An illustration of agency:

The Role of Inventive Design Methods In Citizen Engagement

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Abstract:

This project situates itself within the discipline of participatory design and the tradition of social design. Responding to the *issue of agency* (Binder et al., 2015) embedded within the design process, it considers how democratic measures within the process can be furthered by addressing the tensions of political representation, and power-relations that the *issue of agency* raises between actors in publics (Binder et al., 2015).

Numerous methods exist to prevent participatory design from becoming a mere end in itself, but most central to this project are *thinging* (Telier, 2011) and *infrastructuring* (Ehn et. al., 2014). *Infrastructuring* draws inspiration from Actor-Network-Theory (Latour, 2005) and serves to map the socio-material networks of the community in questions (Ehn, et al.,2014; Storni, 2015). *Thinging* provides a model for democratic, open-ended exploration (Binder et al., 2015.) grounded within the infrastructure (Telier, 2011). Further, this project has adapted an approach to research drawn from inventive sociology, termed *inventive methods* (Lury and Wakeford, 2012), through the use of creative methods responsive to the process. Within this project illustrations will be used as a research device.

Author's Declarations

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where states otherwise by reference or acknowledgment, the work presented is entirely my own.

SIGNATURE: (Alicia Smedberg)

DATE: 8th of January 2016

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I wish to express my uttermost gratitude for the grand company this project has allowed me to keep. The project has met with numerous experts - each of them wearing the title in their own particular fashion. To list them, as this thesis has done, as 'participants' and 'practitioners' does them no justice.

Finally, a word for the cohort. For the late-night conversations, for the lasagne, and for sharing your thoughts and work with me. It has been an honour to work with four makers and does as intelligent and inspiring as yourselves.

Many thanks.

Dictionary of Terms:

Actor

    The source of an action

Agency

    The ability to act, alter, and to make a difference

Design things

    The channelling of socio-material assembly to deal with *matters of concern* through a process of open-ended exploration. (cf. Telier, 2011)

Infrastructuring

    A participatory design concept meaning the cultivation of long-term working relationships with diverse stakeholders, for the benefit of a socio-materially grounded design process.

Inscription Devices

    This thesis has appropriated the term *inscription device*(s) (c.f. Law, 2004.; Latour and Woolgar, 1986) to define the apparatus of data translation, and intends it to be inclusive of creative methods such as illustrations and memos.

Inventive methods

    The use of creative methods which addresses a problem, adapts to the specificity and mobilises the emerging capacity of altering the problem. (cf. Lury and Wakford, 2014.)

Matters of concern

    This thesis aligns itself with Bruno Latour's definition of this sociological concept from his book *Reassembling the Social* (2005) stating that objects ought to be accounted for as controversial and contradictory things - as matters of concern - not as a literary matters of fact.

Method Assemblages

    This thesis follows John Law's (2004) definition of method assemblages and intends it to mean the generative and performative production of presence, absence and the space in-between. When methods are seen as generative of social realities, the imperative arises to define which realities are present and which are absent. Law stresses that the term assemblage 'needs to be understood as a verb as well as a noun' (Law, 2004. p.42).

Publics

    This thesis aligns itself with the term as used within contemporary participatory design discourse which follows the definition by John Dewey: 'The public consists of all those who are affected by the indirect consequences of transactions to such an extent that is it deemed necessary to have those consequences systematically cared for' (Dewey, 1927. pp.15-16) and arise from 'and in response to, issues that are qualified by the context in which they are experienced' (DiSalvo, 2009. p.50)

List of acronyms:

Actor-network theory (ANT):
In this thesis the use of the term actor-network theory follows the definition of Bruno Latour (2005) and intends it to mean a approach to socio-technical and socio-material analysis delivering an account (narrative/description/proposition) of the actions of actors.

Community Owned Renewable Energy Projects (COREP):
In this thesis an acronym was used to *collect* a series of *initiatives* relating to the Community Owned Renewable Energy Projects in Orkney under one umbrella term. This decision was taken for the benefit of the reader, but it shall be noted that there was this definition binds together a plethora of renewable energy projects initiatives, initiated by a diverse and dispersed set of actors, on the premise of their shared geographic and technological position. In actual reality there was no one homogeneous project to speak of.

Science, Technology and Society (STS):
A discipline which argues 'that science is a set of practices that are shaped by their historical, organisational and social context. It further argues that scientific knowledge is something that is constructed within those practices.' (Law, 2004. p.8)

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Chapter one: Introduction.

1.1 Extended abstract:

Situated at the intersection of the discipline of participatory design and the tradition of social design, the research project with which this thesis is concerned has responded to an issue of agency (Binder et al., 2015) embedded within the design process. Following the notion outlined by John Law (2004) that research not only defines social realities but also creates them, the project has considered how design research can further democratic measures by altering the inherent power-relation between designer and participant. To do so the project has appropriated a participatory design methodology.

Social design holds that design has the potential of shaping, triggering and sustaining social change: "everything that expert design can do to activate, sustain and orient processes of social change towards sustainability' (Manzini, 2015. p. 62). The imperative behind the term sustainability here is the acute recognition of the material conditions of an unsustainable status quo (Fry, 2009; Papanek, 1985). Considering this, the societal aspect, as well as the interactions and intermediations between people the project operates within this dually social space. Thus the notion that design is an inherently political method of conscious transformation (Fry, 2011) emerges. Designers are inevitably faced with the choice of either recognising or ignoring the political aspect of both the act and outcome (Law, 2004. p.9) of their making.

