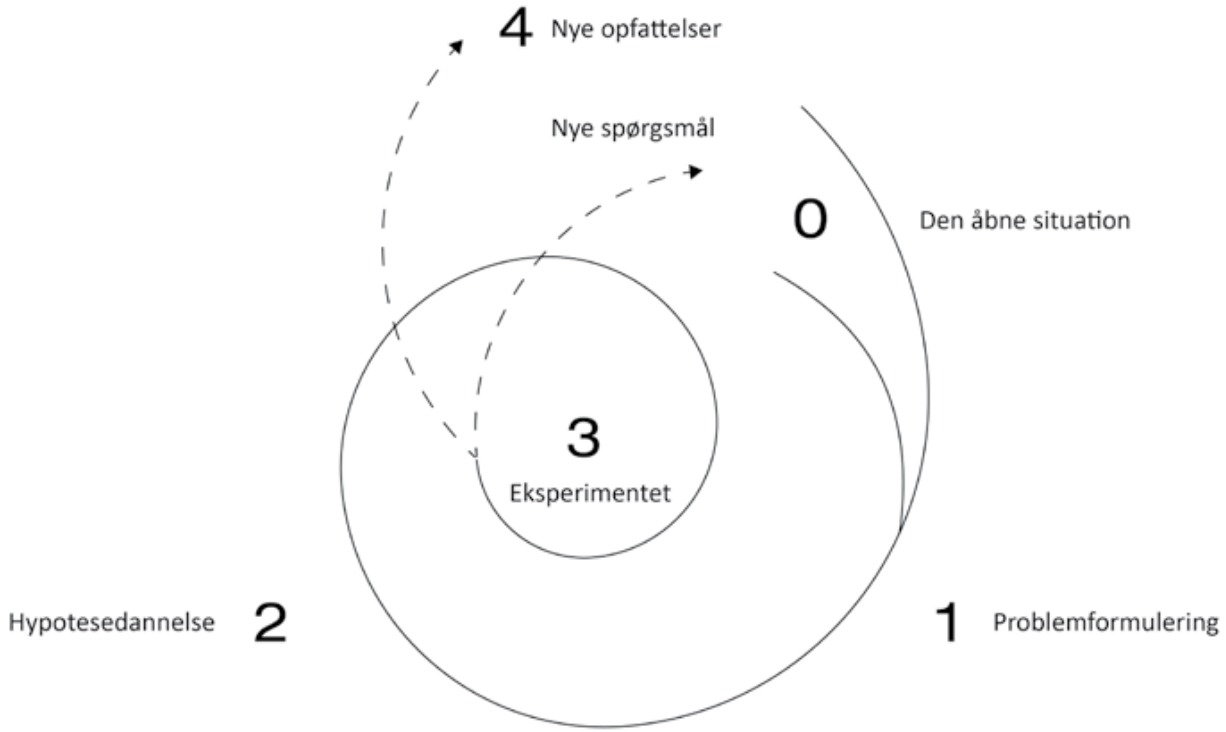
Fase 4/0: Dannelsen af nye opfattelser og videre undersøgelser

Delstudierne i fase 3 kan give afkast i form af bestemte 'beliefs', altså udsagn underbygget af argumenter fortolket igennem det empiriske materiale (Bacon 2012). På denne måde fungerer den forskningsmæssige undersøgelse som en iterativ proces:

> 'All areas of life are subject to the 'continuum of means and ends'; just as the questions asked by natural science change as a result of the conclusions of previous investigations' (Bacon 2012, p. 103)

Anvendelse af modellen på det empiriske materiale

I projektet anvendes en række metoder til at belyse forskellige aspekter af forskningsobjektet. Metoderne inkluderer udvikling af mapping-analysemetoder til at fremhæve problemer og potentialer på de enkelte havneområder samt relationer på tværs af havnene. Komparative studier bruges til sammenligning af registerdata for havnene i forhold til faktorer som eksempelvis demografiske forhold i byerne og udvikling i godstransport på havnene. Interviews anvendes blandt andet til at afdække sejlende turisters forståelse af havnene og deres udfordringer og muligheder. Ligeledes diskuteres havnenes udfordringer og muligheder med lokale aktører, og her er workshopformen som forum for vidensudveksling og vidensproduktion anvendt, og det er en sådan workshop dette kapitel vil omhandle.



Figur 1: En model for forskningsmæssige undersøgelser i nærværende projekt

Følgende refleksion over modellen tager udgangspunkt i en workshop afholdt med aktører fra de medvirkende Limfjordshavne. Formålet med workshoppen var at præsentere grundlaget for projektet og herefter at skabe ramme om vidensudveksling og idéudvikling om havneomdannelse i Limfjorden med fokus på turisme og bosætning. Dette indebar dels en afklaring omkring igangværende havneomdannelsesprojekter og erfaringsudveksling om dette, dels formuleringer af visioner for omdannelse af de enkelte havne og udvikling af Limfjorden som destination. Inddragelse af aktører inden for havneomdannelse og turismeudvikling på de enkelte havne danner altså vidensgrundlag i projektet.

Workshoppen tager afsæt i den situation, at der er behov for rammer om tættere samarbejde imellem forskning og erhverv på turismeområdet. Samtidig er der behov for at afsøge muligheder for at evaluere og innovere formidlingen af viden og i højere grad at relatere denne til branchens behov og ikke mindst arbejdsrytme (se Liburd 2011, p. 8).

Figur 2: Billede af workshopsituationen på bildækket af den gamle Limfjordsfærge 'Plagen'

I nærværende projekt anvendes workshops med forskellige aktører inden for turisme, erhvervsliv og politik som et vidensforum. I projektets første workshop inviteredes de enkelte repræsentanter fra hver kommune, og repræsentanterne blev bedt om at invitere 1-2 aktører med særlig viden og engagement i kommunens udvalgte havn i projektet. Dette kunne være erhvervsdrivende, museumsfolk, lokale ildsjæle eller andre med interesse i Limfjorden. Idéen var at sammensætte en mangfoldig gruppe i diskussionerne med en bred forankring på havnene. Således deltog 20 repræsentanter for Limfjordshavnene (herunder udviklingschefer, turistchefer, turisme- og udviklingskonsulenter, tekniske direktører, foreningsmedlemmer for lokale sejlklubber, stadsarkitekter og erhvervsdrivende) samt tre forskere fra AAU.

Workshoppen blev inddelt i tre dele; en intern afklaring blandt aktører om den enkelte havns problemer og potentialer, en dialog mellem havne to og to om hvordan disse problemer løses og potentialer udfoldes og til sidst en diskussion i plenum om havnenes udvikling og konkrete udfordringer. Workshoppen var altså opdelt i tre faser og havde til formål at danne grundlag for

dannelsen af byroller og samlet strategisk udvikling af fjorden samt frembringe viden om igangværende havneomdannelsesprojekter og strategier. På nedenstående figur er workshoppen som forskningsaktivitet sat i forhold til den udviklede model for forskningsmæssig undersøgelse. De enkelte faser i denne konkrete proces er beskrevet i komprimeret tekst på diagrammet og herefter udfoldet yderligere.

0: Den åbne situation

Den åbne situation forstås i denne sammenhæng sådan, at diskussioner omkring omdannelse af Limfjordshavne vil kunne indsnævres og konfigureres ud fra et væld af forskellige faglige udgangspunkter og motivationer. Min baggrund i urban design medfører en designmæssig tankegang, og mit engagement i den gamle Limfjordsfærge Plagen er afgørende for min konfiguration og iscenesættelse af diskussionerne og deres initierende fokus.

1: Teoretisk og metodisk ramme

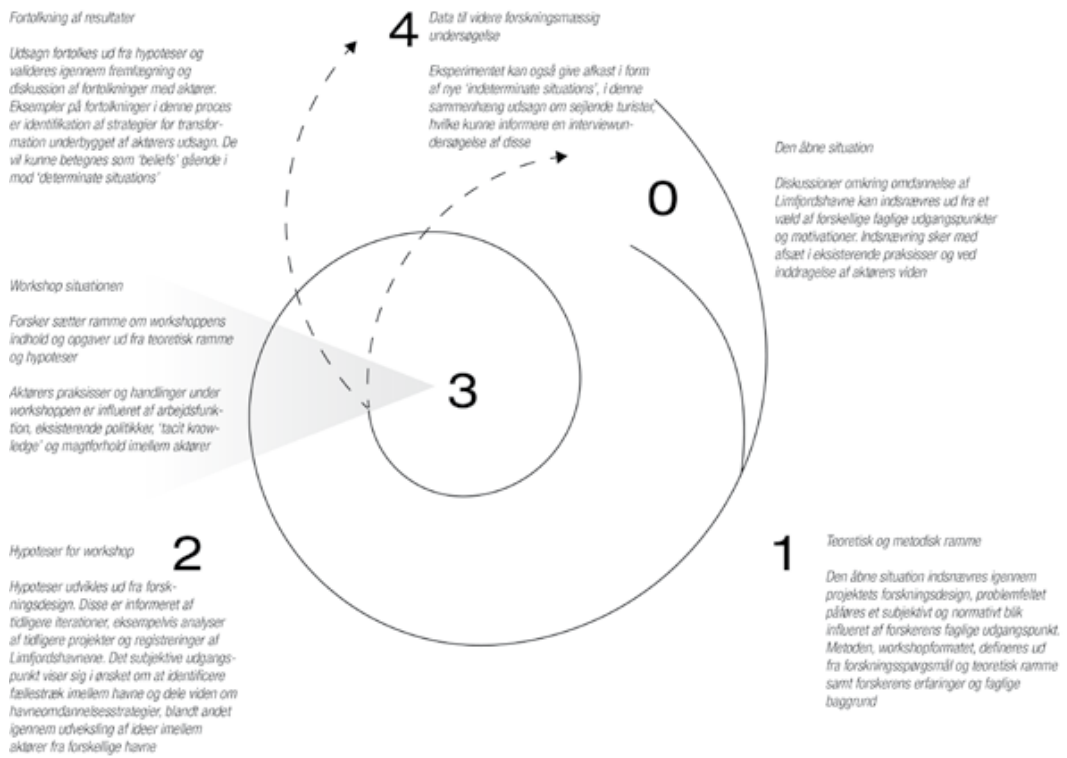
Den åbne situation indsnævres igennem projektets forskningsdesign. Problemfeltet påføres her et subjektivt og normativt blik influeret af mit faglige udgangspunkt. Metoden, workshopformatet, defineres ud fra forskningsspørgsmål og teoretisk ramme samt mine erfaringer og faglige baggrund.

2: Hypoteser for workshop

Her udvikles hypoteser ud fra forskningsdesign og opfattelser fra tidligere iterationer af den forskningsmæssige undersøgelse, herunder analyser af tidligere projekter og registreringer af Limfjordshavnene. I denne situation viser det subjektive og normative udgangspunkt sig i ønsket om at identificere fællestræk imellem havne og dele viden om havneomdannelsesstrategier. Forskerens baggrund og tidligere undersøgelser er afgørende faktorer for workshoppens format og opgavestilling. Deltagerne fik blandt andet til opgave at finde problemer og potentialer ved egen havn med henblik på omdannelse, og at diskutere disse overvejelser med andre aktører fra andre havne. Den fælles afsluttende diskussion fokuserede på fællestræk og strategisk samarbejde, og var dermed ligeledes influeret af et fokus på netværk og forbindelser på tværs af havnene.

3: Workshop-situationen

Ramme og fokus for workshoppens indhold og opgaver er defineret ud fra den teoretiske ramme og hypoteserne i fase 0 – 3. Aktørers praksisser og handlinger under workshoppen er influeret af deres arbejdsfunktion (eksempelvis som repræsentant for en kommunal planafdeling, turistforening, lystbådehavn eller andet), eksisterende politikker (samarbejdspolitikker imellem havne, eksisterende planer og retningslinjer for havneomdannelsesprojekter), 'tacit knowledge' (underliggende viden i hverdagspraksisser i aktørernes arbejdsliv) og magtforhold imellem aktører (eksempelvis imellem store og små kommuner, magtalliancer og regionale skel).
Workshop-situationen udspiller sig på dækket af en gammel bilfærge, og deltagerne befinder sig derved i et stykke kulturarv placeret i Limfjordens vande. Sammenlignet med et mere traditionelt mødelokale på et hotel eller et konferencecenter bringer dette rum deltagerne i tættere kontakt til det miljø og den kontekst, der er centrum for workshoppen, nemlig Limfjorden og dens havne. Jensen og Vannini (kommende udgivelse) diskuterer forholdet til omgivelserne med udgangspunkt i to flytyper, et mindre passagerfly og et rutefly. I artiklen argumenteres for at hvert fly på grund af deres fysiske design foranlediger bestemte praksisser (grundet plads omkring passageren, teknisk udstyr, komfort m.m.) og bevirker forskellige grader af isolering fra omgivelserne (som eksempelvis motorstøj, turbulens og vindpåvirkning). Lignende koncepter om isolering diskuteres med udgangspunkt i løb og løbeskoens isoleringsevne mod overfladen, der løbes på



Figur 3: Vidensproduktion i forbindelse med workshop i Ph.d.-projektet 'Limfjordens havnelandskaber'

(Lorimer 2012), teknologiers evne til at isolere bilisten fra vejens rum (Weight 2011) og hvordan motorcyklen eksponerer køreren for det miljø han færdes i (Pinch and Reimer 2012). I alle tilfælde medierer objektet kræfter og påvirkninger fra miljøet og isolerer subjektet i forskellig grad. I workshopsituationen i nærværende projekt er deltagerne udsat for forskellige påvirkninger fra omgivelserne. Indenfor på skibet inkluderer dette blandt andet en svag lugt af dieselolie fra skibets maskinrum og duften af træværk, synspåvirkninger som historiske billeder, skilte fra færgens driftsperiode og udsigten til fjorden, skibet befinder sig på. Skibet påvirkes udefra af fjordens bølger, strømme og vind, der sætter skibet i bevægelse som eksempelvis vuggende bevægelser og at skibet driver fra side til side. Skibet medierer altså omgivelsernes kraftpåvirkninger, der videreføres til deltagerne og påvirker workshopsituationen og dennes resultater. Skibet som workshoplokale kan have positive effekter på deltagerne i form af inspiration, en uformel stemning og associationer, men naturligvis også negative i form af søsyge og utryghed ved at være på vandet.

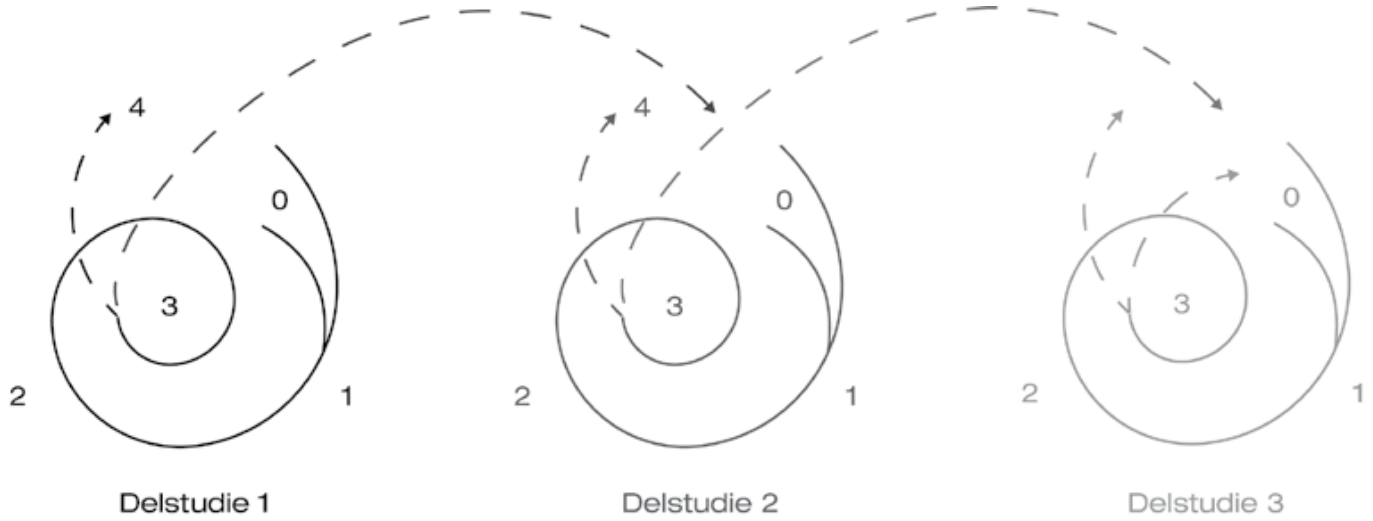
4/0: Fortolkning af resultater og data til videre forskningsmæssig undersøgelse

Udsagn fortolkes ud fra hypoteser og valideres igennem fremlægning og diskussion af fortolkninger med aktører. Eksempler på fortolkninger i denne proces er identifikation af strategier for transformation underbygget af aktørers udsagn. De vil kunne betegnes som opfattelser ('beliefs') gående imod 'determinate situations'. Disse opfattelser er således gyldige indtil nye iterationer frembringer nye opfattelser, der erstatter de forudgående. Delstudierne kan også give afkast i form af nye 'indeterminate situations'. I kontekst af denne workshop kunne dette være analyser af gruppedynamik imellem aktører og vilje til samarbejde. Disse 'indeterminate situations' kan undersøges igennem nye iterationer af forskningsmæssige undersøgelser, eksempelvis igennem andre metoder som interviews med nøgleaktører.

Afsluttende refleksioner

Den indledende forklaring af modellens opbygning og efterfølgende eksempelvisning på en konkret workshop viser modellens anvendelse på flere forskellige niveauer af projektet. Modellen kan altså anvendes i forbindelse med projektets indledende arbejde med den overordnede kontekst, Limfjorden. Modellen kan ligeledes anvendes til strukturering af mere specifikke undersøgelsesprocesser som eksemplet med workshoppen ovenfor viste. Denne skalérbarhed giver anvendelsesmuligheder på enkelte situationer, hvor enkelte delstudier udspilles i projektet. Resultatet af ét delstudie kan da afføde nye spørgsmål, der så må undergå

Figur 4: Resultater af ét delstudie kan afføde nye spørgsmål, der må afsøges igennem nye delstudier, eventuelt med nye metoder. Et eksempel er at udsagn fra deltagerne ved omtalte workshop informerer en interviewundersøgelse af sejlende turister på havnene.



videre forskningsmæssige undersøgelser i nye delstudier, som vist på figur 4 nedenfor.

Workshoppen kan ses som en samskabelse af viden i en ramme relateret til temaet, den tidligere Limfjordsfærge Plagen. Udover de epistemologiske overvejelser, der ligger til grund for den udviklede model, trækker det anvendte workshop-format yderligere på flere epistemologiske referencer. En af disse er den kritiske teori. Den kritiske teori evaluerer det byggede miljø og dettes evne til at imødekomme det samfund, det tjener. Teorien er oftest drevet af en politisk eller etisk agenda og har til formål at foranledige og stimulere forandring igennem spørgsmål og i nogle tilfælde utopiske forestillinger (Nesbitt 1996). Nærværende projekt er på den måde farvet af forskerens normative indstilling til eksisterende havneomdannelsesprojekter og workshoppen er derved også et forsøg på at 'skubbe' til eksisterende opfattelser og syn på havnetransformationsprojekter og brugen af vandet i byen. Projektet er herved inspireret af en forandringsagenda. Det kan dog ikke påstås at projektet er drevet af en politisk eller etisk agenda.

Forskningsformen kan også siges at have enkelte fællestræk med aktionsforskningen (Hastrup et. al. 2015), idet workshoppen medførte forskerens direkte engagement i processen. Forskningsformen foreskriver dog, at forskeren påtager sig en 'deltagerrolle', hvilket ikke var tilfældet i workshoppen, idet jeg ikke deltog direkte i diskussionerne men forblev i en rolle som facilitator og observatør. Workshopforløbet vil heller ikke kunne betegnes som en 'social forandringsproces' (i aktionsforskningens termer), som forskeren aktivt medvirker til.

Workshoppen som vidensforum er endvidere inspireret af designfaget. Således mener Fallan at:

> 'Design culture can be understood as a co-production of ideology and practice' (Fallan 2010, p. 118).

Forskningsprojektets opgave kan siges at blive defineret af en lang række aktører, herunder de medvirkende ved workshoppen:

> '…many people contribute to design problems (…) they include the client, but they also include users, legislators and the designers themselves (…) even at the end of a design process it is often the case that no one person or body is in the possession of the whole problem description (Lawson 2004, p. 13)

Således har aktørerne været en vigtig del af problemformuleringen for projektet, både på omtalte workshop og i tidligere stadier af projektet. Den producerede viden kan siges at være baseret på inter-subjektivitet eller konsensus, hvor 'sandheden' er det aktørerne diskuterer sig frem til (Egholm 2014, p. 237). Som det fremgår af den udviklede model og anvendelsen af denne på empirien produceres viden i dette projekt altså i samspil med aktørerne og med specifikt fokus på disses praksisser.

Den analyserede workshop relaterer sig ligeledes til begrebet 'horisontsammensmeltning' inden for hermeneutikken. Hver aktør kan i denne optik siges at besidde en for-forståelse omkring emnerne (Limfjorden, havnetransformation, turisme), der bygger på aktørens baggrund og erfaringer (Egholm 2014). I workshopsituationen sker da en trinvis sammensmeltning af horisonter og herigennem for-forståelser igennem diskussion. At workshoppens resultater baseres på inter-subjektivitet og konsensus blandt aktørerne kan også forstås som en gradvis sammensmeltning af horisonter hos hver enkelt aktør. Dermed er det ikke sagt, at horisontsammensmeltningen ender i en fælles forståelse af forskningsobjektet, men at der sker en trinvis sammensmeltning, der ideelt set øges trinvist igennem flere workshops, seminarer og andre møder. I bearbejdningen af aktørernes udsagn er forskerens egne fordomme omkring det studerede for hermeneutikken en vigtig indgang til dybere fortolkning af det studerede (ibid.).

Således er ingen fortolkninger og forståelser af det studerede mulige uden fordomme (Gadamer 1960). Endvidere er forståelsen af andres meninger og handlinger, såvel som forskerens egne, afhængige af en kontekst af antagelser, betydninger, værdier og handlinger i workshopdeltagernes horisonter (Brinkmann 2013). I den kvalitative forskning vil man ofte være interesseret i at anerkende og undersøge disse kontekstuelle forhold og deres betydning for den forskningsmæssige undersøgelse (Tanggaard & Brinkmann 2010, p. 490).