While user-centred methods may deal with the societal questions on a macro scale, it cannot address the issue of agency between user and designer without altering its framework (Margolin, 2002). Participatory design fundamentally holds the belief that the users ought to be involved in the design process (Traders Project, 2016), inspired by Paulo Freire's The Pedagogy of the Oppressed (1970) and his model for non-hierarchal learning; that of the teacher-student and the student-teacher. This framework serves to afford both designer and participant equal responsibility and agency. If the designer approaches the participant from a top-down perspective she then renderers her role that of a '*powerful stranger*' (Ehn et al., 2014. p.6).

This project has utilised illustrations as inventive methods (Lury and Wakeford, 2012) in an attempt to conduct research responsively, with a sensitivity to the research context. Further, the project has appropriated a grounded theory framework (Glaser and Strauss, 1967, and has been structured into three phases according to grounded theory coding iterations; an open phase, a selective phase, and a theoretical phase. Starting from an open-ended, exploratory place of investigation the project gradually narrowed down its focus through each phase. The process was data-led as according to grounded theory praxis (Charmaz, 2014), and sought to generate empirically grounded insights into the research subject without the testing of an hypothesis.

Being situated in Scotland, with a particular eye on the Highlands and Islands, has coloured the project, and during the selective phase the project conducted a case study into the infrastructuring behind the community owned renewable energy initiatives in Orkney. In Scotland questions of democracy and representation have been in the forefront the last few years, and the Scottish Government has is-

sued its support to initiatives which can further social growth and democracy (Scottish Government Social Research, 2009). This project responds to the questions of if and how design interventions can be made more transparent and accessible to the *public*(s) of the Highlands and Islands region in Scotland through a democratic collaborative redirective (Fry, 2011) praxis of infrastructuring and thinging. The approach can, for the purpose of this text, be summarised as the grounding of a design project in the existing needs and opportunities of the community in question, rather than starting from the private sector (Ehn et al., 2014).

1.2 Research question

The primary research question is *What is the role of inventive methods in affording agency within citizen engagement in the Highlands and Islands region?*

The sub-questions read:

- *What are the implications, limitations and benefits of inventive methods in terms overcoming tensions around the agency of citizens in engagement processes?*

- *How is the agency of participants affected by the use of inventive methods?*

- *Is the agency afforded the researcher through inventive methods reciprocal to the agency of the participant in design research?*

1.3 Aims and objectives

This project aims to generate a theory regarding the role of inventive methods in citizen engagement in the Highlands and Islands. The objectives undertaken in pursuit of this aim formed a research project in three data-led phases; an open, a selective, and a theoretical phase.

The project aims make a substantial methodological contribution. This by investigating the development of a creative *praxis* - a merging of theory and practice towards an imperative of informed action. This will be researched by utilising an assembly of inventive research methods (Lury and Wakeford, 2012) to investigate the tensions of agency in contemporary citizen engagement in the H&I region. By examining how participatory democracy could be furthered in the H&I region following the logic that if by describing a social reality we also create it (Law, 2004) then the democratic exploration of our socio-political context is preferable when creating/designing transitions.

1.4 Research design

The structure of this thesis follows the structure of the research design. It was devised to be an exploratory, data-led process. It began with three larger themes: *Social innovation through anthropocentric design*; *Creative Collaboration*; and *The capacities of the transformative networks of post-referendum Scotland*. Through an iterative and inductive process of data-collection, constant comparison, theoretical sampling, and coding these themes have been transported into the query of agency and democratic research which the project would eventually present.

The project has placed great emphasis on *mess* (Law, 2003) - albeit not on creating mess but on being transparent about the mess that naturally occurs in the research process, and the mess that is the multiplicity of social realities with which the project has concerned itself. Within this there lies an imperative of transparency and sensitivity - the project insight will not be presented as truths, but rather as consequences of the complexity which birthed them.

Each of the phases held their own agenda, and served a particular purpose. Looking at Fig 1, the open phase research themes are represented by points A, B, and C and throughout the phase, and following the open coding these themes were transported into the core categories of the selective phase: D, E, and F. The open phase was designed to afford the project to collect a plethora of data, openly around the themes without forcing the project's direction (Glaser, 1992). The open phase was concluded by an open coding which spoke to the data from the open phase and narrowed it down to more tangible research categories (See Fig 1 - D, E, and F). These categories were researched further in the selective phase - primarily through the COREP case study, but also through the theoretical phase that took place in parallel to the selective phase (See Fig 2). The reason for this design was to afford an iterative dialogue between the data-collection of the selective phase and the theoretical sampling of the theoretical phase - each phase responsive to the other. Although the two phases took place simultaneously they have been separated in this thesis for the benefit of a more in-depth analysis of their respective codings - the focused coding and the theoretical coding. Point G of Fig 1 represents the synthesised outcome of the three phases combined.