I forhold til at vurdere kvaliteten af den kvalitative forskning findes en række forskellige kriterier og opfattelser af kvalitetsbegrebet. Tanggaard og Brinkmann (2010) udfolder dele af denne diskussion med det udgangspunkt, at eksakte standarder ikke findes og endvidere ikke ville være fordrende for nyskabelse i den kvalitative forskning. Kvalitetskriterier fra den kvantitative forskning, herunder idealer om reliabilitet, validitet og generalisérbar, er ikke umiddelbart overførbare til den kvalitative forskning. Som modstykke til kvalitetskriterier i den kvantitative forskning fremhæver forfatterne Thagaards kvalitetskriterier; 'transparens', i forhold til studiets udførelse og fremgangsmåde i stedet for 'reliabilitet', 'gyldighed', som modstykke til 'validitet' samt genkendelighed som modsvar til den kvantitative forsknings ideal om 'generalisérbarhed'. Endvidere diskuteres syv kvalitetskriterier for den kvalitative forskning udformet af Elliott, Fischer og Rennie (se Tanggaard & Brinkmann 2010, pp. 492 – 494). De syv kriterier skal ikke forstås som en tjekliste for det 'gode' kvalitative studie, vejen hertil er måske snarere igennem studiet af andre veludførte kvalitative undersøgelser (ibid.). Elementer af disse kriterier vil i det følgende blive diskuteret i forhold til nærværende projekt. Blandt kriterierne fremhæves blandt andet vigtigheden af, at forskeren specificerer sit perspektiv og reflektere over målet med undersøgelsen og valg af metoder i forhold til problemstillingen – herunder også en refleksion over den fysiske ramme for studiet og om denne ramme kunne have været anderledes (ibid., p. 492). Dette fordrer en perspektivbevidsthed hos forskeren og en erkendelse af, at forskeren altid er positioneret og at 'det ikke er muligt at se noget "intet sted fra"' (ibid., p. 497). I nærværende projekt reflekteres over mit personlige perspektiv og dettes betydning for studiet (se afsnittet 'Anvendelse af modellen på det empiriske materiale'). Det kan diskuteres, hvorvidt og i hvor stor grad workshoplokalet, færgen Plagen, havde en effekt på deltagerne og resultaterne af studiet. Det kan ligeledes diskuteres hvilke supplerende observationer og metoder, der kunne understøtte en hypotese om denne effekt, herunder interviews, analyse af videomateriale fra workshopsituationen med mere. Endvidere tilskyndes forskeren at situere deltagerne, både i forhold til selektion af deltagere og deres baggrund men også den fysiske lokation (ibid., p. 492), hvilket i nærværende studie er søgt igennem beskrivelse af færgens rum og deltagernes baggrund. Dog har selektionen af deltagere været en kompleks proces, der i det videre arbejde med fordel kan redegøres for med henblik på at sikre studiets transparens. Et andet kriterium angår troværdigheden af studiet, der blandt andet kan ske igennem afstemning af resultater med informanter eller deltagere (ibid., p. 493). Dette søges i nærværende projekt igennem en dokumentation af workshoppen i en opsamlende rapport, der efterfølgende præsenteres for deltagerne og diskuteres yderligere i efterfølgende interviews, der samtidigt også kan efterprøve en 'nytteværdi' af den producerede viden (ibid., p. 494). Ydermere tilskyndes koheræns i studiet i forhold til sammenhæng imellem teori, metode og problemstilling, så længe at udtalelser og observationer der falder uden for denne ramme stadig inkluderes i studiet (ibid., p. 493). Dette er delvist tilstræbt i nærværende studie igennem en diagramatisering af undersøgelsesprocessen og sammenhænge imellem enkeltelementer i studiet.

I projektet udbredes viden løbende til praksis. Dette er organiseret i projektet i form af delrapporter, hvor den producerede viden opsamles og præsenteres for medvirkende aktører. Aktørgruppen er en sammensætning af ansatte i turistorganisationer, kommunale udviklings- og planafdelinger fra de medvirkende

kommuner men også lokale erhvervsdrivende og foreningsmedlemmer fra de enkelte havne. Diskussion af delrapporter med aktørerne igennem endagsseminarer bruges aktivt i projektet til at kvalificere og validere den producerede viden. Samtidig er denne løbende vidensudbredelse medvirkende til, at der stilles nye spørgsmål til materialet, og på den måde fortsætter aktørerne med at påvirke problemfeltet og forskningsdesignet igennem hele projektperioden. Det er herigennem målet at aktørerne, der blandt flere andre er modtagere af projektets resultater, tilegner sig viden fra projektet undervejs i projektperioden og ikke blot til sidst ved projektets afslutning. Ambitionen er, at projektets resultater kan inspirere personer i aktørgruppen i deres daglige arbejde. Det være sig eksempelvis udviklingsstrategier for havne- og byudvikling, markedsføringsstrategier og produktudvikling i turismesammenhænge, planlægning og udførelse af fysiske interventioner på havneområderne og planlægning af aktiviteter på havnene. Herved søger projektet ikke kun at dokumentere eksisterende forhold men også at være forslagsstillende i forhold til den fremtidige udvikling af havne i mindre kystbyer i Limfjorden såvel som andre steder i Danmark.

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Chapter 8 : Design for service change

By Lotte Christiansen

Timeline: December 2011 to January 2017 (expected)

Keywords: Service Design, Implementation, Organisational Change, Hospitals.

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Collaborators: Idéklinikken, Region Nordjylland.

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Project/chapter	Theory input	Method	Epistemology
Design for Service Change.	Service design theory. General design theory. Organisational change theory (Mainly theory on Complex Responsive Processes)	Multiple-case study. Research through design. Interviews. Abductive two-fold inquiry.	Pragmatism.

Abstract

This contribution intends to introduce the PhD project currently entitled "Design for Service Change" and clarify how the project is orientated ontologically, epistemologically and methodologically.

Initially, the area of investigation will be briefly introduced. This includes the research topic and related research questions. Subsequently, the PhD study will be positioned within theories of science. In this context the ontology, epistemology and methodology of the PhD study will be outlined. This will be followed by a description of the specific methods applied, a full illustration of the research design and finally the evaluation criteria for the research findings.

Introduction to the PhD study

The PhD project 'Design for service change' is a collaboration in between Aalborg University, Department of Architecture, Design and Media Technology, and Idéklinikken, Region Nordjylland. The project investigates service design (Mager 2008) as an approach to redesign public hospital services.

Service design is defined as "the use of a designerly way of working when improving or developing people-intensive service systems through the engagement of stakeholders (such as users and frontline staff)" (Segelstrom 2013, p.27). Service design is a relatively new design discipline, however, already recognized as having a great potential to make essential changes in how services are delivered.

To implement new service concepts in organisations on the basis of service design projects is, however, an often-mentioned challenge in the professional service design community; e.g. (Lin et al. 2011; Kronquist et al. 2014; Keller et al. 2013; Schaeper 2013). Experience indicate that designers have difficulties in following through with their work from concept design to implementation and that the result of successful service design projects often end up on the "concept shelf" without ever going live (Kronquist et al. 2014).

In spite of this critique, some service design projects are successfully implemented, one example being a project from Oslo University Hospital which succeeded in reducing the waiting time for women with breast cancer 90% (e.g. Bordvik 2014). This PhD project focuses on investigating primarily service design projects that are successful in implementing changes in existing hospital services. The goal is to provide the existing service design research with new theoretical knowledge on how implementation of service changes can be designed for or more precisely *invited for* during service design projects.

The project is based on the conviction that implementation of service changes in organisational contexts is addressed from the very beginning of service design project (not just at the end). I.e. the PhD project takes point of departure in the belief that what designers do throughout the design process (more or less deliberately) provides different gestures that affect whether or not the ideas produced in the project leads to actual changes in existing services.

Current service design research and general service design literature present only limited material related to the issue, e.g. (Stickdorn & Schneider 2011), and most research in the area relates to spreading and scaling services rather than implementing them locally (e.g. Lin et al. 2011; Morelli 2013).

Within other research disciplines such as organisational changes studies several studies provide prescriptive and descriptive theories of how leaders and change agents (can) enable organisational change – what they do, when, how and why (e.g. Cameron & Green 2012). However, these studies do not directly link the management or facilitation of organisational change processes to the specific practice of *creating* service changes, which is essential to service design.

This points towards a gap in current research, which this PhD project addresses by investigating the following general research question:

How do designers and project groups invite for implementation of service changes during service design projects with and for hospitals?

The PhD study investigates service design practice in hospitals. Thus, the phenomenon investigated is related to human action in specific situations and contexts. The phenomenon is further 'unknown' in the sense, that it cannot be understood on the basis of existing knowledge within service design theory or theory on organisational change. The phenomenon can thus be understood as a 'wicked problem' (Rittel & Webber 1973); a complex problem which cannot be exhaustively formulated it advance, because "the information needed to understand the problems depends upon one's idea for solving it" (Rittel & Webber 1973, p.161). I.e., in order to understand how designers and project groups invite for implementation of change to happen, the study needs to develop a foundation from which to base these understandings. This leads to the following two operational research questions:

Which conceptual framework usefully establishes understandings for how designers and projects groups invite for implementation of service changes during service design projects with and for hospitals?

And on the basis of this conceptual framework:

What characterizes how designers and project groups invite for implementation of service changes within and across different service design projects with and for hospitals?

Positioning the study within theories of science

The PhD study adheres to pragmatism as philosophical position and meta-theoretical standpoint - primarily inspired by the work of classical pragmatists John Dewey (1859-1952).

Pragmatism is often oriented towards practice and practical inquiries. Inquiries that are "open-ended, seeking to provide tools which will enable us, as participants, to cope with the world." (Bacon 2012, p.18). Pragmatism does not focus on identifying universal truths through objective observation, instead pragmatism focuses on how specific individuals act in concrete situations (Egholm 2014, p.171). Pragmatism as meta-theoretical standpoint underlies the ontology, epistemology and methodology of this PhD study and is in line with the phenomenon under investigation. Pragmatism concerns practice-related inquiries, herein, inquiries related to design practice, and aims at improving the conditions for practice by providing new ways to understand what cannot be understood on the basis of existing knowledge.

Ontology

Ontology concerns the fundamental assumptions on the nature of reality. This means that the ontology of a philosophical position describes how this position relates to the question of 'What is reality?'.

Constructivism and realism

A typical distinction between different ontologies is the distinction between realism and constructivism. Realism takes point of departure in the assumption that 'reality' exists independent from the human understanding of it, which entails that objective knowledge or 'truths' about reality can be obtained. In contrast, constructivism takes point of departure in the assumption that what we understand as 'reality' is contingent upon what we can perceive, and thus, knowledge is 'constructed' and can never be obtained with absolute certainty (Egholm 2014).

The ontology of pragmatism can neither be characterized as purely realistic nor constructivist. In a pragmatic perspective, a social phenomenon is interpreted by the individuals who are part of it, and in this aspect it adheres to a constructivist worldview. However, pragmatism also claims that the interpretation of a phenomena is always contingent of a specific situation (an objective reality), and this aspect follows a realistic worldview (Egholm 2014, p.172). In other words, from a pragmatic perspective what we say about reality will always be constructed. However, these constructions are limited by the situation (the reality), which means that we cannot say anything that comes to mind.
As such, the pragmatic ontology is neither purely realistic nor constructivist. It assumes both an objective reality and that our understanding of this reality will always be based on our subjective perception of it. Thus, our understanding of reality is constructed.

Multiple 'truths'

In this context, the notion of pluralism comes into play: "that different people, societies and cultures think different things true and important" (Bacon 2012, p.71). According to William James, it is important to embrace pluralism; i.e. "come to recognize that none of us is entitled to regard ourselves as in possession of the whole truth" (Bacon 2012, p.72). This means that pragmatism recognises that multiple perspectives can provide different understandings or 'truths' about the same phenomenon.

For the PhD study, this ontology is significant in the recognition of different understandings and thus 'truths' of inviting for implementation in service design projects, e.g. those of the designers and those of the healthcare professionals. Both parties are engaged participants in service design projects, but because of their different backgrounds, experiences, areas of interest and roles in the project, how they perceive and understand 'how implementation of service changes is invited for' may vary. But the multiple variations, does not imply that one understanding is

more 'true' than the other.

This PhD study embraces pluralism and combines the two perspectives of designers and hospital representatives in order to establish a joint perspective. Furthermore, the study combines different theoretical perspectives (service design theory and organisational change theory). In spite of this effort, the study never claims to present the whole truth. New theoretical lenses, new empirical material, new perspectives from other individuals will always have the ability to present a different 'truth' and supplement the results in this study.

Situations

John Dewey argued that "(t)he world is a scene of risk; it is uncertain, unstable, uncannily unstable. Its dangers are irregular, inconstant, not to be counted upon as their times and seasons. Although persistent, they are sporadic, episodic" (Dewey 1925, p.41). As such, from a pragmatic perspective reality is seen as dynamic rather than static, or as Dewey also put it, "(e)very existence is an event" (Dewey 1925, p.71). This entails that all human activity should be seen as situated and that human thought and action should be understood in the larger frame of the situation constituted by the subject and the surrounding environment. Hence, the ontology of pragmatism is based upon an understanding of phenomena as dynamic and bound to given contexts or 'situations'- to use the term by John Dewey.

For this PhD study, this perception of 'what reality is' has implications for how the phenomenon of 'inviting for implementation of service changes' is understood and studied. It highlights the necessity to understand the actions of designers and project groups as contingent of their contextual conditions – constituted by the individuals themselves (their knowledge and experience) and their surrounding environments (the service design projects and the organisational conditions).

Epistemology

Having outlined how the PhD study relates to 'What reality is', this section elaborates upon how the PhD study relates to the question of 'What can be known about reality?' - I.e. the underlying epistemological considerations.

Humble truth criterion

Pragmatism focuses on the usefulness of ideas and knowledge for communities in practice rather than universal truths. In a pragmatic perspective, "A statement is true if and only if it is useful in the long term." (Translated from Lippert-Rasmussen 2010, p.335). Thus, pragmatism does not consider an idea or representation to be true only if it can be compared to 'the world as it is' (correspondence), or because we can agree upon it (consensus), but rather because we as community can benefit from it in practice (Brinkmann 2006, p.33). The classical pragmatists including Dewey believed that "ideas are not "out there" waiting to be discovered, but are tools – like forks, and knives and microchips – that people devise to cope with the world in which they find themselves" (Menand 2001, p.xi).

As such, the pragmatic position entails a certain humbleness towards the notion of truth. John Dewey himself refrained from using the concept of truth. Instead he used the notion of 'warranted assertibility' because the notion of 'truth' referred to a 'fixed' state (Bacon 2012, p.101), which did not align with the pragmatic perspective of reality (or the world of practice) as one of change and uncertainty. From a pragmatic perspective, conclusions should be the most applicable, plausible and reliable at the given time of formulation. However, these conclusions should always open for revision and doubt (Egholm 2014, p.178).

As earlier mentioned, this PhD study will not claim to have found the whole truth regarding how implementation of service changes is invited for in service design projects. The study provides the best proposal on the basis of the material and knowledge

available at a given point in time and place. A proposal which should be relevant and useful in the academic community as well as the community of service design practice, produced through an extensive and systematic inquiry.

Having usefulness as truth criterion might be understood as 'anything goes'; i.e. as long as an idea, concept or theory is useful for someone, then it must be true. However, this is not the case. William James argued that, "we cannot just think something is true because we find it useful, for experience provides a check upon how useful we might find a belief: I might find it useful to believe that astrology provides a guide to the future, but experience will confound this belief." (Bacon 2012, p.68). If this line of thought is followed in the PhD study, one could say that it might be useful to believe that a well-designed service concept is the single key for successful implementation. However, this does not match the experiences for many service designers and organisations, and thus cannot be considered true. I.e. conclusions, even though they might be 'useful', should always be seen in the light of existing knowledge and experiences.

Checking whether a theory or idea is 'useful' can be done by evaluating if it describes a particular phenomenon better than other existing theories or ideas (Egholm 2014, p.178). In relation to this PhD study, this implies that the research results should describe how designers accommodate implementation more elaborate and targeted than existing theories.

Methodology

This section elaborates upon how the PhD study relates to the question of 'How can we establish valid statements about reality?' – I.e. the underlying methodical considerations.

Abductive reasoning

A pragmatic approach to knowledge production takes its point of departure in a concrete problem or situation. "Inquiry is prompted when we confront a situation in which there is some issue or problem that must be resolved." (Bacon 2012, p.96). John Dewey referred to this as a 'indeterminate situation'. According to Dewey, humans long for something more fixed and certain. "The quest for certainty is a quest for a peace which is assured, an object which is unqualified by risk and the shadow of fear which action casts" (Dewey 1929, p.8). Thus, we try to transform indeterminate situations, into determinate situations "by examining possible solutions, tentatively adopting a hypothesis which we then investigate to see whether it answers our needs" (Bacon 2012, p.53). In pragmatism, this analytical approach (trying to understand an indeterminate situation by suggesting and investigating hypothesis) takes point of departure in abductive reasoning.

Abductive reasoning is an inferential procedure (or analytical approach) credited to the classical pragmatist Charles Sanders Peirce. Peirce formulated abductive reasoning as: "The surprising fact, C, is observed; But if A were true, C would be a matter of course; hence, there is reason to suspect that A is true." (Peirce 136/1958-V:188) quoted from (Lippert-Rasmussen 2010, p.87) Abductive reasoning differs from traditional deductive reasoning and inductive reasoning. In short, deductive reasoning is the process of reaching a logical and *certain* conclusion from the premise of a general statement, whereas inductive reasoning is the process of formulating a *probable* statement from a limited number of observations. In contrast, abductive reasoning seeks to infer a *possible* statement based on an observation. (Fischer 2001)

Where induction and deduction have their obvious strengths in producing logical conclusions, abduction holds a creative element that can be used to provide plausible explanations to phenomena that cannot be explained by existing knowledge. (Egholm 2014). In this PhD study, the phenomenon under investigation is characterised as a wicked problem (Rittel & Webber 1973). Solving a wicked often calls for an abductive approach because there is

not enough given variables to indicate a clear statement. If, for example, there was a sound theoretical knowledge base linked to the subject, the PhD study could follow an analytical deductive approach where existing theory (a rule) could guide an analysis of specific service design projects (a case). However, this is not possible in this PhD project.

In this PhD study, only one variable (result/observation) out of three (rule, case, result/observation) seems to be given: That some designers are successful in creating significant changes in existing (hospital) services. Hence, the PhD study calls for an abductive research strategy, which intends not only to understand what these designers do to invite for successful implementation (case), but also to create a an abstract conceptual framework on which these understandings can be based (rule/law). Pragmatism, and herein abductive reasoning, enables a cyclical process of inquiry, where the development and refinement of the two missing pieces – conceptual framework and case descriptions – happens simultaneously (fig. 1).

Actively engaged researcher

The pragmatic abductive inquiry is informed by specific situations in the empirical world (which provides data) as well as existing knowledge (theories). However, the pragmatic abductive inquiry is also based on the researcher's ability to provide interpretations and 'qualified guesses' on how to understand a certain unknown phenomena or 'indeterminate' situation. From a pragmatic perspective, "we are not spectators looking at the world from outside but rather agents operating within it." (Bacon 2012, p.184) and we do not engage in qualitative inquiry (or any problem) "with wholly naïve or virgin mind; we approach it with certain acquired habitual modes of understanding, with a certain store of previously evolved meanings, or at least experiences from which meaning may be educed" (Dewey 1910, p.106).

Thus, pragmatism places the researcher in an active role, bringing subjectivity into the research situation. For the PhD study, this means that I (the researcher) have the opportunity to engage in the field of study and actively use my knowledge and experience in the creation of possible conceptual frameworks (hypotheses). As design researcher, I have a professional background as service design practitioner. Hence, I am very familiar with the field of study, and have a will and eagerness to supplement the academic knowledge in service design as well as to create knowledge for supporting service design practice. Due to my design background, I have not only a theoretical basis from which I can produce hypotheses, but also practical experience that can inform and inspire. Due to the pragmatic view on the value of the active researcher, I do not 'leave behind' my previous experience and knowledge, but use it actively in the research process - amongst other things by engaging in design practice. When this is said, I do, however, make a virtue of reflecting upon my engagement as both designer and researcher, stepping in and out of the different roles, trying to relate myself objectively to the research material, while having in mind that I will never be neutral.

End of inquiry

Dewey and Peirce both emphasized the necessity of testing possible explanations (hypotheses). Dewey argued that "[n]o scientific inquirer can keep what he finds to himself or turn it to merely private account without losing his scientific standing. Everything discovered belongs to the community of workers. Every new idea and theory has to be submitted to this community for confirmation and test" (Dewey, LW 5: 115). In this PhD project, the conceptual framework (or hypothesis) is repeatedly 'tested' or evaluated on the basis of how well it describes the way designers and project groups invite for implementation of service changes in specific projects. This means, that the empirical material 'talks back' to the framework and thus provides the basis for revision and evaluation.

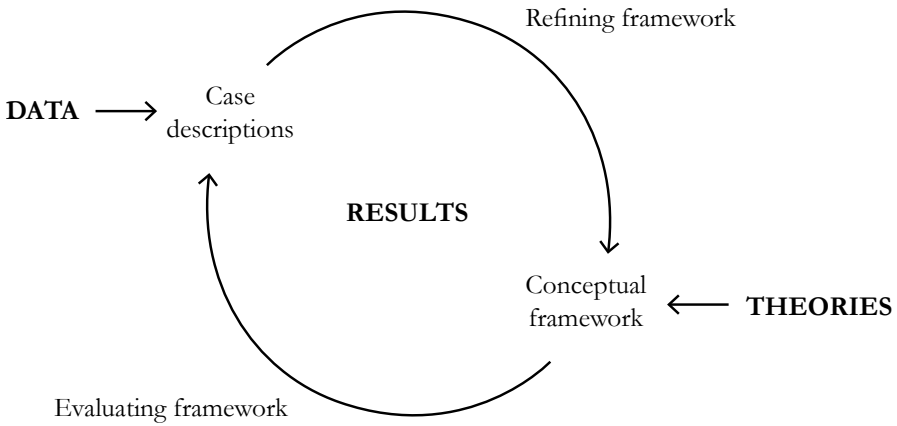


Figure 1 – The PhD study follows a cyclical process of inquiry: Suggesting and refining a conceptual framework - and continuously evaluating the framework in relation to how well it forms the basis for describing how implementation is of service changes is invited for in specific service design projects.

According to Dewey, this cyclical process of inquiry ends when there is no more need for doubt. "If inquiry begins in doubt, it terminates in the institution of conditions which remove the need for doubt" (Dewey 1938, p.15). The pragmatic truth criterion implies that conclusions should be the most applicable, plausible and reliable at the given time of formulation, however, always open for revision and doubt. This applies to the knowledge produced in this PhD study. The conceptual framework and the case descriptions should be understood as the most applicable, plausible and reliable at this point in time - revised and evaluated several times by the researcher, project participants and members of the design research community. However, the conclusions are not to be considered as final 'truths'. They will always be open for new revisions and can be considered as means rather than ends. Means for coping with issues related to implementation of service changes in service design projects – in academia as well as in practice.

Methods

Considerations regarding the ontology, epistemology and general methodology of this PhD study have now been outlined, and it is time to introduce the specific research methods.

Multiple-case study

As previously outlined, the phenomenon under investigation is related to human action in specific situations and contexts. It is furthermore an infrequent phenomenon related to the practice of few people (designers and project groups) in specific situations (during service design projects) and specific contexts (in hospitals). This type of phenomenon points towards a research strategy in which phenomena are studied 'in context' rather than 'out of context', and which holds the opportunity to study 'qualities' and not only 'quantities'. These criteria are met by *case studies* as a methodological research approach.

"A case study is an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident." (Yin 2014, p.16)

In contrast to e.g. surveys or lab-experiments, case studies are relevant when there is a deliberate focus on studying a phenomenon in depth and uncovering the contextual conditions. In relation to the phenomenon investigated it is specifically the detailed knowledge of what designers and projects participants do in particular contextual conditions, which is of interest. The investigation needs to unfold the local interactions between people, which means that the research findings must arise in reflections on the micro-details of these interactions (Stacey & Griffin 2005, p.9).

This PhD thesis follows a *multiple*-case study approach (Yin 2014, pp.56–65). I.e. more than a single case is included the study. In total, six service design projects conducted by professional designers for different hospital departments (i.e. six different cases) constitute the empirical basis for the research project.

When designers engage in service design projects, these projects rarely concern the same topic. One day a service designer can be engaged in blood transfusion procedures and the next day interior design of casualty wards. Moreover, different departments within hospital organizations do not necessarily provide identical contextual conditions. E.g. a Clinical Immunological Department and a Casualty Ward may have very different cultures and structures. Thus, in spite of the similar approach (service design) and context (hospital), the span of projects that service designers engage in is broad.

To study multiple cases instead of a single case offers the opportunity to investigate questions such as: Are there similarities between how designers and project participants invite for implementation across projects? Are there differences? Are some contextual conditions particularly significant and are others? Hence, by studying multiple cases this PhD study can produce knowledge that brings in and compares the phenomenon under different contextual conditions.

Case study design and selection of cases

The first case (Case A) initially served as an *exploratory* case study (Yin 2014, p.238) with the purpose of identifying a theoretical idea on which subsequent research could be based – a multiple-case study with a more descriptive purpose (fig. 2 - next page).

The exploratory case study provided the theoretical idea that implementation of service changes in hospital is something that is *designed for* or *invited for* from the very beginning of a service design project (and not just at the end). This theoretical idea created the basis for the subsequent *descriptive* multiple-case study in which the theoretical idea could be recognised or rejected as well as explored and investigated in depth.

The remaining five cases were selected on the basis of their similarity to Case A in relation to approach and context. All selected cases match the following criteria:

- defined as service design projects
- conducted by professional designers
- for Scandinavian hospitals/healthcare organisations
- focused on redesigning existing services and
- targeted implementation of service changes (either
- having implementation as part of the design brief or otherwise prioritized highly).

The cases are very different in relation to topic/scope of the project and the case selection strategy can be characterised as what Bent Flyvbjerg presents as 'Maximum variation of cases' (Flyvbjerg 2006, p.230). This means, the study follows a case selection strategy which has the purpose "To obtain information about the significance of various circumstances for the case process and outcome" (Flyvbjerg 2006, p.230). Flyvbjerg specifically mentions cases that are very different on one dimension (size, form of organization, location, budget). In this PhD study, the selected cases are particularly different in relation to topic/scope; or in other words, different in relation to what kind of services they intend to change within a hospital context.

Gaining first and second hand experience from practice

Two different approaches for investigation have been applied in the respective cases: Research through design (Frayling 1993; Koskinen et al. 2011; Fallman 2008) and qualitative research interviews (Kvale & Brinkmann 2009). This means, that I as a researcher have had different levels of engagement in the different cases. The different levels of engagement is primarily due to the

circumstances surrounding each case: two projects were conducted at Ideklinikken during the PhD project and the remaining four projects were conducted by external design companies a few years prior to the initiation of the PhD study.

First hand experience by engaging in practice (Case A & F)
Research through design was originally introduced by Christoffer Frayling (1993) inspired by Herbert Read (1944). Research through design also goes under the names of Research by design (e.g. Friedman 2008) and Constructive design research (Koskinen et al. 2011). Koskinen et al (2011) defines research through design (in their words: constructive design research) as "design research in which construction – be it a product, system, space, or media – takes centre place and becomes key means in constructing knowledge." (Koskinen et al. 2011, p.5). Research through design concerns research in which the researcher engages in design in order to develop new understandings.

According to researchers such as Anne Louise Bang (2012), "(i)t is, today, widely appreciated that Research-through-Design allows for designers to produce knowledge based on the skills and capacities of the design field itself." (Bang et al. 2012, p.2). This research approach is furthermore in line with Deweyan pragmatism. As argued for by interaction design Peter Dalsgaard, "A number of recent contributions have explored and developed the notion of research through design (…) in which researchers engage in design in order to develop new understandings. This approach, which too blurs the line between the roles of researcher and designer, rings true with pragmatism." (Dalsgaard 2014, p.153).

There are several approaches for conducting research through design. Koskinen et al. (2011) outline three distinct approaches which are shaped by the different research contexts: Lab, Field and Showroom. Each of these contexts is characterized by their own research culture adapted from other research traditions; respectively the natural sciences (Lab), social sciences (Field) and art (Showroom). This PhD project follows the field approach. This means that the phenomenon is studied in its natural setting. I.e. how implementation of service changes is invited for in service design projects is studied in the context of real and specific service design projects.

This is also what interaction design researcher Daniel Fallman refers to as design research in which design practice constitutes the activity area for the researcher. The research activities "are very close, and sometimes identical, to the kinds of activities they [designers] would undertake when practicing interaction design outside of academia, such as working for a commercial interaction design organization, a consultancy company working with client commissions, or an in-house design department." (Fallman 2008, p.6). In the same way, I (the researcher) engage in service design projects as if I was a design practitioner.

Fallman argues that "allowing first-person perspectives to enter design research has the potential to provide findings unattainable with only an outside perspective, and thus add significantly to the overall quality and the relevance of design research." (Fallman 2008, p.17). When actively engaged in practice and committed to a certain design task, the design researcher has the possibility to uncover the tacit knowledge and competence that are involved in the processes that eventually lead up to a final outcome (e.g. a redesigned service).

This type of research through design resembles action research (Reason & Bradbury 2001) which "bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities." (Reason & Bradbury 2001, p.1). Action research and research through design are both characterised as proactive activities in which creation and intentional change in

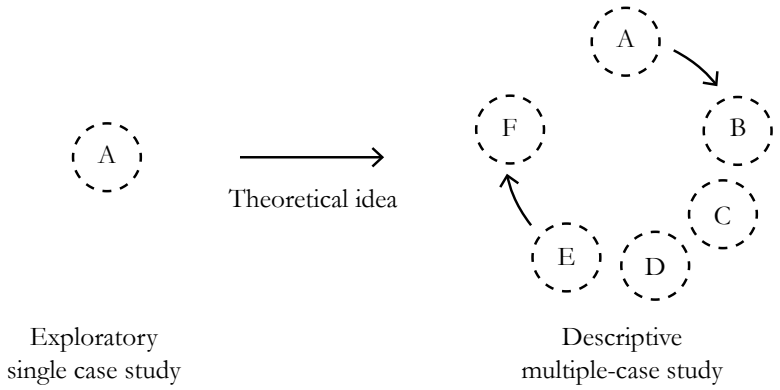


Figure 2 - Case study design.

specific settings are understood as means for gaining knowledge about a certain phenomenon.

The application of research through design was an implicit part of the PhD project from the beginning. In fact, research through design as a methodological approach was decided upon before the research topic was defined. The PhD study is co-financed by Idéklinikken - an in-house innovation unit for hospitals in the Northern Region of Denmark. At Idéklinikken, service design was not yet practiced when this PhD study was initiated. By investing in this approach through this PhD project, Ideklinikken not only wanted to invest in service design as a research field but also as a practice. This dual request (research and practice) called for a research design in which research and practice could be combined. I.e. an approach in which practical work on concrete service design projects with and for hospital departments could serve as a means for producing academic knowledge.

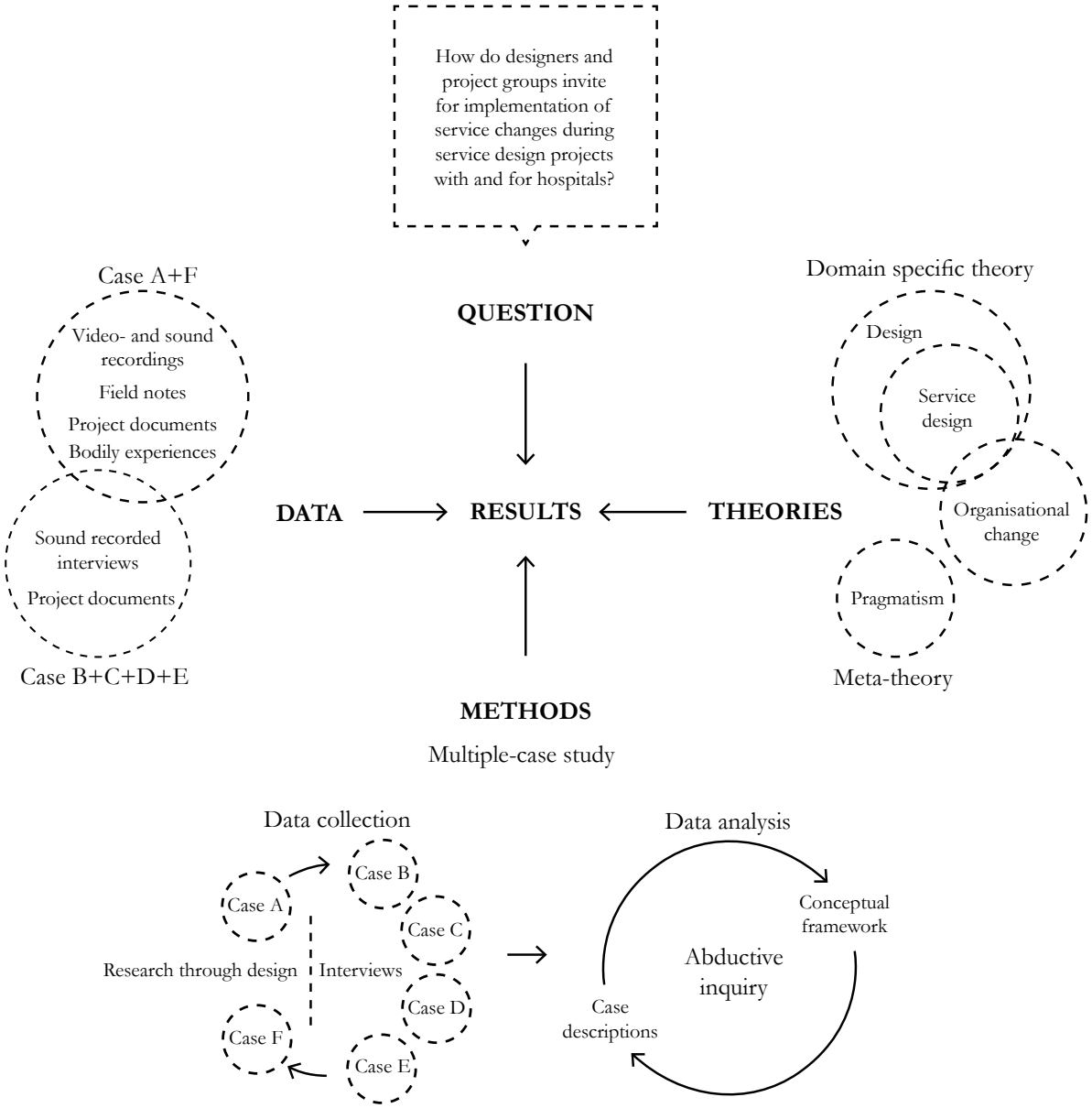
Second hand experience through interviews (Case B-E)
As previously mentioned, two of the six cases allowed for active researcher engagement in practice. The remaining four cases were, however, conducted years prior to the PhD project, and did not hold this opportunity. Therefore, qualitative research interviews served as the primary method of inquiry.

"The qualitative research interview attempts to understand reality though the perspectives of interview respondents, unfold the meaning which is tied to their experiences, uncover their life world prior to scientific explanations." (translated from Kvale & Brinkmann 2009, p.17). A research interview is a professional conversation about a common field of interest wherein two (or more) persons exchange points of views. In this professional conversation knowledge is constructed in the interaction between interviewer and interviewee. (Kvale & Brinkmann 2009)
In relation to the investigation of how designers invite for implementation of service changes, interviews as method offered the opportunity to collect different interpretations from participants in four different projects.

Addressing multiple perspectives
In all six case studies, it has been of high priority to include different perspectives on the investigated phenomenon: The perspective of designers and the perspective of hospital representatives. As earlier mentioned, these two perspectives reveal different interpretations or 'truths'. This provides an understanding of designers' intentions with certain actions and how these intentions were received in the organisations. This further brings knowledge on what happened before, during and after the designers' interventions.

Research design
The full research design is illustrated in the figure below (fig. 3). The illustration serves to present an overview of the different elements constituting the basis for the production of the research results.

Figure 3 – The research design of this PhD study.
Inspired by model presented in (Tollestrup et al. 2011).


How do designers and project groups invite for implementation of service changes during service design projects with and for hospitals?
QUESTION
Case A+F
Video- and sound recordings
Field notes
Project documents
Bodily experiences
Sound recorded interviews
Project documents
Case B+C+D+E
DATA
RESULTS
THEORIES
Domain specific theory
Design
Service design
Organisational change
Pragmatism
Meta-theory
METHODS
Multiple-case study
Data collection
Case A
Case B
Case C
Case D
Case E
Case F
Research through design
Interviews
Data analysis
Conceptual framework
Abductive inquiry
Case descriptions

Evaluation of research findings

Quality criteria and evaluation of research findings
The PhD study is an example of high researcher involvement and researcher subjectivity has been a particular relevant point of consideration. Bent Flyvbjerg argues that "the question of subjectivism and bias towards verification [the human tendency to suppose a greater degree of order than reality finds] applies to all methods, not just to the case study and other qualitative methods." (Flyvbjerg 2006, p.235). E.g., subjectivism is also present in the choice of categories and variables in structured questionnaires. I have, however, still made a virtue of reflecting upon my engagement as both designer and researcher. I have stepped in and out of the different roles, for example by video recording my activities when engaging in practice and subsequently studying the recorded activities from a researcher's perspective. Assumptions have continuously been backed up with literature and via the empirical material. In this context, the empirical material has served as a partner for critical dialogue in the analytical process, and I have been committed to represent participants, observations, interviews, et cetera accurately and respectfully. Each case has been used to revise views and concepts – as such, each case has offered not one but many opportunities to falsify or verify assumptions (Flyvbjerg 2006, p.235). As Charles C. Ragin argues, single-case studies "are multiple in most research effort because ideas may be linked in many different ways." (Ragin 1992, p.225), and in this multiple-case study the empirical material has insisted and required continuous revisions of results.

The pragmatic view on the purpose of theoretical knowledge has been used to reflect upon how the final research findings have been evaluated. "Ideas should be acknowledged as tools - as forks and knives and micro-chips – which humans create in order to master the world in which they exist." Louis Menand in (Brinkmann 2006, p.30). This means that the knowledge produced should provide a useful frame for understanding, moving and coping with service design as research field and practice field. A small step towards a better understanding of how designers (can) invite for implementation of service changes during service design projects.

The conceptual framework is evaluated in relation to whether it provides an applicable, plausible and reliable frame for describing how implementation of service changes was invited for during the six case studies. First of all, this has been evaluated through several iterations in the analytical process. Furthermore each case description will be sent to and evaluated by at least two project participants (designers and hospital representatives) from the respective cases in order to confirm their reliability and the relevance of the particular analytical lens (the conceptual framework).

The case descriptions should be evaluated on the basis of their ability to present concrete and relevant narratives from the selected cases. Narratives to be read in their complex entireties which "does not allow the question [of 'So what?'] to be raised at all." (Flyvbjerg 2006, p.240). Early versions of the case description have been evaluated by groups of practitioners as well as researchers, however, the final case descriptions still need to be tested by the research community and practice community across time and space.

Relevance outside hospital contexts
The knowledge produced in this PhD springs from local empirical worlds at six hospitals in Scandinavia. It is therefore relevant to discuss how this local knowledge can be applied in other areas of practice – e.g. in other types of organisations or in other types of projects. To address this, Bent Flyvbjerg's arguments related to case studies will be used as point of departure. According to Flyvbjerg, "In German languages, the term science (Wissenschaft) means literally 'to gain knowledge'" (Flyvbjerg 2006, p.227), and to gain knowledge does not necessarily mean to 'prove something', which Flyvbjerg argues is impossible in social

science. To gain knowledge also means to 'learn something', and to truly learn something, we need concrete, practical (context-dependent) knowledge (Flyvbjerg 2006, p.224).

This PhD study is based on a willingness to learn something about implementation of service changes through in-depth investigations of local and specific service design projects. The results combine abstract conceptualisations (conceptual framework) and concrete, practical case descriptions. With its detail and empirical commitment, the PhD study produces a relevant contribution for practices reaching outside the practice of service design within hospitals. Alvesson and Karreman argues, "No theory is always wrong or always right – they will be more or less relevant and helpful in different situations." (Alvesson & Kärreman 2011, p.72). By presenting the abstract conceptualisations in interplay with concrete case description, the intension is that readers of this thesis can evaluate the relevance and applicability of the scientific contribution within their specific domains.

This contribution should be seen as a step towards a new way of understanding implementation of service changes within service design and other potential relevant domains. Therefore, it is the hope that the results will be received, utilized and developed – in the service design research community, the community of service design practice as well as other relevant domains.

Conclusion

This chapter has outlined the research design of this PhD study including an introduction of pragmatism (primarily inspired by John Dewey) as a philosophical position, which underlies the ontology, epistemology and methodology of the research setup. Pragmatism is characterised by the recognition of pluralism or 'multiple truths' of the social phenomena related to practice. Phenomena are considered dynamic and contingent of situational conditions. The PhD study follows the humble pragmatic truth criterion in which statements are evaluated on the basis of usefulness and their ability to provide plausible explanations to phenomenon (or wicked problems), which are difficult to define and understand on the basis of existing knowledge.

An initial explorative case study creates the basis for a subsequent descriptive multiple-case study, in which the theoretical idea of 'inviting for implementation of service change' is evaluated and explored. The empirical corpus of the multiple-case study is constituted by six individual service design projects. Two of the projects are investigated on the basis of research-through-design whereas the remaining four projects are investigated primarily through semi-structured interviews. Hence, the inquiry combines first-hand knowledge from engaging in design practice with second-hand knowledge stemming from listening to different stakeholders' interpretations of their experiences from practice.

The analytical process springs from identifying 'breakdowns' or surprising experiences in practice, which problematize the existing theoretical knowledge within service design research on how to invite for implementation of service changes. Through a two-fold abductive inquiry, the study produces abstract theoretical knowledge as well as concrete case descriptions contributing 'the force of the example'. The aim is to supplement existing service design research as well as service design practice by providing an abstract set of ideas manifested in a conceptual framework and concrete examples on how designers and project groups invite for implementation of service changes in service design projects with and for hospitals.

Perspectives

This PhD study is not yet finished and the results are not yet produced. I have, however, quite specific intentions concerning the application and further development of the results after the thesis hand-in and defence. I have a professional aim of continuing my work with service design in the professional service design community, i.e. in the world of practice. Thus, I intend to apply the theoretical knowledge in the practical service design community and further develop the conceptual framework into a strategic design tool.

My hope is, that the scientific contribution produced during this PhD project can

1. strengthen my own and (more significantly) other service designers' consciousness in relation to implementation of service changes in organisations during service design projects and,
2. widen the understanding of what it means to invite for implementation and thus add an extra layer to the epistemology of service design, i.e. how service designers understand and approach the world and the specific projects they engage in.

Service designers already have a profound ability to juggle different optics in their work: looking at a service from a user optic (evaluating usefulness, usability and desirability), from a provider optic (evaluating efficiency and effectiveness) as well as a multitude of other optics (evaluating sustainability, reliability, feasibility, et cetera). My aim is to add a new optic: how to design for service change, i.e how to invite for implementation of service changes when working within organisations already providing services. Ideally, I hope that this new optic will help defeat the practice-problem that partly triggered the whole PhD study: that designers seem to have difficulties in following through with their work from concept design to implementation and that the result of successful service design projects often end up on the "concept shelf" and never lead to actual changes to how organisations deliver services. Very specifically, my aim is that more service design projects produce concrete and actual service changes.

Following an even more ideal thought, I hope the scientific contribution and its continuous revision will help support further investment in and practice of service design in organisations. My conviction is that if more service design projects lead to concrete and actual changes, it will strengthen organisations' willingness to invest in service design and thus lead to growth within service design as a field of practice.

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Chapter 9 : Making Light Rail Mobilities

By Mette Olesen

Timeline: February 2011 to February 2014 (defended March 2014)

Keywords: Light rail, Mobilities, Urban development, Strategic planning

Supervisors: Associate professor Claus Lassen, AAU and external lecturer Niels Melchior Jensen, AAU

Collaborators: The PhD study was conducted under the industrial PhD programme in Denmark, in cooperation with COWI A/S

Biography: PhD (2014), MSc in Urban Planning and Management (2010), Aalborg University

Project/chapter	Theory input	Method	Epistemology
Making Light Rail Mobilities	Mobilities theory, Actor-Network Theory. Socio-technical approaches to mobilities studies	Qualitative case studies. Interviews, document analysis, field studies, discourse analysis.	Pragmatism Relational and post-structuralist

Introduction to the project

This PhD thesis provides a qualitative perspective on light rail mobilities, as a tool in strategic urban development of mid-sized European cities (100.000-350.000 inhabitants). The thesis is a contribution to the debate of the relevance and value of light rail systems, and should be seen as a supplement to the technical and economic analyses of such systems.

Through the recent years, light rail has been introduced as a strategic tool in urban development in the larger Danish cities. This has created attention to, an interest in, the potentials, values and effects of such systems. The PhD thesis was thus initiated by the need for knowledge concerning the potentials of light rail in a strategic urban development perspective. This means, that the thesis has been oriented towards a qualitative analysis of light rail project in mid-sized European cities, which are comparable in size with the Danish light rail projects. By ascribing a qualitative perspective to the analysis, the thesis approaches light rail projects as "more than transport projects" , by providing insight to the history, rationale and political ideologies which has been governing the decision to implement light rail in selected mid-sized European cities. Theoretically, the thesis is based in the new mobilities paradigm, though which it is argued, that it is important not only to attend to the technical and physical aspects of mobility. Attention must also be given to the political, social and cultural relations in which mobility and mobile technologies are embedded.

Empirically, the thesis is based in case studies in four mid-sized European cities: Bergen in Norway, Angers in France, Bern in Switzerland and Freiburg in Germany. These cases illustrates 4 cities, 4 different histories, 4 planning approaches, 4 light rail systems and 4 light rail visions. The purpose of including different national contexts has been to analyse which societal conditions that has been governing, firstly, the decision to implement light rail in the given context, and secondly, the local concept, hereunder the layout and design of the system and the adaptation to and implication for the urban environment.

The thesis is based in the following main research question and sub questions:

How are light rail mobilities politically and culturally produced and materially and spatially practiced in mid-sized European cities, and how can this knowledge be used in future decision-making processes for light rail projects?

- Why are light rail systems implemented in mid-sized European cities, and what is the rational basis for the decision to implement them?

- How have light rail projects changed urban spaces and mobility hierarchies in the selected cases of mid-sized European cities, and which factors have affected this process?

- How can the knowledge derived from the questions above be used in future decision-making processes for light rail projects?