It is important to note that the project did not operate in a vacuum, but was designed to be shaped by its context. An important influence in this regard has been the Creative Campus cohort. The Cohort was a pilot initiative by The Glasgow School of Art for collaborative research, and sought to be an alternative to the individualised Ph.D. model. The group has for most part of the year been a geographically dispersed collective of five - three Ph.D. students and two Masters of Research students. The author of this thesis being one of the two latter. Together the group has attended three so-called schools: the two-week long Winter School located in Forres in January 2016, the five-day Spring School located in Stromness in April 2016, and the five-day Autumn School which took place at the Altyre Estate, Forres, in September 2016. These schools have been the place for discussions, research training and workshops. The cohort has at times sought to be a circle of critical friends through peer reviews, critical discussions, and inspirational exchange. At other times it has been the collective names behind which workshops (for example during the DRS conference in Brighton, 2016) and exhibitions have been organised. The
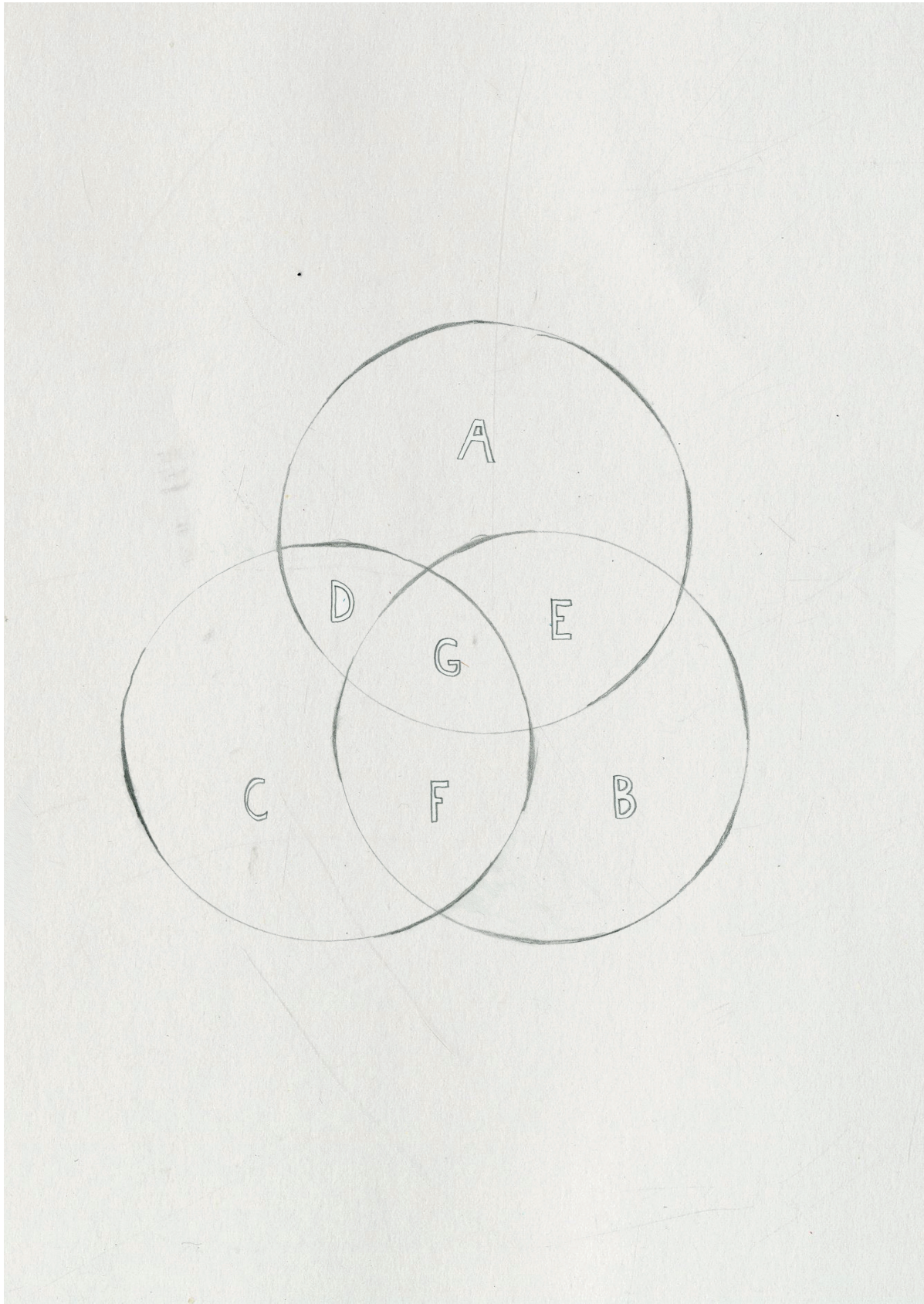
Fig 1. Alicia Smedberg. (2016) *Research theme paradigm*
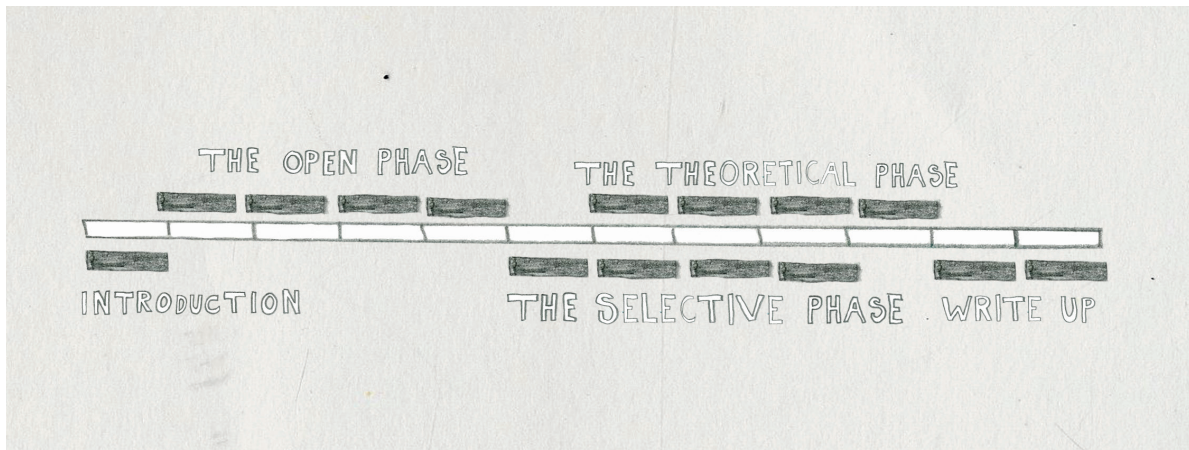
Fig 2. Alicia Smedberg. (2016) *Project timeline with phases*