Research Design

Transport planning and research has conventionally been conducted by engineers and treated as what can be called 'tame problems' (Rittel & Weber, 1973) in which the flow of people and objects is considered as a derived demand and thus understood by its cause-effect mechanisms in a very instrumental sense (Banister, 2008; Lahrmann & Leleur, 1994). As Pineda (2010) argues, transport engineers focus mainly on how to model an ideal flow system using mathematical models and methods, but a sense of how to integrate this knowledge with the social reality is lacking. The challenge may be that in the making of new transport systems the social and political aspects of engineering may be pushed aside

Figure 1 Light rail in Angers, France

(or be less articulated) (Downey, 2005). Striving for scientific or fact-based objectivity is part of what can be termed a 'just the facts ideology' (Hildeband, 2008). This rational instrumental approach, which has been and still is governing much transport and city planning, can be useful in understanding flow, capacity and costs. However, it does not pay much attention to the complex nature of the production of mobilities and 'politics of place making' (Vannini, 2012, p. 156), which is not only a technical science but also a social science.

An analysis of the political and spatial production and complexity of light rail projects requires proximity to practice since light rail projects are performed through planning practice. Applying a case study design can provide proximity to the practical realities of different light rail projects and allows a focus on the context in which light rail mobilities are produced and practised. As it has been argued by (Flyvbjerg, 1991; Flyvbjerg, 2006), the case study is a way to study the social phenomenon in its concrete practical context and through this approach, context-dependent practical knowledge and experience can be derived. Furthermore, cases studies are strongly related to a narrative phonetic approach to planning research (Flyvbjerg, 2004), which is central to uncovering the hows and whys of light rail mobilities. The aim of this case study approach is also inspired by (Flyvbjerg, 1998, p. 1), who argues that findings presented as a narrative can help readers move about in the case material and provide them with the basis to form their own judgements about the case and its implications. The phronetic methodological approach is about deliberation of values in relation to praxis and analysing pragmatic, context-dependent knowledge that is oriented towards future action (Flyvbjerg, 2004, p. 287). Flyvbjerg (2004) outlines four central questions that can be guiding for phronetic research: where are we going with planning? Who gains and who loses, and by which mechanisms of power? Is this development desirable? What, if anything, should we do about it? (Flyvbjerg, 2004, p. 290). There are no universal answers to these questions; however, Flyvbjerg (2004) argues that the plausible answers to these questions should be seen as inputs to the on-going debate about the problem investigated. As inspired by this phronetic approach, case studies enable proximity to the reality of planning practice as *'a way of gaining a better understanding of the nature and difference of conflict and generating ideas and propositions which can more adequately inform planning practice than much current planning theory and research'* (Flyvbjerg, 2004, p. 297). In order to understand the dynamics of practice we must ask 'how' questions; asking 'how' and doing narrative analysis are closely linked activities. The narrative approach has inspired the case analysis to develop rich descriptions and interpretations of light rail planning from the different actors involved in this process.

The thesis is based on a multiple case study with practical examples of light rail projects in four different mid-sized European cities. The experiences and knowledge from practice in the four light rail projects studied provide valuable insight into the planning process and implications of these mobilities in various local contexts. Despite the small sample studied, the insight into how different light rail projects have been framed, evaluated and materialised can provide a basis for some analytical generalisations (Flyvbjerg, 1991) about the process of making light rail projects and the potential outcomes that these projects hold.

An analytical generalisation is enabled by strategic case selection, where it should be possible to ask, *'If the thesis could be proved false in the favourable case, then it would most likely be false for intermediate cases'* (Flyvbjerg, 2006, p. 226). Furthermore, Flyvbjerg (2006) argues that *'formal generalisation is only one of many ways by which people gain and accumulate knowledge. That knowledge cannot be formally generalised does not mean that it cannot enter into the collective process of knowledge accumulation in a given field or in a society'* (p. 227). By abductive reasoning in the analysis of the empirical data, there may be certain factors in each case that could be subjects for analytical generalisation and could be useful lessons learnt for practice.

As Flyvbjerg argues (2006), the force of the good example has been underestimated. The choice of cases studies as the research design enables an interpretive approach to data, and it makes it possible to study 'things' within their contexts (Yin, 2009) and consider the subjective meanings that people bring to their situation. The strategy is to study the problem in its totality by its in-depth and actor-oriented focus (Flyvbjerg, 1991). The analytical focus has been on analysing the connections that are being made and remade between the discursive–institutional and material–spatial dimensions in each case study. The aim is to create an understanding of how light rail projects are assembled discursively and materially and what implications they have had in various cities. Deconstructing the relations and 'multiple realities' (Mol, 2002) that light rail technology is part of can be supported by various different qualitative methods of data collection.

The thesis argues that a study of the production and practice of light rail mobilities requires a relational understanding of mobilities, since light rail is always positioned in relation to something or somebody, be it government, geography, passengers, legislation, organisations, etc. No technology or infrastructure is power neutral; it is a part of a strategic prioritisation (Latour, 2005; Adey, 2010; Jensen, 2013). Therefore, we must find analytical tools and methods that allow us to deal with the complexity inherent in light rail projects and focus on both the discursive and political production of such mobilities, as well as the spatial and material embeddedness of this infrastructure in the urban environment in order to describe the unique 'DNA' of light rail mobilities. This relational understanding draws on the following theoretical understandings.

Mobility Is 'More than A to B'– Mobilities theory

The thesis is grounded in the emerging interdisciplinary field of mobilities studies, which has also been framed as 'the new mobilities paradigm' and/or the 'mobilities turn' (Urry, 2000; Urry, 2007; Sheller & Urry, 2006; Lassen & Jensen, 2006; Cresswell, 2006; Kaufmann, 2002; Jensen, 2013). As a starting point for the research process, the theoretical understanding of light rail mobilities has been inspired by how the new mobilities paradigm forces us to attend to economic, social and cultural organisation of distance and not just the physical aspects of movement (Urry, 2007, p. 54). Urry (2007) has argued that there is too much transport in the study of travel and not enough society and thinking through the complex intersecting relations between society and transport (Urry, 2007, p. 20). The new mobilities paradigm has emerged as an interdisciplinary field that goes beyond the taken-for-grantedness of transport and mobility as a derived demand and a positive good (Urry, 2000; Oldrup, 2000). Within mobilities studies there has thus been an increasing interest in understanding the production and consumption of movement in addition to the more technical disciplines of transport planning that focus primarily on flow and costs of mobility.

By applying this interdisciplinary approach the process of making light rail mobilities is put in the centre of the analysis in order to understand the societal trends and context in which this transport mode is produced and practiced. This perspective underlines that there exists an 'ideology of movement' as it has been argued by (Urry, 2000, p. 18), which means that there is meaning behind the production of mobilities and behind mobile technologies (Vannini, Lucy, Jensen, Fisker, & Jirón, 2012). 'More than A-B' has practically become the mantra of mobility studies and is the central question that makes mobility studies different from transport studies, which can often be characterised as A-B studies. Looking through the mobility lens enables the social world to be theorised as a wide array of economic, social and political practices, infrastructures and ideologies that all involve, entail and curtail various kinds of movement of people, ideas, information or objects (Urry, 2000, p. 18). This is the key to understanding the production and practice of light rail projects in a discursive, institutional, spatial and material sense, which is the primary focus of the thesis.

Mobility should be understood in the plural since there are different practices and meanings linked to mobilities (Adey, 2010; Urry, 2007; Cresswell, 2006). The phenomenon of mobilities is empirically diverse, and thus calls for theoretical and methodological diversity (Jensen, 2013). It calls for a theoretical and methodological approach that does not only represent the rational representations of mobilities, such as patronage and travel time, but also the actions which is beyond representation, such as qualitative values of light rail projects that are harder to measure. These are values such as aesthetics, quality of life, city branding, etc. The emphasis in the thesis is on the making of light rail mobilities and the discursive and spatial embeddedness of light rail and not on an aim to develop universal truths of light rail mobilities.
Inspired by the new mobilities paradigm, the thesis provides new ways of understanding the 'sociology of light rail infrastructures' in not only a technical sense but also a political, cultural and spatial sense. The interest in how technologies and materialities have shaped mobilities of various sorts bears witness to a perspective that understands infrastructures as complex networks of artefacts that assemble human as well as non-human entities, which challenges our understanding of place (Vannini, Lucy, Jensen, Fisker, & Jirón, 2012). The analytical approach applied in this thesis is inspired by this socio-technical movement within mobilities studies, which, among other perspectives, has been inspired by the relational thinking applied in Actor–Network Theory (ANT) (Latour, 2005; Jensen, Lauritsen, & Olesen, 2007). In this sense, light rail mobilities is perceived as more than the movement of people from A to B; it is a constellation of strategic urban development policies, urban transformations, operating policies, technologies, etc. This is why it is argued that the deconstruction of these constellations of light rail mobility is central to the understanding of how light rail mobility is produced, reproduced and performed.

Case Study Design and Case Selection

Practically, the study of light rail mobilities is conducted through the use of a multiple case study design in which it is possible to analyse light rail in relation to various local contexts (Antoft & Houlberg, 2007). Flyvbjerg (1991) describes the maximum variation as useful when the aim is to gain information on the importance of specific circumstances for the structure of the case, e.g., three to four cases that are significantly different in terms of dimension: size, organisation, localisation, budget, etc. The use of a single case design would not allow for a study of the similarities and differences between the multiple national practices and realities of light rail mobilities. The purpose of the case studies is thus to derive findings from each case that can be subject to analytical generalisation in order to explain the dynamics in the production and practice of light rail mobilities. Furthermore, these analytical generalisations are useful inputs to future decision-making processes as structuring guidelines to handle the complexity that is often inherent in light rail projects. To show the variety in the production and practice of light rail mobilities, the cases are selected using the criteria of maximum variation of cases (Flyvbjerg, 1991). The basis for this strategy is an information-oriented selection where the purpose is to maximise the information that each case contains. The cases are selected on the basis of expectations as to the amount of information in the case, existing data on the case and judgement from key persons and researchers in the field. The cases should provide the maximum contribution of new information in relation to the research question and the existing literature on the subject.
The considerations for the different types of cases do not eliminate each other. A case can be considered both critical, extreme and pragmatic within different aspects of the case, and different conclusions can be derived depending on the perspective from which the case is approached (Flyvbjerg, 1991). The criteria for selection of cases in this thesis is thus based on the aim to achieve maximum variation of cases, while the more specific argument for the selection of cases can be grounded in the wish to include a critical, extreme or paradigmatic case to provide varied insight into the research question.

CASE	LIGHT RAIL	CHARACTERISTICS	INTERVIEWEES BY CATEGORY
Bergen, Norway 260.000 inhabitants Municipal area 465.56 km²	First LRT line built in 2010. The first LRT in Norway	Extreme case with regard to the political decision-making processes and enactment of the light rail vision in a new social and spatial context	• Municipal planner • Chief engineer–light rail project • Politician–left wing • Public transport operator • Head of business • Researcher, Bergen University
Freiburg, Germany 220.000 inhabitants Municipal area (Stadtkreis) 153.07 km²	Old tram system. New LRT extensions have been made to the network since 1970.	Paradigmatic case and often used as 'best practice' example of integrated urban and transport planning.	• Transport engineer–municipality • Politician–left wing (the Green Party 'Die grünen, Bündnis 90 ') • Researcher–geography department at Freiburg University *Presenters at seminar* • Traffic planner–municipality • Public transport operator • Regional transport planner
Bern, Switzerland 130.000 inhabitants (Bern Municipality) (Note 6) Municipal area 51.62 km²	Old tram system. First new LRT extensions to Bern West in 2011.	Paradigmatic case/best practice example in integrated mobility systems and public transport culture. Extreme case with regard to decision-making process for new LRT extension.	• Municipal transport authority • Regional transport planner • Public transport operator • Public transport NGO • Researcher, Bern University
Angers, France 156.000 inhabitants (Municipal area) (Note 7) Municipal area 42.70 km²	New system built in 2011	Extreme case with regard to the French redesign vision. The most expensive LRT project in France due to the design and urban renewals in the light rail corridor. A light rail project that is based on very different objectives than transport efficiency	• Traffic planner–municipality • Public transport operator • Consultant–light rail in France

Figure 3: Overview of selected cases

The case studies have been selected using the following criteria:

1. **Western European context:** Since the thesis originates from the Danish context, the analytical scope of the thesis has been limited to light rail systems in European cities, as this context has been the major reference for Danish light rail projects. This means that the analysis excludes cases outside the Western European context.

2. **Mid-sized cities**: The cases are limited to cities with a conurbation of between 100.000 and 350.000 inhabitants. This criterion is stipulated with the aim of studying light rail mobilities in medium-sized European cities. In such cities the patronage is often lower than in major cities where a metro is often a prioritised solution. As in the basis for the first limitation, light rail projects in a Danish context are often considered in smaller cities that do not have the same ridership on public transport as the major capitals. Thus the objectives for implementing light rail schemes are based on very different logics and rationales than just capacity and transport flows in cities of this size.

3. **Location**: the cases represent light rail systems in four different national contexts in order to study the variation in national and local light rail practices and realities.

4. **Variation in age of the systems**: extensions to old networks and implementation of completely new networks. The cases were selected to show cities where light rail has been embedded in the political, cultural, material and spatial practices for a longer period, as well as cites where light rail has just recently been implemented in the urban environment. The aim is to show both the long-term and short-term implications of light rail systems in relation to urban policies, mobility practices and urban structures.

The number of cases is based on a desire to create a suitable variation of cases to provide a basis for analysing the factors of importance to the research question. At the same time, the number of cases analysed is based on limited resources and acceptance of the time consuming task it is to create an overview of four different national contexts, conduct field visits, perform interviews with a sufficient number of actors and do extensive document analysis.

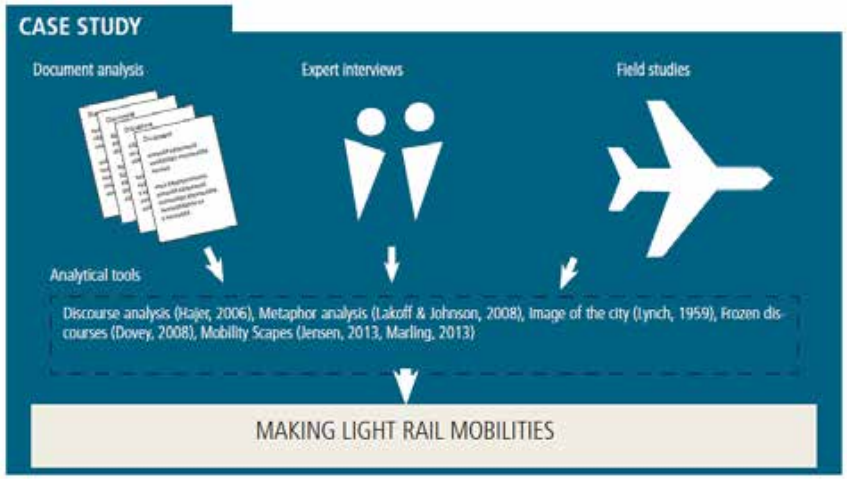

Figure 4: Methods for data collection and analytical tools applied in the data analysis

Position of Thesis within theories of science (Epistemology)

The thesis has been inspired by the practice orientation that exists within the philosophical position of pragmatism. As (Gimmler, 2012) describes, in pragmatism practices are described as collections of practices in which different forms of action are considered as connected to actors as well as routines. A practical inquiry always starts with a puzzled feeling and an indeterminate situation. We inquire when we question (Dewey, 1986). The study of implementation of new technologies demands particular theoretical and methodological considerations that are related to the question of limiting the scope of the study, since light rail mobilities in itself is unstable and consists of multiple realities (Mol, 2002). Through the practical experience of working with light rail it is obvious that the outcome of these projects is dependent on such complex factors as the cultural and geographical contexts, different political objectives, different societal and organisational schemes, different urban structures, etc. Even within different practical disciplines there seem to be co-existing understandings of the reality of light rail technology. Each stakeholder - engineers, architects, politicians, transport operators, passengers, etc. – perceives light rail through her/his own particular skills, habits and histories, and in this sense, each view of the world is very different. It is thus arguable that light rail mobilities are performed in very different ways.

In accordance with (Mol, 2002) it is thus argued that reality does not have a universal character; instead reality is historically, culturally and materially located. In practice new ways of doing reality are crafted and objects such as light rail can carry new ontologies with them (inspired by (Mol, 2002, p. 75)). This is also why light rail mobilities must be studied in their concrete practical context in order to deal with and understand the complexities of these multiple realities. Dewey and James (as referred to in Gimmler, 2005) have both argued that inquiry should not be made with the purpose of creating one single description of the world, meaning that although 'absolute truth' and 'real reality' are helpful in scientific investigations, there is a need for alternatives to such a rational scientific approach, as also argued by (Flyvbjerg, 1991). Inquiry goes beyond the facts, implying that it is impossible to push normative values of the study object aside; rather, these normative values should be used as a mean to enrich the definition of the problem. The act of pragmatic inquiry should, however, also be understood as beyond the distinction between the social and natural sciences, meaning that the creative and pluralistic pragmatic approach is more concerned with the problem than with which are the 'right' methods to choose; the methods depend on the problem to solve. A problem could require both causal explanations and normative understandings; the methods to choose should be those that will help solve the problem (as has been argued by (Law, 2004)). However, this pluralistic approach does not mean that anything goes. For doing pragmatic inquiry, Dewey introduces the pattern of inquiry (Dewey, 1991). Dewey's notion of inquiry is understood as a systematic gathering of experiences that takes its point of departure in indeterminate and unstable situations or what has been framed as 'wicked problems' (Rittel & Weber, 1973). Through the act of inquiry, the attempt is made to transform these intermediate situations into determinate and stable entities (Brinkmann, 2006). The definition of inquiry as formulated by Dewey reads: 'Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole' (Dewey, 1986, p. 104).

Knowledge produced through inquiry should not be understood as 'fixed and complete in itself, in isolation from an act of inquiry' (Dewey, 1998 in Neubert, 2001). As it is indirectly given in the research question (see introduction), the hypothesis of the thesis is that in order to understand the production, practice and potential implications of light rail there is a need to approach the practical contextual knowledge around the making of these systems. It is

assumed that there is a link between the actual impacts of the light rail systems and the objectives and rationales that were originally used to justify the decision to implement light rail. By applying a 'more than the facts' ideology the thesis acknowledges that light rail as the study object should be understood as a socio technical assemblage (Urry, 2007; Farias & Bender, 2010; Latour, 1996) of various human and non-human elements. All elements that influence the potential impacts such as culture, technology, legislation, politics, actors, discourses, materialities, etc., rather than just a technology and causal mechanism.

Abductive Reasoning - Learning from Practice

Abduction is used as the preferred mode of pragmatic inquiry as reasoning in the collection of new knowledge. This is knowledge 'out there' or know-how in the practical reality that has not yet been defined in completely clear concepts. Where deduction proves that something must be and induction shows that something actually is, abduction merely suggests that something may be (Kirkeby, 1990). Retroduction from critical realism is often considered in association with abduction or abductive reasoning, and the two terms are often used interchangeably. Abduction and retroduction offer ways to describe the mechanisms that may enable social phenomena such as light rail mobilities - these could be sustainable urban policies, regulations, passengers, dedicated infrastructure, stops, vehicles, congestion, the need to move, lack of space in the city, etc. According to Sayer (1992), retroduction is a 'mode of inference in which events are explained by postulating (and identifying) mechanisms which are capable of producing them' (p. 107), and this means that the question of 'What makes this phenomenon possible?' is central to the inquiry. Likewise, abduction is an approach to collecting 'unknown knowledge', or tacit knowledge, which has not yet been described (Kirkeby, 1990). An abductive approach consists in describing empirical facts and allows these facts to suggest relevant theory to describe them; therefore, practices are prior to theories, and the creation of hypotheses and new ideas is the central function of abduction (Peirce, Hartshorne, Weiss, & Burks, 1974). This is what Dewey referred to as 'instrumental pragmatism' (Gimmler, 2005). Peirce (1997) states, 'all ideas of science come to it by way of abduction. Abduction consists in studying facts and devising theory to explain them' (p. 218). Furthermore, it is important to recognise that reasoning always starts with a situation, and the aim of abductive reasoning is to give a probable explanation for an otherwise not explicable and disturbing fact (Gimmler, 2005). In this thesis, this implies looking into the likely dynamics of relations that determine the implications of a light rail project. Abductive reasoning about light rail projects could suggest that it would be likely that the light rail would be considered as more of an 'urban project' than an 'infrastructure project'. However, there would be no claim that all light rail projects are then 'urban projects'. Being an urban project may be a reasonable fact in some cases, where this reasoning proves to be true. This reasoning then has implications for how we should interpret the outcome of such systems and how we should assess success in reaching these objectives.

The Ontological and Epistemological Orientations of the Project

The thesis is, as described above, inspired by pragmatist thinking and especially by Dewey's understanding of nature as 'events' rather than foundational truths (Brinkmann, 2006). This means that reality should be understood as ever-changing dynamic processes and practices. In relation to the thesis, this means that light rail mobilities should be understood as a relational and dynamic analytical object. There is not one solution to building light rail mobilities, but multiple, as has been previously argued. This means that knowledge is acquired through interaction with the world, through social practices in specific contexts where practical knowledge emerges from specific situations (Jones, 2008). A central claim of pragmatist theories of knowledge is that epistemic claims are embedded in a practical context with practical problems or challenges, which, to a large extend, determine

relevant standards of justification and conditions of success. This can also be referred to as the 'practical turn' of epistemology (Bohman, 2002, p. 499).

John Dewey (1948) advocated judging an idea by its consequences, bearing in mind that this does not imply only assessing concepts or theories in terms of usefulness or instrumental value. It rather means to see these within a normative context and acknowledging that knowledge is normative and that it aims at helping us to realise normative ideals. A pragmatic approach is applied in order to analyse the practical relations and implications of light rail. In this regard it is possible to analyse how light rail systems were framed, which normative ideals were involved, how they materialised and how they influenced the urban environments and mobility systems in the context in which they were implemented. The future-orientation of the pragmatic approach (Gimmler, 2005) is the very core of the results presented, where the qualitative knowledge produced around the system of light rail mobility should be put into future political and planning frameworks for light rail systems. The concepts derived are thus not only results of past experiences with light rail projects; they should also be recipes for further action.

Ontology

Actions are always embedded in a web of experience. This makes it necessary to conceptualise everyday life from a viewpoint of actions, communicative as well as instrumental (Gimmler, 2005); this means that knowledge is contextual and deeply embedded in practical experience. In a pragmatic sense there is no ontological truth: 'truth claims are forced to be tentative and revisable' (Thayer-Bacon, 2002). The ontological notion of symmetry introduced in Actor Network Theory (ANT) describes the need to break with the ontological differentiation between the social and the material, what has also been called a flat ontology (Brinkmann, 2010). The flat ontology in the ANT approach has been criticised for adding the same value to both humans and non-humans (Ingold, 2008). This should however not be considered as humans and non-humans are completely equal on an ontological level. Gimmler (2005) frames it as the 'material turn' in social sciences and the acknowledgement of the social importance of artefacts in our everyday lives (Gimmler, 2005). The relations constituted between human and non-human actants enable the stabilisation of given phenomena in a given period of time, as is the case with light rail projects. Light rail as a non-human actant has become a powerful tool to develop the normative ideal of 'the good life in the city' and in many ways materialises the many current discourses related to this ideal. In order to understand the subject of light rail mobility ontologically I will argue that social, material and spatial relations are equally important and that this involves a wider understanding than just the technical sides of such systems. The distinction between subject and object is, however, not only to be understood as ontological but also as epistemological and methodological, meaning that pragmatists acknowledge these two spheres differently and this affects the ways that science is done.