cohort will be mentioned at a few points during the course of this thesis, but the work of the group has consistently been operating in the peripheries of the research. With the nature of this project being on of inclusivity and contextual sensitivity this presence ought to be acknowledged.

It is also important to notice that the time-span of this project was originally designed to afford the project either of two endings; to progress from a Masters of Research study after the end of the first year into the second year of a Ph.D. - or to conclude, as it did, after a year. This influenced in particular the choice of methods and was one of the reasons that grounded theory (See Chapter 3 Methods, page 16) was chosen to provide the research framework of the project. Had the project progressed into a Ph.D. then this first year would have translated into the open phase, and led into the second year as the selective phase in congruence with the research structure of this project.

1.5 Reading this thesis

This thesis has been constructed to follow the research process chronologically to afford the reader an understanding of how the insights emerged from the data. The chapter which you are now reading intends to introduce the reader to the project as a whole - to set the scene for the thesis which is to follow.

The following chapter, the contextual review, presents a dialectical analysis of the issue of agency within social design and participatory design, investigating how methods may further agency of both designers and participants.

The methods chapter will cover the bricolage of methods used under the grounded theory structure, and will set out to untangle the hybrid nature of the methodology which draws from both participatory design, Science and Technology Studies (STS), and the school of inventive sociology. The chapter also uncovers the symbiotic relationship between the qualitative research methods and the practice element of this project, as well as the analytical framework of the project.

The fourth chapter of this thesis covers the open phase exclusively, and aims to guide the reader the development of the research themes from the first day of the study until the open coding had been concluded. The chapter provides an introduction which sets out the particulars of the phase, followed by a select of research activities, and concludes with an analysis complimentary to the open coding.

Chapter five follows the selective phase as chapter four followed the open phase. It echoes the nature of the phase in that it places greater emphasis on the selected case study and its findings than on the activities of the research process. An account of the COREP case study is given within this chapter, and it concludes on the focused coding which also concluded the selective phase.

Chapter six aims to unfold the theoretical development of the theoretical phase. The responsive nature of this phase means that it was intrinsically tied to the selective phase, and consequently presented the biggest writing challenge of all the chapters in this thesis. It is not truthful to present the theoretical phase as an independent entity, however it would be even less truthful to present it as an *ad-hoc* to another phase. The author of this thesis deemed that the theoretical sampling of the research demanded equal weighting to the data-collection, and the sixth chapter is an attempt to do this justice. The chapter consists of an introduction, an outline of the theoretical nurture of three central core categories, and a reflection on the theoretical sampling.

Chapter seven, the last chapter of this thesis, reflects on the thesis and the project and concludes with a scope for further research.

Chapter two: Contextual Review

2. Contextual Review

Following on from the research question outlined in the previous chapter, this contextual review aims to provide the reader with a delineation of the disciplines within which the question resides, and to highlight the particulars around the issue of agency in social design and participatory design.

As the project is situated within the hybrid nature of a practice-based, yet academic, study, a few tensions naturally arises. Practice-based design research is still a young school discipline, and over the last two decades the number of design research conferences (Buchanan et al., 1998), awarded PhD's in related fields (Durling, 2002.; Yee, 2010.; Fisher et al., 2006) and related academic journals (Durling, 2002.) has proliferated, indicating that the use of design practice as an interrogative research process is establishing itself within academia. Upon entering these rooms of academic and scientific research, design research brings with it questions of research validation, rigour, and knowledge creation. Most of these questions can be arranged under the headlines of How do designers do research (Gray and Malins, 2004); and what are the limits and affordances of design-led interrogation in relation to the academic dialogue?

This project has investigated these questions and has sought to generate a theory about how creative, inventive research methods can afford the researcher to engage with complex social realities. It has fundamentally followed the notion of John Law (2004) that research not only defines social realities but also creates them, and that as such the creation of realities should be conducted democratically. This aligns with the imperative within participatory design and social design to democratise the design process (Binder et al., 2015.; Storni et al., 2015.) and responds to an *issue of agency* within the design process (Binder et al., 2015).

This contextual review aims to trace the locus of agency within design tools and methods, to set the scene for the theoretical framework within which this Masters of Research project has operated. To do this the first thing the contextual review needs to establish is a definition of the term agency. The Merriam-Webster dictionary will tell us that agency translates to 'the capacity, condition, or state of acting or of exerting power [...] a person or thing through which power is exerted or an end is achieved' (Merriam-webster.com, 2017). It is a complex, performative and equally relational state in constant flux. So how can we talk about an *issue of agency* within design methods?

The first thing to establish to begin to address the question is that design methods did not spring from the ground ready-made. They - like methods of any discipline imaginable - have been designed to fill a function, and come with an inherent intention congruent to the broader aims and objectives of the discipline. By viewing the designer as a creator of value through a routinised enacted practice (Julier, 2008) we are faced with defining the value which the methods seek to create. Marx explained that whether the value of a commodity 'spring from stomach or from fancy, makes no difference' (Marx and Engels, 1970. p.35), and as the professional design discipline has been tailored towards the creation of commodities, and thus the creation of value, it holds a range of methods suited to address both needs and wants (Julier, 2008; Walker, 1989).

The tradition of social design argues for an ethically responsible practice, where design strives to focus

on social and environmental progress over the design of commodities. With the introduction of Victor Papanek's seminal book Design for the Real World (1971) which urges the reader to consider the responsibility of the design towards the user, and towards mankind, social design offered an alternative to commercially focuses design practices. While Papanek's polemic work does nothing to sugarcoat its criticism towards design and its ties to the production of unnecessary commodities, it is ultimately an outline of the possibilities and impossibilities for design to operate responsibly. Papanek criticises the neoliberal and individualistic moral by which designers operate, but he also paradoxically places the responsibility to be responsible with the individual designer (cf. Papanek, 1971. p.40). This paradoxical proposition is not necessarily a testament of flawed logic, but it does provide any followers of Papanek's words with an overbearing ethical conundrum. If design, as Herbert Simon claims 'seeks to change existing situations into preferred ones' (Simon, 1996. p.111), then how is the individual designer to determine what a preferred situation or future is? Often the right way of doing might just as well be the wrong way of doing, often it is both (Papanek, 1971.; Buwert, 2014.; Bauman, 1993).

Many designers and design theorists have responded to *Design For the Real World* (1971) over the last few decades, and the notion of Social Design is, can be, and should be has changed with the times. A noteworthy response, and a proposition in its own right, is Victor Margolin and Sylvia Margolin's text *A Social Model of Design* (2002) which suggests an interventionist (product design) model of Social Design. They argue that to criticise, as Papanek partially does, the market model is not enough to construct a social discipline of design, as they don't see the discipline to be polarised from a market model. Design for Social Innovation with a user- or human-centred approach, as advocated by e.g. Tim Brown (2009) or Ezio Manzini (2015) and, echoes this sentiment. It argues that design can strive for a preferred future through responsible designers and friends within a capitalist or post-capitalist apparatus. In terms of the issue of agency this holds a dilemma interlinked with the *intention* of the approach.

The act or intention of behaving responsibly as a designer is often indistinguishable from a performativity of responsibility (Tonkinwise, 2004; Findel, 1994). As responsibility is defined by ethics, and ethics is intrinsic in our culture and our times a fundamental re-learning or re-imagination (a concept coined well by the German term *Bildung*) of design is necessary (Tonkinwise, 2004.; Fry, 2011) to extend beyond a performance of ethical conduct. In terms of the ethics of agency - the ability to decide what these needs and wants are has been much debated (c.f Julier, 2008), and while this debate often focus on the participation of the lay public (DiSalvo, 2009), the 'participants' (Andersen et al., 2015), or the 'users' (Hanington, 2003.; Wilkie, 2013), it is imperative that we do not forget the alienation of the professionalised design trade (Walker, 1989). In a post-industrial world 'Design came to mean a full-time activity undertaken by trained specialists employed or commissioned by manufacturers. The designer did not normally make the product he or she designed' (Walker, 1989. p.23).

By putting these two aspects together; the acute need for public participation within design for design to act truly responsible; and the alienation of the design trade, we arrive at a crucial aspect of this thesis. It rests of the notion that the issue of agency not only applies to the participants of the design research, but equally to the designer. This resounds with the methodology outlined by Paulo Freire in his book *The Pedagogy of the Oppressed* (1970) which was a call for students and educators to working *with* each other, through dialogue, rather than the latter working *on* the former. The impact of Freire's

work on the praxis of this project will be covered in further detail in Chapter 3, however it has also served as an inspiration for the practice of participatory design (Binder, et al., 2015) where the reciprocal relationship between designer and participant holds a central part.

This maintains the focus on a socially responsible practice from Social Design with a participatory, interdisciplinary approach (Margolin and Margolin, 2002.; Sanders and Stappers, 2008). Participatory Design offers an alternative approach to the user-centred model (Sanders and Stappers, 2008.) The change is nowhere near subtle and has altered the design practice in theory as well as practice. The Freirian model of non-hierarchical exchange (Freire, 1970) is complementary to the Participatory Design methodology of 'an effort to rebalance the power relations between users and technical experts and between workers and managers' (Kensing and Blomberg, 1998. p.181). Co-creation of knowledge is a key concern within Participatory Design, and it has created an openness towards what can be designed (Binder, Brandt, and Gregory, 2008.; Sanders and Stappers, 2008). It takes us away from the assumption that the processes of designing is *sui generis* intended to generate a designed physical outcome (Telier, 2011).