Epistemology

Technical knowledge of light rail mobilities is valuable in 'knowing that' (Bohman, 2002) there are different capacity standards, curve standards and power supply systems. These could be considered the general technical standards of light rail. Practical knowledge - 'knowing how' (Bohman, 2002) - of the process of implementing such systems in a city can provide insight into the political, cultural and spatial challenges of implementing such systems. Due to the different assemblages of political, cultural and spatial relations in each city, it is harder to standardise this practical knowledge; however, practical knowledge is valuable in understanding how light rail mobilities are produced and practised in various contexts. In pragmatism, the traditional representationalist way of understanding knowledge and experience as representing something in the world or representing a particular foundational

structure of the world is criticised, and a non-representationalist approach is offered. The representationalist epistemologies, such as the empirical analytical sciences, are systematically devaluing the practical 'know-how' in favour of a privileged and fundamental 'know that' (Bohman, 2002; Gimmler, 2005). Through the pragmatic approach it is claimed that there are no a priori foundations for knowledge and inquiry as there are no fixed truths, objectives and universal laws or facts. Foundations for our knowledge go beyond this, and are also referred to as non-foundational (Gimmler, 2012). This entails that theory and methods are not objective representations of reality; we use them because they may be useful practical tools in investigating our research questions. Theories are narrative tools that can be used to work with the richness of the unfurling world: 'theories are tools, metaphors to be used if we feel they are useful to us. They are not tools for revealing the world but for intervening in it' (Jones, 2008, p. 1601). The schemes we have, our language and thoughts determine the way we analyse the world. This means that there is a plurality and creativity in the available theories and methods used to answer the research question. Thus the value of theories and methods is to be understood in their practical implication (Bohman, 2002). There is thus no a priori superiority of one method over another (Gimmler, 2005). The epistemological stance in pragmatism is thus to focus on practices and not on the discovery of scientific laws. This thesis does not aim for any objective universal truth of light rail mobility; it contributes to practical methodologies for understanding light rail mobility qualitatively from a strategic perspective that has its point of departure in the concrete practical situation (Jones, 2008). Furthermore, it has an orientation towards interacting with practice through application. Four different cases of light rail projects form the empirical basis for the thesis, acknowledging that this practical knowledge about light rail systems is non-foundational. It should thus be understood in the concrete situation and be subject to an objective that is relativistic, meaning it adheres to no standards beyond human activity (Hildeband, 2008).

Discussion – implications for practice

Ending this chapter I want to reflect on the practical implications of my research. In a position as a business Ph.D. student, I have been deeply involved in Danish light rail planning practice through various tasks on Danish light rail projects at the consultancy company COWI, who consulted all the Danish light rail projects. This means that Danish light rail practice has played a crucial role in the research process, providing practical knowledge inputs to the structure of central themes in the case studies. Reflecting on my research process today, 1.5 years after defending the PhD, I see that the pragmatic approach of the thesis has been an obvious way of working with practice and with context dependent knowledge. Acknowledging that truth is antifoundational and that in order to understand the production, practice and potential implications of light rail, there is a need to approach the practical contextual and normative knowledge around the making of these systems. Today I am employed at the Northern Jutland public transport authority (NT), where I am project manager at Aalborg light rail project. My position means that I am now also involved in the political issues of the light rail project, and in my daily work I use the skills and knowledge I have gained through the Ph.D. process. Here I see how the project develops through the planning process and see how normative ideals are present in every step of this process. Indeed, the political side of the project is more complex than the technical side.

My engagement with practice goes both ways, in the sense that my findings has been used in the argumentation for light rail in a Danish context. As a part of my PhD, I developed a methodology to qualify and concretise the potential qualitative effects of a light rail project, which is rooted in an urban development perspective. This methodology should be used as a supplement to the more quantitative rational decision support tools, such as transport models and cost benefit analysis, which evaluate the societal benefits of the project mainly in relation to travel time

savings and traffic flow. The qualitative tool provided a wider strategic perspective than the rational tools and emphasised and categorised the strategic values embedded in such projects. The methodological approach has been used in the argumentation of the Danish light rail project as a supplement to the, still dominant socio-economic analyses.

As is has been elaborated earlier in this chapter the rational instrumental approach to transport planning, is still governing much transport and city planning, and this is also evident in the Danish planning practice. But by the introduction of light rail systems, which can be seen as a hybrid between a transport and an urban project, this instrumental approach is slowly starting to change. The acknowledgement of light rail systems as something more than transportation has governed the decision to implement light rail in all Danish cities. The practical experiences from European light rail cities, which is a result of this thesis, has been used actively in the Danish debate of light rail projects. However, there is still potential for a more systematically way of working with qualitative values in all Danish light rail projects that needs to be further developed in both research and practice in order to overcome the 'the just the fact ideology' that is linked to much transport planning. My research process has thought me that there is much to learn from the force of the good example, and that context is everything when it comes to understanding success and failure of light rail systems - as it is also the case of other urban projects.

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Chapter 10 : Strategies of Temporality

By Tina Vestermann Olsen

Timeline: March 2012 - Dec 2016

Keywords: Temporary Use, Urban Entrepreneurship, Strategy, Planning

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Project/chapter	Theory input	Method	Epistemology
Strategies of Temporality	- Temporary uses as a tool for strategic planning – adaptive city development - Time and place in urban processes – sites as places becoming - Urban entrepreneurship (as a way of doing)	- One in-depth case study of an on-going process: mappings, qualitative interviews, document analysis, observational studies, workshops, involvement in strategic initiatives - A multiple study of 4 relevant reference projects: mappings, qualitative interviews, document analysis State of the art theory and practice: internet and literature studies	Pragmatism Assemblage and complexity theory (post ANT)

0. Introduction

Temporary uses are becoming are known tool in the everyday practice of urban designers and planners as they strive to support vibrant city life. (Hentilä and Lindborg, 2003; Jensen (ed), 2008; Breitbart (ed), 2013; MBBL, 2014 & 2015; SEEDS Partners, 2015) As a popular strategic tool applied in planning temporary use is however also connected with certain challenges leaving pressing issues in need of discussion (Lehtovuori, 2010; Colomb, 2012; Larsen, 2007): What is put into play as temporary uses are scattered across the city and (temporarily) set the agenda? Moreover, which results can professional planners with any likelihood anticipate? Which (if any) relation exists between urban entrepreneurship and temporary uses that contain perspectives for longer planning? The research project: 'Strategies of Temporality' addresses these questions in collaboration with the municipality of Aalborg - respectively with the City & Landscape and the Business department. The findings will be based on a comprehensive case study of an on-going process in Aalborg DK including mappings, interviews, document analysis, observational studies and engaging research strategies containing workshops, contributions to actual strategies and potential involvement in a project 1:1. The findings will be supplemented by a set of reference-cases from both DK and Europe. The PhD project will aspire to create a critical frame for understanding the phenomenon of temporary uses in relation to urban entrepreneurship as well as raise awareness of both potentials and barriers as the city is continually developed through consensus driven temporariness.

The chapter opens with a short introduction including state-of-the-art practice and theory and a short grounding of the research within the practice of Aalborg Municipality. In order to frame and explain the methodology the following section unfolds the ontological and epistemological standpoint of the knowledge production in the study. Section three describes the research design including the methods applied to unfold the research theme and reach usable findings.

1. Temporary use and urban design

For long now, the phrase 'temporary use' has been associated with innovation, a high level of layman involvement and thus a certain boldness in the wide practice of urban planning and design (see indicated references from INTRODUCTION). Pop-up installations in urban spaces, re-use of vacant buildings, various festivals and events are the typical physical manifestations. (Lamm, Kural & Wagner, 2015; Pedersen, 2015) These are made possible via an increase in collaborations between planners (consultants and authority), artists and citizens – forming an underlying pattern of negotiation. (Overmeyer (ed), 2007) The incentives and goals driving these efforts differ – all in relation to the motives nurtured by the parties involved. The drivers can be ideological to an extreme degree - either redeeming the democratic city or pragmatic in its resolve – the approach works (and provides riveting images for publicity) for various reasons, so why not? However, this dichotomy might be too simplistic as reality consists of both in a sizzling mix. This requires research recognising complexity and methodically acting accordingly.

Scrutiny of the temporary use phenomenon started with practice. As the deindustrialization of European cities took off a large body of productions sites became vacant – both built and unbuilt and in peripheral and inner city areas. Short lived projects occupying these sites for only interim uses increased in number and in Berlin, Germany, a study of a range of these European projects resulted in conclusions pointing to the potential of utilising such projects in general planning efforts (Overmeyer (ed), 2007). Since then academia has joined in and now the phenomenon is quite widely researched albeit still in the early phases (Lehtovuori 2010; Colomb, 2012; Bishop and

Williams, 2013; Blumner, 2006; SEEDS Partners, 2015). Practice however, is continuing its efforts to implement and showcase an agenda of the non-permanent, the experiment, the collaborative, the sustainable, the process oriented, the fun and the quick. In forefront are for example the urban studios Raumlabor (Germany), Supertanker and Bureau D'Tours (Denmark), Assemblage (England), MUF (England), all finding themselves somewhere in between a practice of art and architecture – hence both installation and building. As such temporary use has for long dominated the urban reality of cities while the academic efforts originating from architectural and planning theory are somewhat behind. The urban phenomenon of temporary use, however, taps into and overlap with a wide range of themes familiar to urban planning: cultural planning, experience design (leading to the creation of the 'experience city') (Marling, Kiib & Jensen, 2009), user involvement or participation (MBBL, 2014), urban commons and curational practice drawing on both landscape and installation art. (Pedersen, 2015) Recent employments of temporary uses are particularly interesting due to the increase in underlying strategic agendas. And in order to further qualify the current (and supposedly on-going) surge of temporary uses flooding the city, wielding a transformative force, it is interesting to apply critical scrutiny to the field between temporary uses and urban entrepreneurship: *'If policy makers continue to assume an 'immutable immobile' definition of creative clusters, expecting the realization of a geographically and ontologically fixed 'quarter', 'milieau' or 'district' the chances of promoting (…) and tapping into its innovations and spillovers will be severely limited.'* (Tironi, 2010, p.42)

Like the majority of Danish cities Aalborg has experienced a development from a city of production to one of knowledge. Various discourses has lead this transformation (Andersen, 2013) and today the dominant planning paradigm is the 'growth axis' illustrated and articulated by the planning department as a corridor for strategic city development (Aalborg Municipality, 2013). From 2008 and onwards the municipality has been involved in a range of initiatives aiming at ensuring vibrant city environments. One central method has been pivotal, namely temporary use. The current chapter will not unfold these efforts extensively, but merely state that the involvement in the initiative and network Platform4, which started in 2008, is central as it began via a collaboration between the private developer Enggaard A/S, the University and the municipality, respectively the business and planning department (metopos 2009; Andersson 2009). Platform4 took up residence in a vacant warehouse and with its predominantly voluntary network of up to 100 'platformers' it became a melting pot for ideas pertaining the field of art and technology while simultaneously and importantly becoming a local showcase for a temporary use with clear entrepreneurial, branding and site transformative potential. Temporarily disregarding the challenges also involved (Andersson 2009), the collaboration stirred a continued curiosity and established the foundation for further temporary uses in the municipality. Albeit temporary uses have become a known tool in the municipal toolbox, the endeavours from 2008 and onwards have to great lengths been carried out with no further involvement from the business department and with no articulated emphasis on entrepreneurship, although recognized as a potential result.

Three main themes will guide the research and frame its discussions. With temporary use being a central cornerstone in the research, the aspect of time and place in urban processes become a important foundation for describing how temporary use enables and conditions change - on what does it 'work' and in what 'time'. Thus one central theme is that of time and place in urban processes that includes also a focus on concepts such as transformation and temporality. Secondly, the theme of temporary use as a tool in strategic planning efforts is equally important. This theme in itself poses a tension between a concept often related to 'quick testing', multiple ownership, user-driven and short lived to the long term oriented strategic

plans which are an integrated part of the planning tradition. The aim is to describe current research pertaining to temporary use as strategy outlining both existing potentials and possible issues creating disturbances. And finally the theme of urban entrepreneurship is part as well. Understood in a inclusive manner, having to do with more than economic gains containing social and inherent urban perspectives. Also it embraces the bottom up initiatives from volunteers and grass-roots while at the same time defining the shift from managerial to governance practices within larger organisations, eg. the municipality.

1.1 Personal motivation

Besides being strongly embedded in a municipal ambition to work smarter with temporary use, the topic has also shaped the student and professional trajectory of the researcher. In 2008 the researcher partook in the project 'Mental Byomdannelse' and co-authored the report bearing the same name (metopos, 2009). Experience from the master thesis and this work thus nurtured a strong imperative and personal motivation for the researcher. This background is not something that can be left behind – nor should it. It affects the knowledge horizon of the researcher and in order to address this embossing it has been useful from the start to define a set of propositions that inevitably lures in the background. As such they are not in their current form argued for via literature studies (but please do take note of those listed in the previous section) and should not be seen as positivistic hypothesis meant for validation or dismissal, but rather as initial ponderings including creative guesses founded by experience from practice (see more in section 2). Some of the most central are the following:

a. Existing research into the phenomenon of temporary use is in its early stages and predominantly dominated by publications from Germany stating that they do have a potential interesting role to play. In a national context focus is on temporary urban spaces defined by landscape or art installations in that way inscribing themselves into a discussion about vibrant and performative urban spaces. The real life collaborations show that the phenomenon is imbued with a complexity existing theory and research is only beginning to grasp. There is a need to address the complexity created when temporary uses become strategy.

b. As a planning tool temporary use has a potential role to play in these processes. These uses initiate cultural, business and entrepreneurial production and the concepts are closely intertwined. The relations however need closer scrutiny and investigation in order for the potential overlaps to be described and future ambitions to be met.

c. Professional planners and developers utilize temporary uses in the hope of initiating growth, revitalization as well as cultural and entrepreneurial production, but there is a tendency to positively focus on the effects it has on city life, cultural production and city regeneration processes while looking past issues of varying ideologies and motives.

d. A more comprehensive understanding of the phenomenon will provide a more informed basis for future planning efforts, that address the need for interesting and diverse urban environments which its users are able to relate to and invest themselves in.

e. There is a need for an empirically founded understanding of the phenomenon. A set of comparative case studies (international and national) carried out through a mixed methodology of mappings, interviews, policy analysis and ethnographic fieldwork can unfold potentials and disruptive forces that need addressing. Each case represent its own narrative defined by local conditions and history and as a complete set the range of narratives will be able to inform future practice.

f. The temporary use can basically be understood as a transformative process including a clear connection between the before and after – the temporary use creates an(other)ness. The foregrounding of temporality thus creates a link between a temporary use and the before and after, underlying the transformation and process of the events. This entails leaving behind dichotomies of 'temporary' and 'permanent' and instead focusing on the process of transformation and the temporary use as an event in time that creates difference.

1.2 Research focus

The on going research aims at learning more about the strategic

utilization of temporary uses when it comes to city development and transformation - more specifically in the field formed by the interests of the business and the planning department when developing and transforming the city environment of Aalborg. As such the analytical object (Hastrup, 1999) can be defined as a popular albeit contested urban phenomenon with certain characteristics. The central common denominator is intended temporariness. And furthermore, that the uses are influenced and shaped by underlying strategic goals. Thus the uses are a result of collaborations between various urban agents at a minimum both a municipality (authority) and temporary use makers.

The research aims at answering the following questions:
I. Which relation exists between acts of entrepreneurship and 'temporary uses' of and in the city?
a. what are the underlying intentions for engaging with them in combination?
b. what kind of results can be detected?
c. what are the barriers and drivers for meeting the intentions?
This is the overall research pondering addressing the relation between planning for change in the space formed by urban planning, business and cultural initiatives.

II. How can a strategically targeted 'temporary use' be best organized and enacted in a Danish municipality - (case Aalborg)?
a. what are the barriers and potentials for current practice?
b. how to collaborate and with whom?
c. when to engage?
d. which role does the specific site play?
This question focuses on the actual doings of a named Danish Municipality in order to close in on better practices and ways forward.

2. Meta theory - framing the knowledge production

The analytic object for the research is an urban phenomenon that takes place at a given site in a city environment. The following section approaches the subject of how any kind of knowledge on that phenomenon can be attained. These are ontological and epistemological reflections. (Hastrup, 1999; Føllesdal, Walløe and Elster, 1992) In order to begin it serves for a moment to put at the centre of attention an example of a temporary use, which took place at Østre Havn on a night August, 2010: specifically a sail in bio at the harbour basin.

A late summer evening at an abandoned inner harbour visited by people of all ages. Some travelled there by car, others by bike and some by boat. The site is defined by tall emptied production buildings and consists of a mix of hard paved and water surfaces. People are gathered to watch a movie – displayed in part on the surface of an old corn silo, made semi transparent by the distance between projector and surface. Beforehand the municipality has given the necessary permits and economically funded the project. The event unfolds – simultaneously being an extrovert act originating from a voluntary collective of entrepreneurs and a valuable experience worth remembering for the audience. The following day seagulls appear nipping at the leftovers from the night before, but no people can be seen. Papers however tell the story of the night before...

Some of these things we can see and experience and they transform into shared knowledge. Some of the things mentioned we might know, had we researched the background for the event beforehand. Other aspects such as the subjective experiences of the onlookers are impossible to really know – unless we dare ask. So the phenomenon at hand is complex, part of a reality both physical and not, simultaneously present, prior and subsequent, shared and individual. This complexity is central to a post-structuralist (or post-modern) ontological strand that acknowledges the composedness of reality and dismisses any truth in meta-narratives. Lefebvre points to the fact that even the architectural archetype – the house – is not merely walls, floors and a roof but connected and defined by the life it houses,

Illustration 1: Sail in bio (Photograph: Simon Andersen)

as he writes, *'a critical analysis would doubtless destroy the appearance of solidity of this house, stripping it, as it were, of its concrete slabs and its thin non-load-bearing walls, which are really glorified screens, and uncovering a very different picture. In the light of this imaginary analysis, our house would emerge as permeated from every direction by streams of energy which run in and out of it by every imaginable route: water, gas, electricity, telephone lines, radio and television signals, and so on. Its image of immobility would then be replaced by an image of a complex of mobilities, a nexus of in and out conduits.'* (Lefebvre, 1991, pp. 92-93) The quote draws in context in the broadest sense thus underlining the complex set of relations the house is embedded in, strengthens and potentially weakens. The focus for this research project is however not a house but an urban phenomenon unfolding and taking place in the contemporary city. A phenomenon which do consist of architectural gestures but also unfold on an everyday basis underlining the point made above – that its 'taking place' is framed by context that is more than structural definable to 'bricks and mortar' but rather shaped by the people involved, decisions made and un-made, political climate(s) etc.

2.1 Contemplating ontology

Positions that adhere to post-structuralism forming a 'practical turn' are positions such as ANT, assemblage-, non-representational theory and pragmatism. (Gimmler, 2012; Thrift, 2008; Brinkmann, 2006 and 2013; Dowey, 2010; Delanda, 2006) With the phrase 'practical turn', the underlying focus for these positions (broadly speaking) is made clear: the practices of people are focal here. This entails subscribing to the disposal of a *'contemplative understanding of science'* and pushing forward the acknowledgement of a *'producing understanding of science'*. (Gimmler, 2012, p. 44) Furthermore central here is also the dismissal of an entire way of thinking that revolves around one truth about the world, a meta-narrative, which we can find if the right methods are applied. Instead of the world being out-there for us to find – it is in-there to be experienced. (Farias and Bender, 2010)

In pragmatism specifically, the goal is to provide practical usable knowledge pertaining to the phenomenon in question: *'The goal for an investigation is not to represent the world, but interestingly find the problematic constellation of actors, that open up a new understanding of a slice of reality.'* (Gimmler, 2012, p. 47. Own translation) Thus ontology in itself is not really at the core of pragmatic concerns. It could be said that pragmatist ontology deals the most with not how reality is – but how we (as humans) can practice our daily life within this reality - putting at the centre our experience and coping mechanisms enabling our continued growth within this reality. Epistemologically this would entail a focus on *know why* instead of *know what*. Brinkmann (2006) argues that a pragmatist stance towards the issue of ontology could be that ontology should not 'just' be *one* but perhaps thought of as a *practical tool* to think with – like knifes and forks are tools we use to master a dinner situation. He presents pragmatic pluralism (2013) depicted as an 'ontological triangle' with three aspects of the social world - respectively the phenomenological aspect (a research endeavour that deals with making the obvious obvious), the discursive aspect (making the hidden obvious) and finally the object aspect (making the obvious dubious).