Tomas Binder, Eva Brandt, Pelle Ehn and Joachim Halse recently published an article entitled *Democratic design experiments: between parliament and laboratory* (2015) which eloquently explored the potent qualities of an explorative process and further democratic citizen engagement. The article calls for a meeting between Participatory Design practices and Actor-Network-Theory (ANT), an argument for Design Things - grounding through infrastructuring - to afford a study into design as democratic innovation (Binder et al., 2015; Björgvinsson et al., 2010). This follows in the participatory design tradition of shifting focus from a use-before-use approach to a process 'where participants with divisive matter of concern can confront one another and continue to explore design-after-design.' (Storni, 2015. p.169) The open-ended, experimental approach is pivotal to participatory design. It alters the imperative of creating or designing from objects to things - assemblies - and from inventions to *infrastructuring* (Ehn et al., 2014; Binder et al., 2015.). *Infrastructuring* aims to bring together the local and global contexts and acknowledge the tensions - *agonisms* (Mouffe, 2000) - not in an effort to solve them, but to recognise the multiple realities existing within a locality (Björgvinsson in Ehn et al., 2014. p.232). The notion of design things draws upon these assemblies, as is suggested by the use of the word *things*. Its etymology from the meaning of an assembly or governing assemblies (Telier, 2011) - confessing a relation to the use of the Scandinavian word *ting* (lit. a thing or an entity, etymologically related to the German word *dinge*), a complex and nuanced word. In contemporary Swedish a ting can translate to a thing, but differs from the synonym *sak* (an object) in that it usually holds a particular value or meaning, often greater than the monetary value or the use value of its material form. The author of this text would like to suggest that the significance of a *ting* is greater than the signifier, and further that a *ting* is a *sak* infused with *matters of concerns* (Latour, 2005). In both of the Norwegian dialects a *ting* relates to a council as well as a *sak*: S*tortinget* (lit. the big thing) being the name of the Norwegian government.

This deconstruction of the Scandinavian semantics behind the word thing as used within the term *Design Things* is helpful as it shows the inseparability of assembly, intention and material objects. Latour puts it well in his keynote lecture *A Cautious Prometheus?* (2008):

'A politics of matters of facts and of objects has always seemed far fetched; a politics of designed things and issues is somewhat more obvious. If things, or rather *Dinge*, are gatherings, as Heidegger used to define them, then it is a short step from there to considering all things as the result of an activity called "collaborative design" in Scandinavia. This activity is in fact the very definition of the politics of matters of concern since all designs are "collaborative" designs – even if in some cases the "collaborators" are not all visible, welcomed or willing.' (Latour, 2008. p.6)

One could be forgiven for thinking that it is unnecessary or even contradictory to plow through the lifework of Bruno Latour to be able to make things with people. *Why bother?* one might ask. Lars Bo Andersen, Peter Danholt, Kim Halskov, Nicolai Brodersen Hansen and Peter Lauritsen approached this question in their publication Participation as a matter of concern in participatory design (2015) to show how ANT as an analytical framework for understanding participation. The publication shows that 'participation is an act overtaken by numerous others, rather than carried out by individuals [...] participants are network configurations [...] there is no gold standard for participation.' (Andersen et al., 2015. p. 250) For the purpose of this text it suffices to say that to participation is possible without the participant recognising that they are part of a network configuration, but to facilitate for participation then its assemblage is a matter of concern. An interdisciplinary does not sui generis solve the issue of agency. Instead, this text suggests that an interdisciplinary participatory approach to an explorative non-hierarchal bildung process of designing is hindered by matters of concerns or controversies along the way. These matters of concerns are beyond the notions of good or bad, but they are nonetheless.

Chapter three: Methods

3.1 Methodology

The research paradigm of this project has been one of mess through inclusivity. Ultimately the project has situated itself within a post-positivistic paradigm, as it conducted a broad, interdisciplinary research within which theory and practice was intermingled (Ryan, 2006), and perhaps most importantly because it renounced any notions of scientific Truths (ibid.). It has wrestled with notions of complexity and multiple social realities (Law, 2004) and consequently demanded methods flexible enough to bend with the tides of the research data. It sought to validate the intangible ideas; the non-linear narratives; the passionate conversations; and the acutely political in research - again, aligning with the post-positivist tradition (Eagleton, 2003; Ryan, 2006). Terry Eagleton summaries the bridge between the acknowledgement of the subjective and the central imperative of this research project - agency - in his book *After Theory* (2003):

'Trying to be objective is an arduous, fatiguing business, which in the end only the virtuous can attain. Only those with patience, honesty, courage and persistence can delve through the dense layers of self-deception which prevent us from seeing the situation as it really is. This is especially difficult for those who wield power - for power tends to breed fantasy, reducing the self to a state of querulous narcissism' (Eagleton, 2003. p.132)

Answering this call the project has through a myriad of methods constructed (and deconstructed) a grounded narrative from within the complex realities it inhabited. The result has been a bricolage of qualitative research methods drawn predominantly from the intersection of practice-led design research and from the social sciences. Grounded theory (cf. Glaser and Strauss, 1967) praxis served to bind the two disciplines together into a tailored entity - or *thing* (Telier, 2011). By data-collection through memos, the hierarchy of data was levelled, and as the practice of taking memos through illustrations emerged this project saw the sensitive accounts described above by Terry Eagleton (op. cit) engaged in an iterative dialogue with accounts from case studies, interviews and observations. Via this dialogue the project has been transported from the three broader research themes it originally set out with to a narrative of the role of inventive methods in citizen engagement.

The notion of inventive methods has been drawn from the discipline of inventive sociology, and was outlined in Celia Lury and Nina Wakeford's book *Inventive Methods: The happening of the social* (2012). The book consists around a collection of essays on the use of devices in social and cultural research; be it a probe, a list or a tape recorder. While the methods and critical deconstruction devices present a diverse range to the naked eye, Lury and Wakeford invites the reader to recognise that 'inventiveness is not intrinsic to methods; it is rather something that emerges in relation to the purposes to which they are put.' (Lury and Wakeford, 2012. p.2). The inventive in inventive methods does not necessary equate new but rather the creative in the process, responding with an open-ended method as nuanced and complex as the social world which it strives to interact with. The book suggests a paradigm shift to research methods directly relevant to the empirical research, not to perceived predefined truths. It also holds the radical notion that research methods can be a thing which everybody can use, and which

exists outside the academic sphere making it 'the expansion of the present, in which there is an ongoing maximization of the agencies involved in social life.' (Lury and Wakeford, 2012. p.5) 'Our proposal, then, is that the inventiveness of methods is to be found in the relation between two moments: the addressing of a method – an anecdote, a probe, a category – to a specific problem, and the capacity of what emerges in the use of that method to change the problem. It is this combination, we suggest, that makes a method answerable to its problem, and provides the basis of its self-displacing movement, its inventiveness, although the likelihood of that inventiveness can never be known in advance of a specific use' (ibid.).

The grounded theory methodology lends itself quite willingly to the inventive methodology, what with its emphasis on open-ended reflexivity: The process is one of qualitative explorative research, seeking to generate a new theory grounded in empirical data. Grounded theory was established as a practice during a time of vibrant debates around the construction of scientific reason (cf. Kuhn, 1962.; Cicourel, 1964) and naturally lends itself to discussions of academic rigour and scientific truths. The practice of this would later lead to the introduction of Science and Technology Studies (STS) (cf. Latour, 2008; Law and Hassard, 1999; Law, 2004) theory into the project (See Selective Phase). As the boundaries of practice and theory become muffled, it is no surprise that the methods came to generate the project's directions (Law, 2004). With the introduction of their book The Discovery of Grounded Theory (1967) Glaser and Strauss challenged the, at the time ruling, descriptive scientific model (Law, 2004, Glaser and Strauss, 1967, Charmaz 2014) 'into the realm of explanatory theoretical frameworks, thereby providing abstract, conceptual understandings of the studied phenomena' (Charmaz, 2014. p.8). In congruence with this tentative data-led process the research methods for this project were selected iteratively along the way, responsively to the progress of the research themes and questions.

The term *grounded theory* is both potent and potentially confusing as it holds both the research process and the outcome of the research within it (Walsh, et al., 2015), and it is equally ambiguous in its very definition as it is commonly used to describe a paradigm (Klee, 1997), a methodology (Howell, 2013), a responsive research framework to follow e.g. action research (Baskerville and Pries-Heje, 1999), a set of methods and techniques (Charmaz, 2014; Walsh, et al., 2015; Glaser and Strauss, 1967).

In the sections following below grounded theory will be addressed as a method, and later as an analytical framework as these have been the most prominent aspect of grounded theory to shape this research project. It should be mentioned, however, that although they are separated in this chapter they are not as readily divided within the live research process. This chapter will further cover the intersection between grounded theory and the practice element of this project, as well as offer a brief review of the qualitative research methods used.

3.2 Methods

As the research aimed to engage with an emerging subject area, and sought to engage with complex non-linear data grounded theory was deemed appropriate; it does not seek to test an hypothesis but rather to generate an empirically grounded theory (Hartman, 2001.; Charmaz, 2014; Howell, 2013). As such, the analytical approach of the project demanded qualitative research methods which afforded handling of a interrogative process in constant flux, flexible enough to follow the data wherever they led. Often more than one research method was applied to the same research, a bricolage (Gray and Malins, 2004) of method coming together under the methodology.

Interviews and conversations
Accordingly, interviews were conducted during both the open phase and the selective phase, but additionally documented conversations - or the topics of conversations - within the memos. The interviews followed the formula for qualitative research interviews in that they were arranged, and the interviewee was priorly informed of the purpose and topic of the interview. Examples of such interviews were conducted with representatives from *Common Weal*, *Pidgin Perfect* and *the Royal Scottish Conservatoire* (see Appendix A). In these interviews a perspective on a specific issue, or an answer to a specific question was sought, whereas the conversations were open-ended affairs. The latter were significantly less formal - and equally less transparent - and responded loosely to opportunism. Most of these conversations were exchanged with creative practitioners during conferences, schools, or other similar gatherings, and were reported in the memos because they offered an insight or new perspective on the research. Both the interviews and conversations were, during the open phase, verbal exchanges translated into written or visual accounts. During the selective phase an element of participation was introduced into the documentation of the interviews. These reports were given equal weighing to other qualitative data acquired through observations (and to a lesser extent ethnography).

Case Studies
The project utilised case studies in two iterations. The first iteration fell under the category of exploratory (Yin, 1984) case studies used to determine the paradigm of the following research (Yin, 1984.; Zainal, 2007). During the open phase secondary exploratory case studies were used as an efficient way to engage with the research themes, and some of the researcher's own preconceived ideas around the research themes. This was done by identifying examples of design projects or social innovation initiatives that responded to the themes. In this iteration the case studies presented a means to learn from the experiences of more experienced design researchers and social innovators, and to bring the research themes from their abstract shape into tangible examples of previously conducted projects which had addressed the theoretical concepts of the themes. These theoretical concepts also presented the selection grounds for each of the case studies (Yin, 1984). A more detailed outline of the initial case studies can be found in the open phase chapter, on pages 28, and in Appendix B.