In order to follow up on these initial ontological ponderings concerned with practical usability and the dismissal of finding any final truth(s), another quote parallels this understanding by drawing in the notion of assemblage:

> A street is not a thing nor is it just a collection of discrete things. The buildings, trees, cars, sidewalks, goods, people, signs, etc. all come together to become the street, but it is the connections between them that makes it an assemblage or a place. It is the relations of buildings-sidewalk-roadway; the flows of traffic, people and goods; the interconnections of public to private space, and of this street to the city, that make it a 'street' and distinguish it from other place assemblages such as parks, plazas, freeways,

> shopping malls and market places. Within this assemblage the sidewalk is nothing more than a further assemblage of connections between things and practices. The assemblage is also dynamic – trees and people grow and die, buildings are constructed and demolished…[…]. All places are assemblages. (Dowey, 2010, p. 16)

The notion of assemblage was formulated initially by Deleuze and Guattari and further developed by Manual DeLanda (2006). DeLanda seeks to formulate a social ontology disregarding reductionism and instead embracing plurality. Key here is a disregard for 'relations of interiority' (DeLanda, 2006, p. 9) and instead a high regard for 'relations of exteriority' (Delanda, 2006, p. 11) As such assemblages can be taken apart and its components might enter into new relations: *'A place-as-assemblage is always a coherent 'multiplicity' of parts, a hotch-potch with no pre-existing whole.'* (Dowey, 2010, p.27) The anthology 'Urban Assemblages' (2010) seeks to put the concept of assemblage in relation to recent urban challenges and takes a starting point in the critique of structuralism and its take on reality and cities as presented by ANT: *'In this manner, ANT destabilizes the autonomy and explanatory priority attributed to space in urban studies, substituting the key notion of sites in plural for it. Sites are defined not by spatial boundaries or scales, but by types and lines of activity, and spaces emerge through the networks connecting different sites.'* (Latour in Farias and Bender, 2010, p. 6) Central also is the understanding of reality as a qualitative multiplicity – non-linear, flexible and heterogenous:

> 'Assemblages do not form wholes or totalities, in which every part is defined by the whole, but rather emergent events or becomings. Urban Assemblages designate thus the processes through which the city becomes a real-state market, a filmic scene, a place of memory; it is the action or the force that leads to one particular enactment of the city.' (Farias and Bender, 2010, p. 15)

Please take note of the concept of becoming, specifically that events are seen as part of processes continuously taking place and unfolding in time. This adheres well to the phenomenon scrutinized which per definition is temporary. Thus situating itself as part of a process between something which has gone on before leading up to something being able to take place afterwards. (For full argument see: Vestermann, 2016) And when time draws matter *'into a process of becoming-ever-different'* (Kwinter, 2002, pp. 4-5), this matter cannot be understood as stationary, thus places should be understood *'as becoming'*. (Dovey, 2010, pp. xi & 13)

The meta-understanding of reality as something continually unfolding not in itself related to any final truth we should strive to understand, permeates the ontological outset for the research project. And in prolongation the attention towards bettering existing practices of temporary uses (exemplified by the close collaboration with Aalborg Municipality) relate to the pragmatist goalpost of research. Assemblage thinking, acknowledging a complex reality, the process of becoming, understanding events as composed of components that are not definable by their relations alone but by their capacity to enter into new relations, is a usable and sensible frame for thinking when investigating temporary uses within planning and urban design. Letting Dowey sum up and daring a replacement of 'place' with 'world':

> 'I suggest we replace the Heideggerian ontology of being-in-the-world with a more Deleuzian notion of becoming-in-the-world. This implies a break with static, fixed, closed and dangerously essentialist notions of place, but preserves a provisional ontology of place-as-becoming: there is always, already and only becoming-in-the-world.' (Dowey, 2010, p. 6)

2.2 Derived epistemology

> The road ahead does not go through new universal theories and abstractions, but via a return to the human life of action and actual human experience. (Brinkmann, 2006, p. 20. Own translation)

The epistemological outset for the PhD project is primarily one of pragmatism. As such knowledge is perceived not as 'a priori' objective laws out-there for researchers to uncover but rather a relational, practical and experienced reality that need to be continually unfolded and explored (Misak, 2013 drawing in Dewey, 1910/1997; James, 1907/1991). *It is about seeking to '… resist tendencies to unquestioning "rule-following" behaviour and to encourage creative explorations and discovery.'* (Healey, 2008, p. 278) According to Brinkmann (unfolding the particular viewpoints of John Dewey), events can be understood as the metaphysical basic category, and three aspects characterize these events: complexity (there are no simple objects), temporality (events unfold in time) and transaction (elements affecting each other are themselves changed in the process). (Brinkmann, 2006, p. 55) This interpretation has direct lines into ANT and assemblage thinking. Specifically the relational way of understanding is the centre of attention in the development of ANT theory being taken further into post- ANT exemplified by Assemblage theory and even non-representational theory (Farias and Bender, 2010; Vannini, 2012 and 2013; Thrift, 2008). Thrift outlines seven principles for non-representation theory and methodology including for example issues such as refocusing on the materiality of the world (here the physicality of the urban environments) and how it is continually being practiced and performed (here the focus on the process of enactment as it unfolds). Thus non-representational thought, understood as a dissembling, novelty and experiment driven methodology, is also embedded as part of the project epistemology. A range of terms deserves more attention in order to unfold this epistemology further: practice, theory, truth and certainty, event and situation, the position of the researcher and research practice.

On practice, theory, truth and certainty

As unfolded earlier pragmatist thinking disregards a priori notions of any final truth about the world and would rather focus attentions on our capability to master our lives within the world. Truth is not a magic relation between a statement and the world (Brinkmann, 2006, p. 37), it does not represent a magical relationship between a proposition and the world. Rather it is 'true' if it is useful, *'…we have reason to leave the representational idiom behind and stop thinking of validity and truth as correspondence and representation. We should think of validity in much more active terms: our analyses are valid when they enable us to do certain things.'* (Brinkman, 2013, p. 48) However not useful in a relative way (understood as void of any etic), but useful for the social world, generally speaking. In a pragmatist way of thinking, humans are extrovertly oriented social beings and our knowledge is social in deed. Thus any usefulness can only be claimed if it is useful for the community as a whole: *An idea or representation is not true, because I subjectively can compare it to 'the world as it is', but because we as a community benefits from it in practice.* (Brinkmann, 2006, p. 33)

Any preference for simple categories and master theories suffer the same faith, they are reduced to practical tools for thinking and contemplation. Thus theories become "working ideas – finders, not merely summaries of truth". (Wright in Misak, 2013, p. 25) With the disregard for any simple truth, theories thought of as working ideas and practice being the focal red thread in the argument for each dismissal - theory, truth and practice are interlinked and continuously up for revision. Thus any real certainty can only be reached and understood rooted in a specific situation in the moment. Or in the words from James Peirce reproduced by Misak: *It is walking upon a bog, and can only say, this ground seems to hold for the present. Here I will stay till it begins to give way.* (Pierce in Misak, 2013, p. 34) Hastrup describes this by

drawing forward three key characteristics of any good research endeavour: transparency, public-ness and debate-ability. Central is the fact that in a post modern belief system, valuable scientific contributions are publicly shared awaiting further confirmation or perhaps rebuttal. (Hastrup, 1999)

On event and/or situation

As briefly touched upon earlier, pragmatist thinking revolves around bettering human practices. This entails a re-direction of attentions towards events and situations occurring in our everyday lives. As such everyday events and situations become the natural starting point for any initial pondering, further contemplation and thus useful research endeavour: *'To understand the world in practice-concepts means to think temporally, contextually and processually. Practice proceeds in time, involves development and frames events.'* (Brinkmann, 2006, p. 40) The term 'indeterminate situation' is key in pragmatism as the point in time in which a situation occurs stirring a specific pondering, which demand further scrutiny. (Gimmler, 2005, p. 9) A breakdown that occurs when shared knowledge that has hitherto 'worked' becomes inadequate to master future situations. Abduction becomes the response, an iterative way of inquiry that makes use of both induction and deduction. In this line of thinking, ideas are instruments for problem solving when we encounter an indeterminate situation. (Brinkmann, 2006) Or specifically: *Ideas are tools for problem solving in relation to concrete and situation determined problems.* (Brinkmann, 2006, p. 36) And this has to do with how to perform valuable research practice.

About the researcher and research practice

> There is no knowledge in abstraction from people who know and their activities of knowing. (Brinkmann, 2013, p. 33)

As any meaningful occupation with final truth and theory is discarded, the position of the objective researcher, free from being embossed by earlier experiences, is also punctuated. With pragmatism said to be a *'anti-foundationalist inquiry-centered idea'*, any research endeavour and inquiry should and would start with ourselves:

> We cannot start from scratch – from indubitable or certain foundations. Rather, we must start from where we find ourselves, laden with beliefs our inquiries may have put in place. (Misak, 2014, p. 23)

This has consequences for the understanding of the material with which the researcher interact: it can never be said to be innocent un-affectingly depicting the world. It is always something consciously and deliberately taken from world – a partner for critical dialogue instead of an ultimate validator for knowledge. (Alvesson & Kärremann, 2011) As such the identification of the empirical material is part of an act of interpretation. And these interpretations actively transform the world via the representations necessary to explain them. Denzin and Lincoln describe this accurately in the following quote:

> Qualitative research is situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. (Denzin and Lincoln, 2011, p. 3)

What becomes evident here is the way the understanding of truth, theory, certainty, situation and research practice intertwine and become difficult to separate. A pragmatist driven epistemology adheres to creative inquiry, aims at finding useful knowledge for the community of peers in which it is to make a difference. It considers the key meaning of any useful findings its continued debate ability and consciously draws on the researchers past experience and knowledge (drawing it out from the shadows and making it active), all the while making use of existing pools of knowledge that might aid the endeavour albeit not letting it become pillars of truth. In the opening of this section the brief paragraph pertaining the sail in bio sought to foreground a particular temporary use and shed a shred of light on the event, its physical surroundings, its audience, the atmosphere, programme and underlying negotiations. All in order to ground the reflections on ontology and derived epistemology. The following section follows up and addresses relevant methods relating a pragmatist driven epistemology with the object for inquiry.

3. Methods - learning from the on-going case study

> …urban reality does not exist, it happens. In this situation, the 'design method' or 'simulation' is, instead of a map, a game. It cannot be drawn, it must be played, in the real world with real people in real time. (Lehtovuori, 2000, p. 414)

The PhD study will produce knowledge through a holistic methodological base leaning on a predominantly qualitative outset of case based research. With qualitative research emphasis is put on the situated knowledge from concrete examples, as well as on the belief that the empirical material is something we 'take' from the world in a constructive manner – it is not 'given' to us inactively mirroring the world a priori out there. (Brinkmann, 2013; Alvesson and Kärreman, 2011; Hastrup, 1999) As the research project revolves around a contested contemporary urban phenomenon the case based approach will serve as an opening up of the urban field in which this phenomenon is active. In this way each case included in the study represents a unique opportunity to learn from a real-life on-going process. The 'opening up' of this process draws inspiration from the idea behind 'thick descriptions' involving: *'understanding and absorbing the context of the situation or behaviour. It also involves ascribing present and future intentionality to the behaviour'* (Ponterotto, 2006, p. 539), thus advocating a certain closeness to the material at hand. Also the case based research draws on the idea of phronesis, that in opposition to episteme or techne emphasizes practical knowledge and has a strong focus on the particular and the given situation and context:

> Phronetic planning researchers reject both of these 'isms' and replace them with contextualism or situational ethics. Distancing themselves from foundationalism does not leave phronetic planning researchers 'normless', however. They take their point of departure in their attitude to the situation in the context under study. (Flyvbjerg, 2004, p. 291)

As such the case based approach dwell on a particular situation or process in order to better understand and scrutinize the different circumstances making it possible. (Flyvbjerg, 2006; Yin, 2009) Also the relation to pragmatism is strong here – zooming in on complex processes including events unfolding over time in order to produce situated knowledge that might improve future practices.

Central to the research project is learning from the practice of Aalborg Municipality from the involvement in Platform4 and onwards. The city areas of Østre Havn and Karolinelund have been and are the physical sites in which strategic temporary uses are currently unfolding – including the now displaced

Platform4. Thus these sites demarcate a field of interest in the north-east part of Aalborg city centre which define the border of the primary case study of planning processes in Aalborg Municipality. In order to learn more from processes unfolding elsewhere the scrutiny of four secondary cases will supplement the knowledge production.

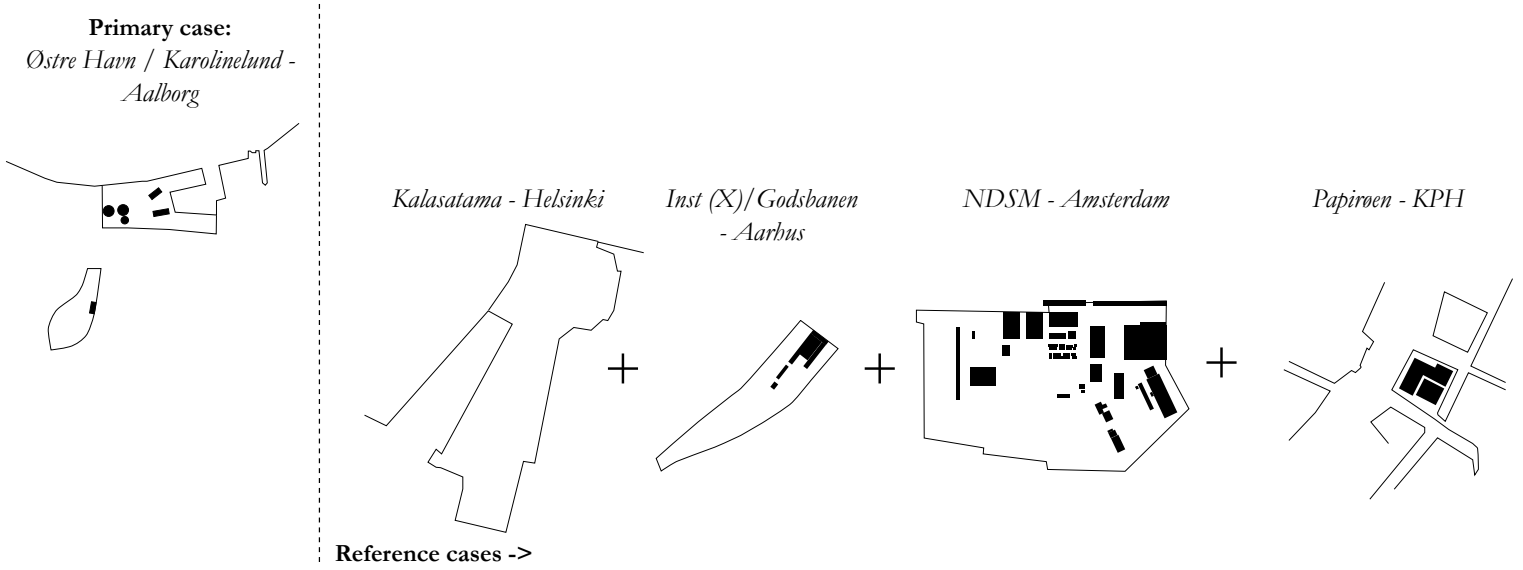


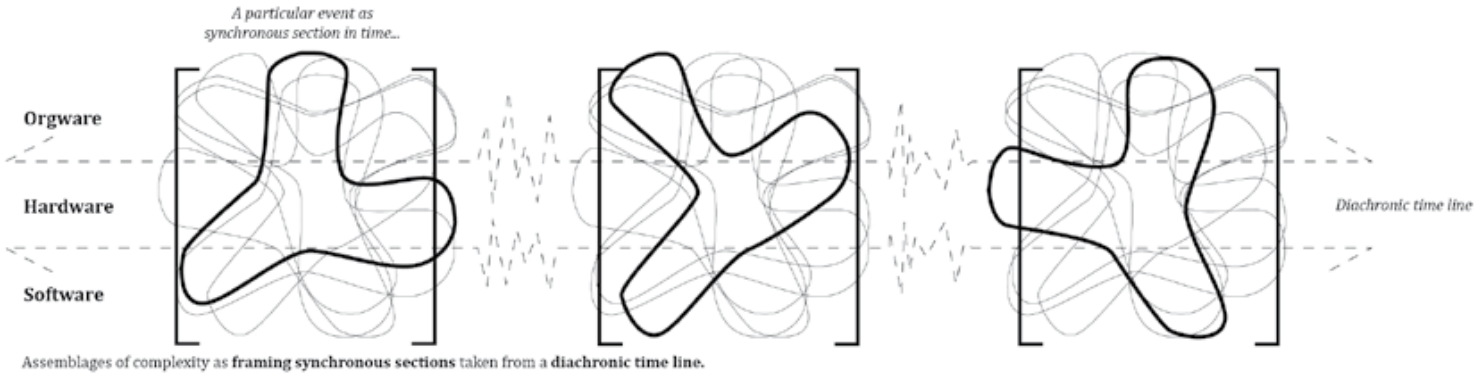
Illustration 2: The primary case is local to be found in Aalborg, DK – of the four reference cases two are Danish and two found abroad (respectively from Holland and Finland)

3.1 A pragmatic application of theoretic lenses – mapping key

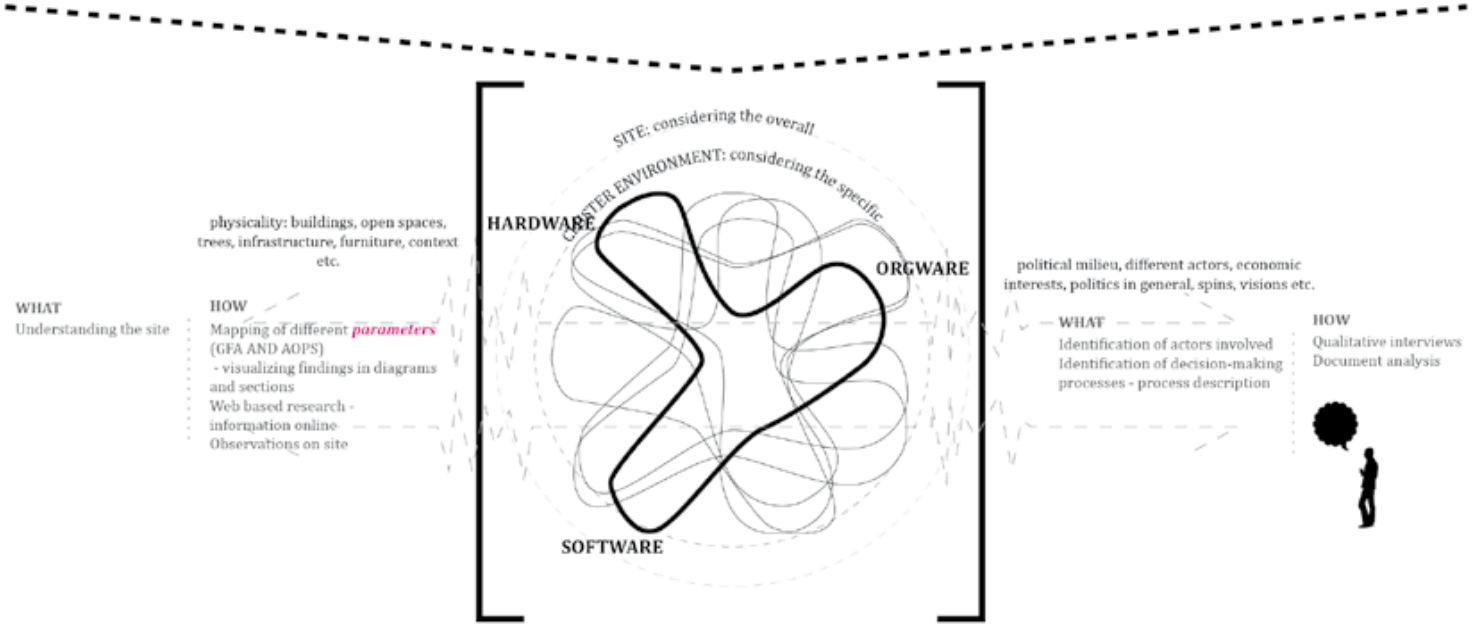
In order to map the processes underlying each selected case (both the primary and the reference cases), inspiration has been found in the approach 'situational mapping: *The construction of situational maps is intended 'to capture and discuss the messy complexities of the situation in their dense relations and permutations.* (Clarke, 2005, p. 559) Embedded in this approach is the attentiveness towards complexity and variety when attempting to grasp situations, which are constituted and affected by a wide range of factors. This relates directly to the arguments put forward in pragmatism and assemblage theory (see section 2). Albeit this underlying stance seems fitting it lacks methodological clarification. In order to pragmatically respond to the meta-theoretical ponderings of ontology and epistemology, the multiple cases are analysed via a simplified analytic key for understanding this complex reality of process and events continually unfolding. Specifically via a model of hard-, org- and software partly derived from the text 'Orgwars' by Crimson Architectural Historians (1998) and Simonsen (2005) while also drawing in pragmatic pluralism (set forward by Brinkmann (2013)) and the 'unfolding over time'. (Bergson in Kwinter, 2002)

Illustration 3 shows what the triad of hard, org and software have been translated into in terms of subjects which is to be obtained knowledge about and methods used for obtaining that knowledge. In combination, aspects such as type of intervention, timeframe and current status as well as the underlying strategy will be used to compare the studied processes. Applying this model as a situational mapping key for deciphering the underlying processes of the cases directly draws on the ideas of creating situational maps addressing a complexity of factors that influence any assemblage. The wide range of methods applied are mappings of the physical environment and the timeline of events, qualitative interviews with representatives of the agents involved, document analysis, observations, workshops and participation will serve to unfold the complexity of the urban phenomenon under scrutiny. There is, however, a hierarchy between the primary and the secondary case studies. The empirical material of the secondary cases will be investigated at a specific moment in time while the primary case in Aalborg will be continuously followed and documented throughout the course of the PhD research. Thus the variety of methods applied in the primary case study succeed those used to unfold the secondary cases. Furthermore it is a clear ambition to learn from the on-going, the situation and process at hand. Thus each case and the unfolding of it are seen as a valuable contribution in itself. In this, one can trace inspiration in a non-representational idiom also foregrounded by Flyvbjerg in the text 'Five misunderstandings about case study research' (2006), which shy away from always representing and instead seeks the lived and embodied experience. The research at hand will thus attempt a strategy of both highlighting the uniqueness of each case narrative while subsequently daring a scrutiny across them guided by the categories from the mapping key. The model in this way serves both a mapping key, showing what to look for and how to do it, but also guides the following analysis.

Illustration 3: Each case is 'situationally mapped' based on this mapping key addressing issues across hard-, org- and software.



Assemblages of complexity as **framing synchronous sections** taken from a **diachronic time line.**



physicality: buildings, open spaces, trees, infrastructure, furniture, context etc.

WHAT
Understanding the site

HOW
Mapping of different *parameters* (GFA AND AOPS)
- visualizing findings in diagrams and sections
Web based research - information online
Observations on site

political milieu, different actors, economic interests, politics in general, spins, visions etc.

WHAT
Identification of actors involved
Identification of decision-making processes - process description

HOW
Qualitative interviews
Document analysis

users (audiences), programme/forms of use, narratives, history, identity, myths, future dreams etc.

WHAT
Contextual analysis - identification of users and networks in the proximity
The area in its context - uses over time and corresponding narratives

HOW
Web based research - information online
Coverage from the local media
Qualitative interviews

4. Conclusion and perspectives

The research project 'Strategies of Temporality' has a strong foundation in real-life experience. Its legitimisation and source of pondering is experience from practice for both the researcher and the members of the Steering Group. As such the goal is clear and it permeates the second research question. This means that the findings are directed at practice and their practical usability cannot be ignored. In this condition alone lies a given and obvious relation to a pragmatist take on scientific practice when it comes to both why it makes sense to focus in on the research topic (what is the practical difference made for the professional planning and design community) and how the research design best can be undertaken in order to provide useful contributions.

Why has to do with the current overwhelming interest in the phenomenon of temporary use, which is, to a large extent from a planning perspective, non-critical. An 'indeterminate situation' or central pondering arises when the result of the processes pull in various directions, some aspects acknowledged and saluted and others potentially game changing, but ignored. Also the 'why' stems from the experiences from a wide range of professionals involved in planning our cities (the researcher included), wondering how temporary uses are linked to entrepreneurship and how to work smarter with temporary uses.

How can be explained as the practical response to the why. Already processes are unfolding which utilize temporary uses. And the amounts of projects are only increasing. The practical pool of knowledge is thus immense and ideal for further scrutiny. This points to case studies as potential 'partners for critical dialogue' in the attempt to learn more. The application of an analytical key consisting of three categories (that addresses the complexity which urban processes are made of) is used to open up these case studies. Included in the methodology are various methods applied in order to capture the processes in which the temporary uses are part: mappings, qualitative interviews, timeline narratives and observations.

The findings are to be submitted January 2017, after 7 months of maternity leave in a year's time from writing this. Left is the comprehensive work of finalizing the analyses of each included case followed by a test-run and discussion of the preliminary conclusions in a workshop with participants from each interest group. And finally the task of narrowing in on the most important findings and communicating them through a monograph, that manages being relevant for both practice and academia, a challenging, albeit, essential task. The clear aim is to contribute to on-going research efforts with valuable insights into the link between temporary uses and entrepreneurial efforts and perhaps in that way provide a perspective on the phenomenon of temporary use that demystifies it and makes it about joint innovations. Furthermore the study should also give concrete recommendations pointing towards strengths and fall-pits for Aalborg municipality and thus be a partner for the departments in the municipality as they continue to venture into new processes including temporary uses.

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Chapter 11 : A Model for Enquiry of Sustainable Homes

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Project/chapter	Theory input	Method	Epistemology
A Model for Enquiry of Sustainable Homes	The human in centre Perceived quality Perceived indoor environment	Quantitative method: Technical measurements Qualitative method: Questionnaire, Blog, In-situ	Empirical–Analytical, Pragmatic, Positivist, Phenomenological

What happens to sustainable intentions after buildings are designed, constructed and the occupants have settled in?

Introduction

This chapter is based on an excerpt from the thesis A Model for Enquiry of Sustinable Homes (Olesen, 2014).

The aim of the work is to develop a Model for Enquiry of Sustainable Homes through exploration of built, in-use, sustainable homes; three Model Home 2020 houses and families living in them. Aiming at complying with aspects of the world of sustainable architecture, the model employs methods of enquiry through four different perspectives; namely in-situ research, blog research, questionnaire survey and technical measurements. Thereby several aspects of the built environment come together in creating a more complete understanding of what sustainability actually can entail.

The starting point for developing such a model is a belief that in order to develop successful sustainable solutions for the future built environment, focus must turn back to fundamental aspects of being in the world and exist in coherence with our surroundings. Because that is basically what sustainability is all about; sustainable encounters with surrounding environments; whether natural or constructed.
To begin comprehending this relation, our surroundings must be understood from ourselves and what we come from. Peter Zumthor (2006: 65) writes:

> "We all experienced architecture before we have even heard the word. [...] The roots of our architectural understanding lie in our architectural experience: our room, our house, our street, our village, our town, our landscape, - we experience them all early on, unconsciously, and we subsequently compare them with the countryside, towns, and houses that we experience later on. The roots of our understanding of architecture lie in our childhood, in our youth; they lie in our biography."

This work contains an inherent agenda of measuring. It attempts to measure all from technical ability over occupants' experience to elements of perceived quality in sustainable homes. At the same time, there is an awareness that this may not be entirely possible, seen in the nature of the unmeasurable character of architecture. Dean Hawkes describes this relation beautifully:

> "I only wish that the first really worthwhile discovery of science would be that it recognized that the unmeasurable is what they're really fighting to understand, and that the measurable is only the servant of the unmeasurable; that everything that man makes must be fundamentally unmeasurable."'(2008: vi)

Purpose, aim and research questions

The purpose of this research is to establish a mixed method based model for enquiry of sustainable homes in use. The intention is to capture more aspects of sustainable life-form but merely the technical measurable ones, which development of sustainable architecture is mainly driven by today.
Through this enquiry focus is on establishing a more common language on knowledge about user perspectives, perceptual and technical qualities. The research enquires sustainable homes with an attempt to unfold the multiplicity and complexity of sustainability in a home perspective in the context of built environment. It is central to develop a more holistic approach to enquiry of sustainable homes in use, that puts the user of the building in centre to ensure that perceived qualities and technical abilities supplement each other in establishing the best possible built environments for the future.

The central research question is thus:
I. How can a model for enquiry of sustainable homes based on a mixed methods approach include occupant perspectives, perceptual quality and technical ability; so the approaches supplement each other and establish a more complete illustration of the sustainability unfolded?

To explore and unfold aspects of the overall research question, three research questions are formulated:

II. How are everyday encounters with sustainable functionalism perceived by occupants, and what aspects does this bring to an automated, sustainable life-form which is probably a circumstance of the future?

III. Aspects of perceived quality are central to create value for human beings in the built environment of the future, but how can perceived quality in sustainable architecture be registered, analysed, weighed up and conveyed without losing their qualitative nature?

IV. How can indoor environment in sustainable homes be enquired through respectively occupant perspectives, perceptual quality and technical ability; so the approaches supplement each other and establish a more complete illustration of the sustainability unfolded?

Through exploring the above questions, I would like to move discussion of sustainability away from the inherent quantitative/ qualitative divide between architecture and engineering approaches where the respective professionals consider themselves belonging to different disciplines with separate agendas. Rather, I would like to take a holistic view point on sustainability within architecture and thematically explore the abilities and possibilities in the built environment of the future. Disregard whether knowledge stems from engineering, architectural, anthropological or social science but choose methods and knowledge fields best applicable and usable for exploring and understanding specific challenges and areas of interest.

From this basis, the work attempts illustrate a sincere wish to direct focus at the complex nature of the built sustainable environment, its numerous challenges and its immense potential.

Mixed Methods and sustainable architecture

As tendencies of holistic approaches to sustainable architecture develops the incentive to also approach enquiry of these in a holistic way increases. A mixed methods approach is more commonly used to capture and illustrate the duality between quantitative and qualitative aspects. The more interweaved ideas about the house the less sense it would make to separate these through enquiry.

Mixed Methods Enquiry

The mixed methods approach is gaining footing within building research where an inherent relation (e.g. Vitruvius) between quantitative technical aspects and qualitative sensuous aspects is reviving as development and realization of sustainable architecture projects appears (Entwistle, 2011, Larsen et al., 2012, Brunsgaard et al., 2012). Building research is concurrently expanding its scientific platform to embrace various fields such as healthcare, nutrition, experience economy, service design research etc. (e.g. AD:MT, 2012) where tendencies to give increasing attention to human aspects is becoming visible. This shift has caused for social and human sciences to gain ground in building research, as Creswell formulates it:

> "(...) mixed methods is another step forward, utilizing the strengths of both qualitative and quantitative research. Also, the problems addressed by social and health science researchers are complex, and the use of either quantitative or qualitative approaches by themselves is inadequate to address this complexity. The interdisciplinary nature of research, as well, contributes to the formation of research teams with individuals with diverse methodological interests and approaches. Finally, there is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself. Their combined use provides and expanded understanding of research problems" (Creswell, 2009: 203)

Mixed Methods research in sustainable architecture

As Mixed Methods research is gaining footing in sustainable houses in-use it is relevant to explore how this is approached to uncover methods and strategies.

Brunsgaard et al (2012) carries out a strategy of enquiring through both technical measurements and semi-structured Interviews (Kvale, 2009) and thereby provides an example of a mixed methods explanatory sequential design where quantitative data collection and analysis is followed up by qualitative data collection and analysis and then interpretation (Creswell & Palno-Clark, 2011). The EnergyFlexHouse project is enquired through extensive measurement on the continuously adjusted technical equipment while user experiences are captured though questionnaires and interviews (Stjernquist, 2010). This follows an explanatory sequential design (Creswell & Plano-Clark, 2011). The Home for Life project showcases an example of convergent parallel mixed methods design where respectively quantitative and qualitative data collection and analysis are carried out separately and then following are compared. (Creswell & Plano-Clark, 2011) Hansen, Olesen & Mullins (2013) work illustrates a convergent parallel methods design which is also the case for Poblete in her two case studies of UK demonstration houses (2013). (Creswell & Plano-Clark, 2011) Sheridan (2009) pursues an explanatory sequential design though her studies in developing new methodology for Scottish housing.

Through their thorough enquiry of fifteen houses Drexler and El Khouli (2012) use 'The Housing Quality Barometer' (ibid) creating a scale for rating assessment criteria. They pursue an explanatory concurrent design. (Creswell & Plano-Clark, 2011)

Through the projects reflected a shift from technology to human as central in sustainable architecture becomes evident. More and more enquiries on occupants, and thereby methods from social sciences, are applied. This points towards need for more holistic and balanced approach in enquiry of sustainable architecture.

Increasingly holistic tendencies

Increasingly holistic tendencies in sustainable architecture call for more holistic and balanced approaches to enquiry when the buildings are built and in use. If assessment is continuously based on mainly technical means, learning's and findings will reflect this and knowledge of more perceptual character will most likely languish. Perceptual aspects of the built environment are imperative to create spaces for people to unfold their lives in. Qualities related to home and surroundings are central in creating better and more fulfilled lives. (Hansen, Olesen & Mullins, 2013)

The human in centre

From the 1970ies and on technology is the main driver for development of sustainable buildings but during the later part of the 2000s the focal point is shifting to the users of technology, the human being. Thereby re-introduction of a human factor places the human being in the centre of sustainable architecture as a key to solving sustainability.

User behaviour

User behaviour has high influence on energy consumption as well as level of comfort in homes. Every decision the user makes influence the way the house will perform whether this regards reduction of energy consumption or establishing a comfortable indoor environment. (Brunsgaard, 2012; Jensen, 2009; Gram-Hanssen, 2011; Gram-Hanssen, Kofoed & Nærvig Petersen, 2004) Therefore, it is central to understand users and to explore and develop knowledge on how occupants experience living in and with automated homes.

Considering the human being central in architecture is no new thing. Actually, humans have been central ever since architecture was merely a matter of creating shelter (Frampton, 1995). This has been forgotten several times through history and especially the Industrialisation lead focus from human to machine – a worldview fascinating development of Modern architecture (Frampton, 2007; Bluyssen, 2009; Gideon, 2009; Bloomer & Moore, 1977).

The Nordic regionalist architects meanwhile managed to keep focus on the human being and not be blinded by the ability of mechanical approaches (Pallasmaa & Sato, 2007; Weston, 2002, Schildt, 1997).
Alvar Aalto recognised the importance in considering human being the focal point of the building and thereby focused his architecture on interaction between man and his environment:

> "I mean the question of variability, the possibility of interaction between man and his environment and his objects, where the environment fulfils the psychological need for constant regeneration and change. It is obvious that his most intimate surroundings should be created with what I would almost like to call the automatic possibility of constant change." Alvar Aalto, 1935 (Schildt, 1997)

> "It is thus as important as ever today to take the human factor into account. (...) One might say that the human factor has always been a part of architecture. In a deeper sense, it has even been indispensable to making it possible for buildings to fully express the richness and positive values of life."
> Alvar Aalto (1940:281)

Perceived quality in architecture

User experiences of life in sustainable built environments are increasingly frequently included in enquiry, and perception becoming more central. Aspects of perceived quality are paid increased attention in the design of sustainable architecture by means of creating quality to users. Nearness to natural and local resources such as landscape, microclimate, daylight availability, planting and possibilities of establishing views are considered in the designs. Among other things, this leads to closer relation with and interdependence of nature, its unpredictability and constant variability. (Olesen & Knudstrup, 2013a; 2013b)

Phenomenology & Perceived Quality

Architectural traditions have developed through centuries with strong inherent understanding for qualities based on e.g. cultural, scenic, spatial and social realms - developed through an art of refining combination of materials, space, light, function and landscape. (e.g. Frampton, 2007, Wraber, 2009, Bejder, 2012, Lund, 2008) Architects are challenged and committed to visualize these qualities in the constructed environments they create, thus, architecture is much more but merely a visual thins (Pallasmaa & MacKeith, 2013). Theory behind perceived quality is based on a phenomenological worldview; a concept developed from the 18th century by Kant and Hegel and defined by Husserl and Heidegger (Heidegger, 1953) and later by Merleau-Ponty (1945; 1964); circling around examining meaning of life through lived experiences (see p. 26). Quality in the built environment is not merely a matter of aesthetic quality as has been the traditional interpretation, but rather a matter of atmosphere, as denoted by Gernot Böhme (1993) and following by e.g. Rasmussen (1898), Zumthor (2006), Perez-Gomez, Pallasmaa & Holl (2006). Architecture proposes individual interpretation with the subject as a vital parameter and is created through encounter between human being and building structure. This is supported and substantiated by theoreticians and architects (e.g. Rasmussen, 1989; Holl, 2006; Zumthor, 2006; Pallasmaa, 2005; Bachelard, 1994; Hawkes, 2008).
Buildings are constructed spaces filled with and surrounded by physical things. Some of these constructed spaces constitute homes and represent the most intimate frames people live their lives in. Accordingly Steven Holl:

> "Architecture holds the power to inspire and transform our day-to-day existence. The everyday act of pressing a door handle and opening into a light-washed room can become profound when experienced through sensitized consciousness. To see, to feel these physicalities is to become the subject of the senses." (Holl, 2006, p. 40).

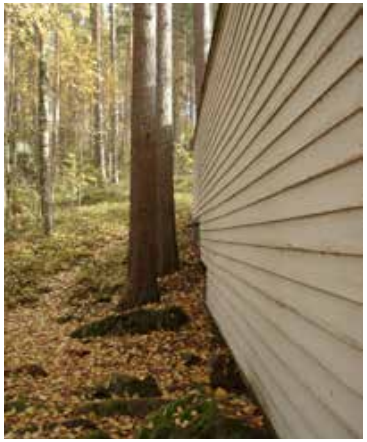
Putting on this sensitized consciousness is a central aim for this work to explore how sustainable build environments can potentially add to creating value in everyday life.
Means to explore and capture aspects of this sensitized consciousness can be based on a bodily and sensuous approach. Some of the greatest architects, both historically and contemporary, base their approach to creating buildings on this approach (e.g. Alvar Aalto, Jørn Utzon, Steven Holl, Peter Zumthor). They create from an understanding of the human being and the human body. Thereby, the spaces they create inherently relate to human bodies and minds and it is easy to understand and appreciate these buildings – because they make sense – on a fundamental sensuous level.

Architects approaches

Hawkes (2008) reflects on this approach through the introduction to his book 'The Environmental Imagination – techniques and poetics of the architectural environment' in which he tries to penetrate into the mindset of architects and show that 'the significant environmental proportions in architecture rest upon acts of imagination in which techniques are brought to bear in the service of poetic ends' (Hawkes, 2008:vi). He pursues a method of direct experience, and distinguishes:

> "The essence of the environment I am trying to capture must be directly experienced; it cannot be completely discerned from images and verbal descriptions alone. For the purposes of this kind of research the only reliable instruments of observation are the human senses". (ibid:vi)

With Hawkes approach in mind studies of architects' approaches to understand their own buildings are enquired: 'Through enquiring writings by architects who approach architecture in a sensuously and bodily way, the question is reflected: How do architects approach understanding and conceptualizing perceived quality?' (Olesen & Knudstrup, 2013b) The study enquires five works, respectively Experiencing Architecture by Steen Eiler-Rasussen (1989), Open House by Florentine Sack (2006), The Eyes of the Skin by Pallasmaa (2005) and Peter Zumthor's Atmospheres (2006a) and Thinking Architecture (2006b). Analysis of these works result in identification of a range of elements across the literatures which are representative to these architects view on perceived quality in architecture. The identified elements are compiled into categories: Perception, Relation, Composition, Surface, Light & Shadow, Variability and Utility. Elaborate description and analysis can be found in the article (Olesen & Knudstrup, 2013b).



Picture 1 Experimental Summer House, Muuratsalo, Finland (1953) by Alvar Aalto. Photo: Gitte Gylling Olesen
Picture 2 Therme Vals, Vals, Graubünden, Switzerland (1996) by Peter Zumthor. Photo: Gitte Gylling Olesen
Picture 3 Ill. 1.3.2. Saint Benedict Chapel, Sumvigt, Graubünden, Switzerland (1988) by Peter Zumthor. Photo: Gitte Gylling Olesen
Picture 4 Notre Dame du Haut, Ronchamp, France (1954) by Le Corbusier. Photo: Gitte Gylling Olesen

Mixed Methods research design

Sustainable architecture is a complex field of knowledge occurring in symbiosis between technical, functional, physical, physiological, perceptual and sensuous qualities. Therefore it is founded on various philosophies and sciences. Mixed methods research approaches are, therefore, increasingly commonly applied to enquire sustainable buildings. To meet the complex nature and multi-disciplinary foundation embeded in sustainable architecture, this research follows a mixed methods research design. The design is elaborated through the following chapters.

Mixed methods research

Mixed methods research is an approach to exploring subjects from a mixed methods perspective and thereby creating the possibility to illuminate the same problem from various angles simultaneously; making the approaches support each other. This interpretation is supported by Rabinowitz (2013) who believe that quantitative and qualitative methods are complementary as each has strengths and weaknesses the other deos not have. Thereby, together they can form a clearer illustration of the circumstances than either of them would be able to alone. Within the discipline of mixed methods research there are various definitions and approaches which cannot be described here; common to them is that they reflect

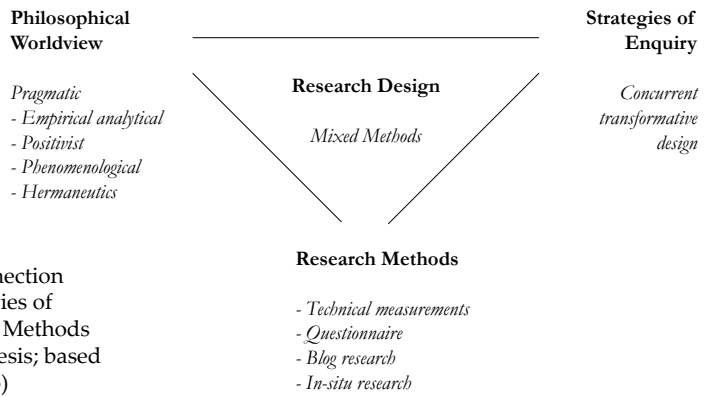


Figure 1: The Interconnection of Worldviews, Strategies of Enquiry, and Research Methods specified on present thesis; based on (Creswell, 2009, p. 5)

different ways of consolidating the methods in use. (e.g. Johnson, Onwuegbuzie and Turner, 2007, Creswell, 2009, Yin, 2009, Ragin and Amoroso, 2011, Brymann, 2009, Creswell and Plano Clark, 2007, Tashakkori & Teddlie, 1998) Creswell and Plano Clark (2007) stress that the mixing of methods must happen through all stages of research through data collection and analysis and accentuate that the combination of quantitative and qualitative approaches is the central premises for establishing an enhanced understanding of the research problem than either method or approach would be able to establish alone.

In an online lecture Creswell (2013), who is considered a main figure in formulating mixed methods research, summons up:

> "(…) in the simplest way of thinking about it is just simply putting together the stories of people's lives as well as the numbers, the statistics, of what occurs (…) The whole idea is that combining both the statistics and the stories gives us a more complete understanding of our research problem than just one by itself."

Thoughts on a Model for Enquiry of Sustainable Homes

A Mixed Methods research design is specified based on Creswell's Framework for Design (Creswell, 2009, p.5). The following pages will unfold Philosophical Worldviews, Strategies of Enquiry and Research Methods that form the pillars of the research design structure (see Figure 1). The research is based on mixing research in design and research through design (Frayling, 1993; Archer, 1995; Friedman, 2003; Groat & Wang, 2013) as the perspective is based on an iterative process (Hansen & Knudstrup, 2008) of shifting between theory and practice based exploration. The nature of the research followed though the work can best be described as Action Research as defined by Archer (1995) as it pursues testing new ideas and procedures to produce communicable knowledge. The intent of compiling such a research design is to illustrate diverse values of sustainable life and thereby support both perceived and technical aspects of sustainable architecture.

Philosophical Worldviews

Pragmatic Worldview

The thesis is based on enquiring sustainable architecture though respectively technical ability, occupant experiences and perceived quality (Olesen et al, 2011a; Olesen et al., 2013a; Olesen & Knudstrup, 2013b; Olesen et al., 2013b).

A pragmatic worldview occurs from situations, actions and consequences rather than predetermined conditions. Thereby pragmatics content that philosophical aspects are best viewed in terms of their practical use. Creswell lists a ray of characteristics to pragmatist worldview, among these he states that (Creswell, 2009:11):

> "Truth is what works at the time. It is not based in duality between reality independent of the mind or within the mind. Thus, in mixed methods research, investigators use both quantitative and qualitative data because they work to provide the best understanding of a research problem."

Pragmatics focus on using applications that work best at the time. Rather than focusing on methods belonging to a certain knowledge field or science branch, emphasis is on the research problem. Any approach available is used to illuminate and understand the problem and focus is on what and how to research (Creswell, 2009) (Tashakkori & Teddlie, 1998). Creswell accentuate that pragmatism can create access to multiple methods, different worldviews and different assumptiosn to the mixed methods researcher. This also goes for different kinds of collection, analysis and treatment of data (Creswell, 2009).

Though this research a pragmatic worldview is obvious as a base to tie together different perspectives. Four scientific branches of knowledge are enquired: technical ability, occupant perspectives and perceived quality. Application of multiple methods is an apparent course and the study commits to a range of worldviews: Empirical-Analytical, Positivist, Phenomenological and Hermeneutic. These all stem from an empirical worldview which states that knowledge origins from sensory experience. (Groat & Wang, 2013, Bryman, 2008, Creswell, 2009, Gadamer, 2004)

> "My perception is [therefore] not a sum of visual, tactile, and audible givens: I perceive in a total way with my whole being: I grasp a unique structure of the thing, a unique way of being, which speaks to all of my senses at once."
> Maurice Merleau-Ponty (1964:50)

Empirical–Analytical Worldview

Technical abilities of the houses are looked at through an Empirical-Analytical worldview. This view is characterised by its quantitative nature and hold to the belief that knowledge of the whole can be broken down into pieces in which the same knowledge can be found from the parts. Focus is on measuring and quantifying phenomena. (Groat & Wang, 2013, Bryman, 2008, Creswell, 2009)

Positivist Worldview

Occupants perspectives on life in sustainable homes are explored through two approaches, respectively a questionnaire and a blog approach. Questionnaire approach is founded on a Positivist worldview where the basic premise is that empirical experience can bring knowledge. This is rooted in an empirical–analytical worldview. The positivist worldview is a reaction to the metaphysical and superstitious and thereby builds on the foundation of reality and science. The Positivists believe that knowledge is confirmed through the senses and is based on methods and models from natural-science. (Boolsen, 2009, Brinkmann & Tanggaard, 2011, Creswell, 2009)

Phenomenological Worldview

The Phenomenological worldview began with Kant and Hegel in 18th century and later Husserl and Heidegger (Heidegger, 1953). Phenomenological research aims at examining meaning of life through lived experiences of individuals and explores their inner worlds; describe experiences as they are lived through identifying common meanings and relational themes. (Merleau-Ponty, 1945, Merleau-Ponty, 1964)

Hermeneutics Worldview

The second part of occupant perspectives is enquired through a blog approach – an approach rooted in the Hermeneutic worldview - which is a branch of phenomenology (Heidegger, 1953; Gadamer, 2004; Perez-Gomez, 1985). The fundamental premise for Gadamers' hermeneutics intail that truth can be reached only by understanding experience. This understanding is not fixed but constantly changing always indicating new perspectives where the central thing is to unfold the nature of individual understanding. (Gadamer, 2004)

Strategies of enquiry

Mixed methods research can be many things and defining the strategy of enquiry is strongly related to focus and approach of the work. This is so to say determining how the mixing of methods is approached and there are many ways of creating Mixed Methods designs (Johnson, Onwuegbuzie and Turner, 2007) Creswell & Plano-Clark (2011) define four strategies and two sub strategies while Bryman (2006) lists 18 ways of combining quantitative and qualitative research, and Greene, Caracelli and Graham (1989) define five.

Concurrent triangulation design

This research enquiry usen in the current study is based on a so-called concurrent triangulation design strategy. This strategy is characterised by applying two or more methods to confirm, cross-validate, or substantiate findings through concurrent data collection. The purpose behind this strategy is to overcome a weakness in applying only one method with the strengths of another. (Creswell & Plano-Clark, 2011, Creswell, 2009 Bryman, 2006, Greene, Caracelli and Graham, 1989)

Following characteristics identified by Creswell & Plano-Clark (2011:53-106):

- Triangulation seeks convergence, corroboration, and correspondence of results from the different methods.
- Triangulation or greater validity refers to the traditional view that quantitative and qualitative research might be combined to triangulate findings in order that they may be mutually corroborated.
- Concurrent quantitative and qualitative data collection, separate quantitative and qualitative analyses, and the merging of the two data sets
- Used when needing a more complete understanding of a topic
- Used when needing to validate or corroborate quantitative scales

Through the precent enquiry four methods are used to explore respectively technical ability, user perspectives and perceived quality in sustainable homes. The strategy for enquiring technical ability is a qualitative methodology based on an experimental approach, as the houses are built and thereby can be enquired in full scale and in their natural contexts and environments. Several strategies are related to the qualitative approaches. Questionnaire research is based on grounded theory approach (Boolsen, 2006) and blog and field research are based on strategies mixing narrative and phenomenological research strategies (Groat & Wang, 2013; Brinkman & Tanggaard, 2010). Strategies are elaborated through the following research methods.

'The design of a building and its interior space influences its atmosphere and lends a specific character. Together with the features of the room itself the lighting, the materials used, their surfaces, textures and colorings help creating the effect of space.'
(Pallasmaa, 2007)

Research Methods

Quantitative methods

For decades technological improvement was the main driver for advance of sustainable architecture, why development of enquiry tactics as a natural consequence grew from the technologically based sciences (Edwards, 2010, Lauring and Marsh, 2009).

Technical measurements

Measurements are carried out as long term measurements using sensors installed in all spaces in the house in a specifically selected position in each rooms. In ISO 7726:1998 Ergonomics of the thermal environment – Instruments for measuring quantities (ISO TC 159/SC 5/WG 1, 1998) the derived physical quantities characterizing the environment are described as:

> "(…) a group of factors of the environment, weighted according to the characteristics of the sensors used. They are often used to define an empirical index of comfort or thermal stress without having recourse to a rational method based on estimates of the various forms of heat exchanges between the human body and the thermal environments, and of the resulting thermal balance and physiological strain. Some derived quantities are described in the specific standards as they apply and where measuring requirements are included." (ibid: 6)

Qualitative methods

Qualitative methods can supplement quantitative research methods by providing description of phenomena based on perception and experiences. Often, qualitative (semi-structured) interviews are applied as an approach appropriate for exploring subjects brought up during the session (Kvale, 2009). However, in the current setup the challenge is that the houses are situated across Europe in Germany, Austria and France while the researcher is native Danish. This creates inherent language barriers. Interview sessions would cause travelling, translation and transcription which are all time consuming practices in conflict with the aim of establishing a simpler and more time efficient approach. Another dimension is the aspect of variability and an intention to explore possible aspects of variation in these houses. Uncovering variability over time in the houses require repeated rounds of interviewing – adding to the extent, resource demands and costs of the enquiry.

For these reasons, the intended qualitative interviews (Olesen et al., 2011a; b) are replaced by questionnaire and blog approaches.

Questionnaire research

As described, technical measurements are commonly supplied by questionnaire research. Questionnaire is managed as email survey. The format is directed by a longitudinal design where occupants answer the questionnaire four times during the one year test period (Bryman, 2008, Brinkman, 2010, Boolsen, 2006). Questionnaires are translated to native language (Bryman, 2008). Questions posed in the questionnaire use respectively three; four and five point Likert scales (Likert, 1932).

An immediate advantage of replacing interview with questionnaire is that this meets language barriers, reduces costs and timely resources, and is more easily distributed several times. Also, occupants have greater freedom in when (and where) they wish to answer to the scheme, within a given time fame. This provides opportunity to collect data on a seasonal basis and thereby explore if and how occupants experience change relating to seasons.

A downside to replacing the qualitative interview with a questionnaire is the shift from qualitative to more quantitative methodology. Also, it is difficult to be aware how the respective occupants interpret the respective answering possibilities of the Likert scale creating an uncertainty to the survey. Some apparent qualities vanish, such as statements from users and elaboration on themes of interest. Also, an aspect of spontaneous experience is difficult to capture through questionnaires. To meet the wish for unfolding occupant experiences in a freer format than strict predefined questionnaire approach; and enable inclusion of more narrative character, the research introduces a blog approach.

Blog

Blog is an online media, as described by the Oxford Dictionary "…a personal website or web page on which an individual records opinions, links to other sites, etc. on a regular basis". Wikipedia.org elaborates this description: "A blog (or weblog) is a website which is regularly updated with short texts (messages or lines) with the most recent at the top. (...) Contents may vary from the personal diary-like to the political debating or thematic. A blog is often linked to a person but can also be shared by a larger group. (...) Bloggers write with fairly regular intervals, say every week. In a weblog blogger writes often about her life just like in a diary."

A blog can roughly be characterised as a qualitative method in line with semi-structured (Kvale, 2009) or open-ended interviews (Brinkmann & Tanggaard, 2010), Cultural Probes (Alexandra Institute, 2012) or to some extent Open questionnaires (Boolsen, 2008); methods belonging in social and anthropological sciences. The blog create possibility to collect data similar to those from semi-structured interviews (Kvale, 2009) as an "interview with the purpose of gathering descriptions of the Interviewees lifeworld with the purpose of interpreting the meaning of the described phenomena", and cultural probes described by Alexandra Institute (2012) as "a method where users themselves are helping to collect data on their daily lives" without being demanding or time consuming for the researcher, and being a free medium for the occupant who can decide for him-/herself how much efforts to put in.

Thereby, questionnaire survey is supplemented by this continuous, free format, voluntary approach and occupant perspective are illuminated through both quantitative and qualitative approaches. (Olesen et al. 2013)

In-situ

With the intent to approach enquiry of sustainable homes in a more holistic and balanced way, this work integrates perceived qualities and thereby explore sustainability wider than 'traditional' engineering perspective. To explore and enquire perceived quality the researcher must perceive by studying settings or phenomenon embedded in its real-life context. (Groat & Wang, 2013, Yin, 2009) Field research is about going out in the field with the purpose of collecting data employing variable methods such as direct observation, participation studies, analyses of documents, self-analysis; methods often characterized as qualitative but they may also include quantitative aspects (Bryman, 2008, Creswell, 2009, Groat & Wang, 2013, Yin, 2009). In the classical understanding the methods are anchored mainly in ethnographic and anthropological sciences – sciences that study people and cultural phenomena - and additionally in architectural science. In this case, the area subject to research is the sustainable houses. As Pink (2007) points out performing field research is 'a unique and personal experience' which different researchers will most likely approach differently though using the same methods. Through this enquiry both terms field research and In-situ are used to embrace this bodily encounter.

In-situ research focus on exploring the houses, their perceptual qualities and cultural phenomena; such as relations between house and surrounding nature, interplay between houses materials, or maybe narratives in the way daylight with is accompanying shadows enter through the skylights. The research combines enquiries of drawings, rendering and stem-data with bodily and sensuous encounters, photos and experiencenotes of the built environment.

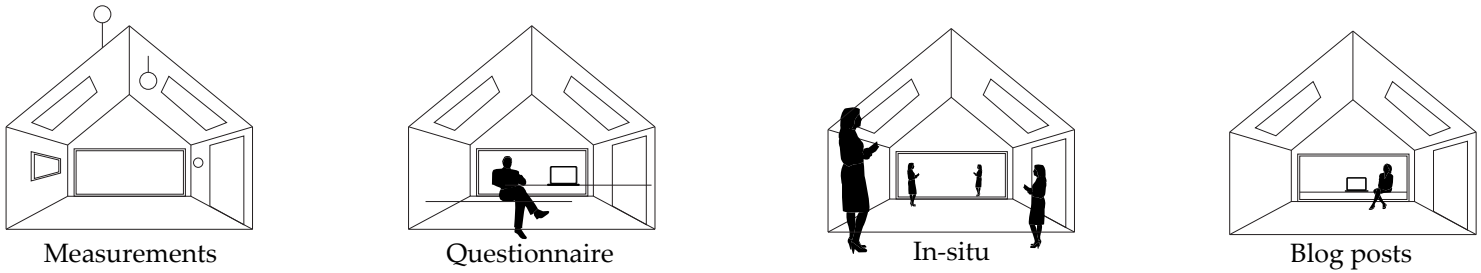


Figure 2: Icons are designed to strengthen communication of the different methods applied to the research and to underline their differences.

Developing a Model for Enquiry

Development of sustainable architecture is moving in an increasingly holistic direction where an aim of creating balance is beginning to being reflected in enquiry methods (Olesen 2014, pp. 1-22). The foundation for development of the model is, accordingly, based on a holistic view point aiming to establish encounters in the sphere between empirical-analytical, positivist, hermeneutic and phenomenological worldviews (Olesen 2014, pp. 27-28).

> "I would like to move discussion of sustainability away from the inherent quantitative/qualitative divide between architecture and engineering approaches where the respective professionals consider themselves belonging to different disciplines with separate agendas. Rather, I would like to take holistic view point on sustainability within architecture and thematically explore the abilities and possibilities in the built environment of the future. Disregard whether knowledge stems from engineering, architectural, anthropological or social science but choose methods and knowledge fields best applicable and usable for exploring and understanding specific challenges and areas of interest." (Olesen 2014, p.14).

Proposing a model - holistic and balanced approaches

The model represents a systematic methodological approach designed following a Concurrent Transformative Strategy of inquiry in a mixed methods setup (Olesen 2014, p.29).
The aim of the model is to create an approach to enquiry of sustainable homes which include dynamic in-use aspects through occupant perspectives based on questionnaire and blog research, perceptual qualities based on in-situ registration and technical ability based on measurements. The logic behind the model is to create balance between sciences and practice through a simplified model applicable to practice within limited resources. It is scientifically well-founded, methodological accurate and supports validity. The model further built on an interest in uncovering and enquiring themes of interest rather than relating to one core scientific methodology. The model is designed as a five phase structure unfolded embracing the respective phases: I) Identify; II) Design; III) Collect; IV) Treat and V) Disseminate. Focuses orbit around a theme which each step continuously consult through an integral and iterative process.

The approach is inspired by respectively the iterative design process (Knudstrup 2006, Hansen & Knudstrup, 2007) and a basic understanding that the steps of the model must be consolidated before the next layer can be added or in this case the next iteration. Thereby, the model represents a dynamic process of movement.
The proposed model is illustrated in ill. 4.1.1. in shape of a flower diagram where the phases continuously consult the central theme of interest. The phases are elaborated in figure 4.

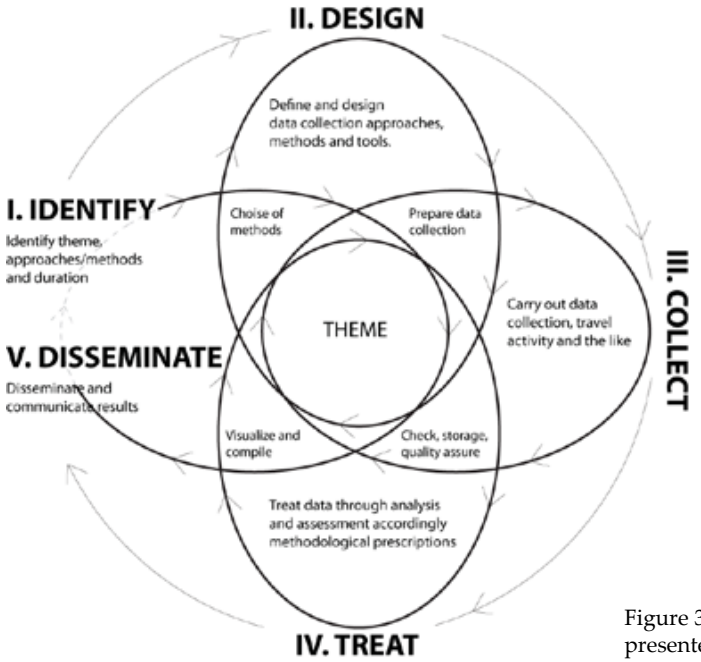
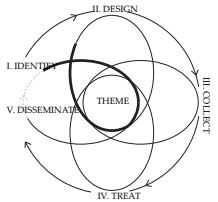
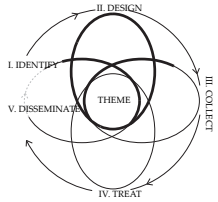


Figure 3: The proposed model presented as a flower diagram.

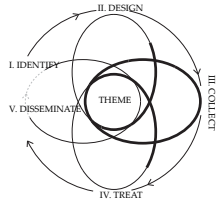
Elaborating the five phases of the proposed model



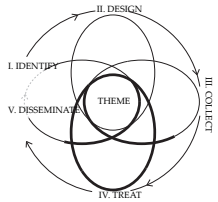
I) Identify
Identify scope, aim and theme-
The theme establishes the frame for enquiry.
Identifies extent and duration.
Uncovers appropriate methods.
Identifies scientific approaches.



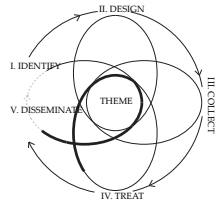
II) Design
Specification of data collection in accordingly methods and themes.
This includes specification of templates through formulation of questions, points or values.
The phase results in a specific templates and plans for performing data collection.



III) Collect
Collection of all data
Check, control, and quality assurance.
Storage and probably distribution of data.
Probably alignment of data.



IV) Treat
Data analysis in accordingly specific standards.
Assessment evolving around the theme.
Individual method approach.
Cross method approach.
Focus on the themes of interest across methods and approaches.



V) Disseminate
Dissemination of data
Dissemination through standard by method.
Dissemination by holistic illustration diagram.
Ensure that dissemination qualifies as 'communicable knowledge'

Figure 4: Elaborating the five phases og the proposed model. The figure illustrates the iteration and proces of each phase and their interrealtion the theme of research.

Testing the proposed Model of Enquiry

In line with the statement by engineer and inventor of the VELUX roof window Willum Kann Rasmussen (Boje, 2004): *'One experiment is better than a thousand expert views'* the idea of the Active House was taken from vision to reality. Through 2008-2012 eight demonstration buildings were materialized - eight experiments - designed and constructed in line with the Active House vision and the Model Home 2020 project. (Olesen, 2014)

The proposed Model of Enquiry of Sustainable Homes is put to the test by application to three realised Model Home 2020 homes and their occupants with the aim of exploring if the model actually provide a more complete illustration of these houses than either of the methods would alone. This holistic and balanced approach is pursued by exploring identified themes for research respectively The Human en Centre, Perceived Quality in Architecture and Perceived Indoor Environment (Olesen, 2014 pp. 11-18).

The motivation for empirical testing is an interest in enquiry not limited to a certain field of knowledge or science, but based on a thematic interest. Empirical testing will, assumably, enable illumination of which methods are and which are not able to provide knowledge that adds to the understanding of the theme. The houses and their occupants provides for possibility to take the research to an empirical and experimental stage. Robinson (1990) comment on the common knowledge division in architecture:

> 'A common tendency in architecture has been to divide "knowledge" into domains associated with particular sub-disciplines. As a consequence, insights derived from research in energy-efficient technologies cannot easily be integrated with insights drawn from aesthetic analyses of exemplar buildings.'

The intent through the present study is to exactly integrate knowledge and approaches best appropriate for enquiring and illuminating the different aspects of interest.

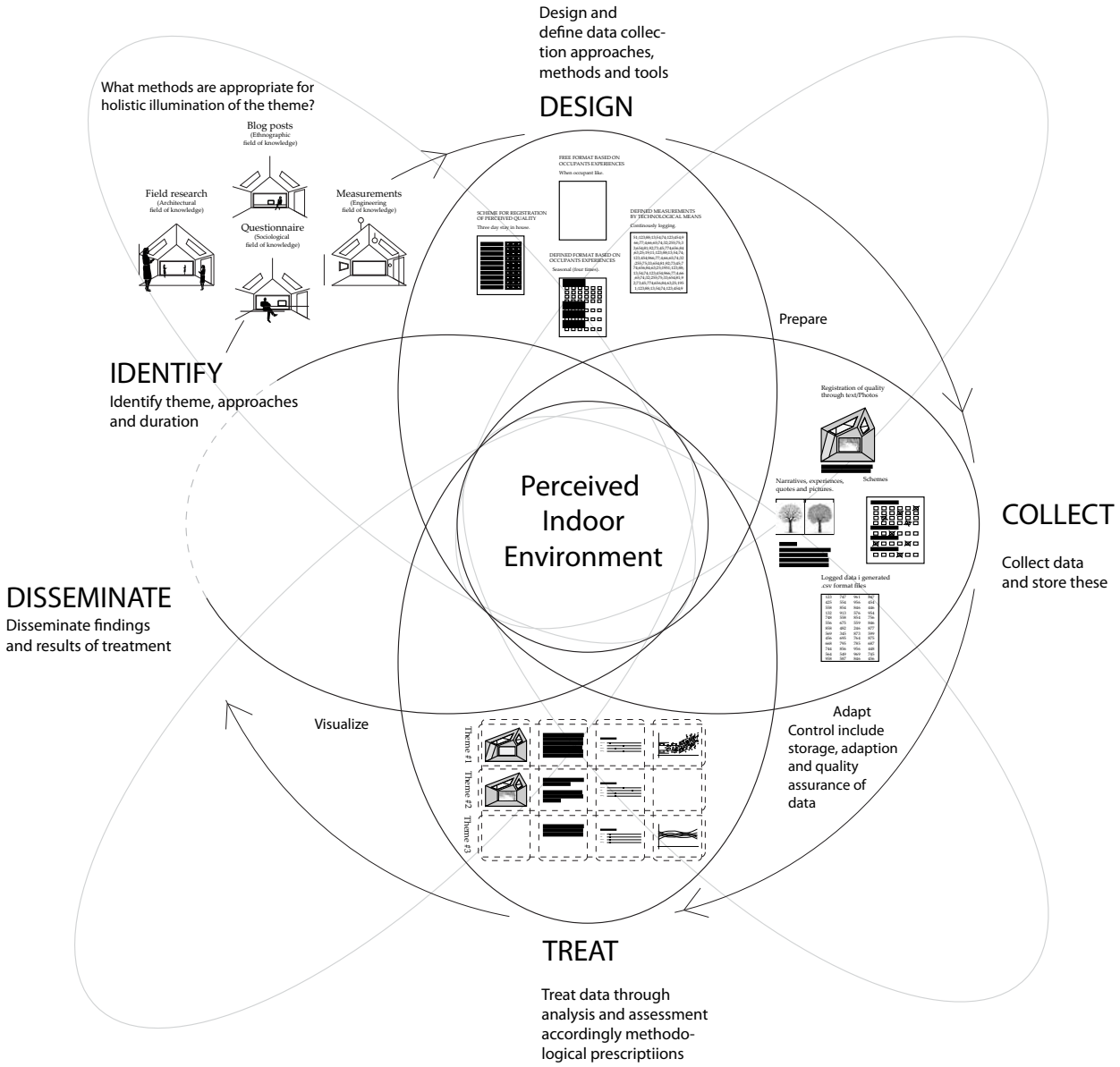


Figure 5: The Model for Emquiry of Sustainable Homes.

Reflections on application and test of model

Do the applied methods supplement each other?
The holistic and balanced aspect of the research is cultivated through a mixed methods approach to compiling the Model for Enquiry of Sustainable Homes. This intends to underline importance of pursuing several perspectives in enquiry to meet the holistic and balanced nature of sustainable architecture in the future. Thereby, not only one method or approach is preferred, but the preferable is to apply the methods best appropriate for enquiring the specific problem or theme of interest and thereby to figure out what methods are able to provide answers to a certain topic through a pragmatic approach. So, what did this pragmatic empirical enquiry with application of several methods show and do the methods applied for testing supplement each other?

In-situ field research is able to provide answers to many of the elements defined. This is due to its format where researcher is present in the field and much information is layered in the bodily memory and is possible to transform to describe a certain element. Simultaneously, the in-situ approach is very much based on sensuous means creating an inherent bias as two researchers may not collect the exact same information to the defined elements. This aspect can also be considered a strength of the approach as this represents a variability of human perception.
To enquire the validity of the approach, an empirical study where several researchers carry out registration by the scheme format in the same location, could possibly provide for general applicability.

Blog research is a form of research which is laied out quite freely through the study for the occupants to write about whatever they feel like. This approach has proven to be a disadvantage in this situation, as it is not possible to ensure that desired elements are measured. The approach thereby is based on a snapshot of a situation; which is likely not representational to the year of experiences in the house. This point to, that a deduction/quantification of the parameters to a level like this is not preferable; simply as the design and collection of data was not geared for this. On the other hand, the non-structure and non-quantifiable of the blog format provides opportunity to collect data on aspects which might not have been regarded importance during the study. The format is found as a suitable substitute for the previously explored diary approach. Respectively blogs and data provide different insights in occupant experiences, thus, illuminate each other and thereby manage to create a more complete illustration, of some aspects.Within the field of sustainable buildings blogging provides a new opportunity to capture user experiences. The format is based on occupants own interest, time and effort and might possibly reduce workload of researchers significantly. Still the format is difficult to compare to more quantified types of data.

Questionnaire enquiry is commonly used in research in the built environment to explore occupant opinions on a given. The questionnaire can be seen in a slightly different light through this study as it focuses on exploring occupant experiences as a counterpart to blogs. The two methods can thereby create a frame for validation for each other – and possibly for the other methods as well. The questionnaire is designed and applied with focus on seasonal data collection. This approach has proven valuable to establish an illustration of dynamics in this life-form and how these affect occupant experiences. The format is better suit for larger samples – thus, it is a helpful tool in interpreting other data types.

Technical measurements are enquired at a basic level though these enquiry exercises as much research and knowledge on the technical level already exists. Thus, strengths and weaknesses appear in relation to interaction with the remaining methods. The accuracy in the technical approach is striking, and is both experienced as strength and weakness. The level of detail can show a very detailed picture of the building and the approach only provides a quantitative answer (a what) and never a qualitative answer (the why)

Conclusion

Future sustainable buildings are not merely optimized mechanical constructions with intelligent adjustment systems but houses that imply and require quality in their environments to support and embrace life displayed in and around them. Therefore, it is becoming increasingly central to develop more holistic approach to enquiry and thereby understand the sustainable buildings to provide for that perceptual qualities are balanced with technical abilities.

Conclusion on the Model for Enquiry of Sustainable Homes:

- The developed and tested Model for Enquiry of Sustainable Homes offers a more complete illustration of the sustainability of a house than either of the tested methods are able to do on its own.

- Knowledge from in-situ research, blogs and questionnaire can provide valuable arguments for sustainability on a level somewhat comparable to technical measurements.

- Research in sustainable buildings should focus more on perceptual, social and everyday perspectives – here lie answers to how future sustainable environments can be solved to give more than they take.

Model differs from its predecessors on a range of aspects including:

- Considers content rather than approach. Based on a pragmatic world view, the model is based on applying what is appropriate in order to enquire the theme of interest to the fullest.

- Introduces assessment of perceived quality.

- Introduces double perspective on occupant experiences by combining questionnaire with the new blog approach.

- Introduces aspects of variability by collecting data over (longer) time.

Picture 5: Interior view of the indoor staircase in the test house Model Home 2020 LichtAkticHaus, Hamburg, Germany. The ligth falls through the skylights on the the surfaces of the staircase room - filtered and reflected to create a full, tectile and dynamic experience.

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