During the selective phase a case study of *the community owned renewable energy projects* (COREP) in Orkney was used to address the categories that emerged from the open coding (see page 35), and fell under the category of an explanatory case study - used to 'examine the data closely both at a surface and deep

level in order to explain the phenomena in the data' (Zainal, 2007. p. 3). It allowed for a study of a network that is, and has been for over a decade, an integral part of the life on the islands, which no constructed case study would have allowed. It further afforded the project access to a diverse range of qualitative data; from illustrations, to interviews, to written accounts, and observations. A more detailed outline of the initial case studies can be found in the selective phase chapter, on pages 34.

Coding

This project has utilised the various coding techniques from grounded theory to develop, refine and test the gathered data. An element of constant comparison has been present at all stages throughout the research, alongside it. The technique is one of the cornerstones of grounded theory praxis as it ensures that each piece of evidence and gathered data is measured against the body of research (Charmaz, 2014). The section on data-collection through memos and illustrations will cover the iterative dialogue which the constant comparison was embodied through.

Another technique which followed the project from start to finish was theoretical sampling. As a method complementary to the constant comparisons, it added theoretical depth to the core categories, and measured the project against its disciplinary context. The theoretical sampling culminated in the theoretical coding, which took place in parallel to the selective phase. This sampling and coding is the topic of chapter six, page 45. Additionally, instances of coding have been exercised to transport the project from each phase to the next. An instance of open coding followed the open phase, and an instance of focused coding followed the selective phase. Towards the end of the data collection of the project there was also an focused instance of theoretical sampling, although theoretical sampling occurred throughout the project complementary to the data collection.

The open coding - also referred to as initial coding (Charmaz, 2014) - seeks to define what is happening within the data. Within this project the software Nvivo was used to node the existing data and formalise patterns within it. These were then analysed and served as the foundation for the selective phase brief. This way, the project ensure that the new focused direction of the research was grounded in the data from the first phase. (See Page 29)

The focused coding occurred towards the end of the selective phase and entailed the revisiting of the codes from the open coding - matching them to the new data.

Merging a design methods with grounded theory : memos and illustrations

In this project the most prominent of the grounded theory method was the use of memos - in itself an integral and continuous process that carries on until the project is completed. The memos provide a means of data collection, a vehicle of bringing data and ideas into codes and categories. 'Certain codes crystallise meanings an actions in the data. Writing extended notes, called memos, on telling codes helps you to develop your ideas' (Charmaz, 2014. p.19) Within this project the memos have manifested themselves as a hand-written dialogue with the research, as a record of the ongoing analysis (Lawrence

and Tar, 2013. p.33). The memos have transported the raw data - the notes on observations and lived incidents - into a conceptualised stage. 'These incidents, events, and happenings are taken as, analyzed as, potential indicators of phenomena, which are given conceptual labels. [...] As the analysis proceeds and the researcher encounters other incidents, which when compared to the first appear to resemble the same phenomenon' (Strauss and Corbin, 1990. p.420). By accumulating these incidents the foundations of a new theory begins to take shape. There is an imperative within the practice of memo-writing towards both sensitivity and criticality to data. The researcher's place within such a project becomes pronounced as a sense-making, dot-connecting, living and breathing entity within the research (Law, 2004). This practice has in and off itself informed an analysis of the researcher's role of authority in conventional research, and how a creative approach to knowledge creation may alter this.

The use of memos filled a comparable function as the inscription devices described in Laboratory Life: The construction of scientific life (Latour and Woogar, 1986). While these inscription devices predominantly exist with the domain of ethnography of science (ibid.), and are there defined as "any item of apparatus or particular configuration of such items which can transform a material substance into a figure or a diagram" (Latour and Woogar, 1986. p. 50) the same principle can be applied to analogue inscription devices. The key matter here "It is that particular realities are constructed by particular inscription devices and practices. Let me emphasise that: realities are being constructed. Not by people. But in the practices made possible by networks of elements that make up the inscription device - and the networks of elements within which that inscription device resides" (Law, 2004. p. 21).

From the use of memos came the use of illustrations. It is a commonly known fact that if you present an illustrator with a blank notebook to capture ideas, data, incidents and processes, that this book will soon be filled with doodles and drawings. While in the initial research proposal there was no mention of the use of illustrations as a research method, this began to formalise during the early stages of data collection. It became apparent that to not acknowledge the presence of the drawings was to deny the project a rich source of data. The connection between the illustrations and the memos within this project serves as an example of a symbiotic relationship between a creative practice and qualitative research; where neither on their own can paint the full picture.

Over the course of the research project new affordances of this merging arose; During the open phase the use of illustrations proliferated from a muted process in the background into first a means of process documentation, to data equal to that of the memos, and finally as an act of reflection, analysis and sense-making; During the selective phase more uses of drawing and illustrations as a means of communication rose to the surface, and finally the project began to view them as a material participator in the research process. Herein lies the separation of the illustrations as objects and as acts of drawing. As an act the drawing is comparable to the design method of prototyping (Wilkie, 2013; Gaver, 1996); enabling a non-linear and creative approach to reflection, analysis and sense-making: 'prototyping is emblematic of the importance of refusing to make an artificial distinction between prototyping and the prototype, of designing and thinking about design' (Wilkie, 2013. p.2). This duality of practice - as an act and an outcome - has been a cornerstone in the analysis political pedagogics of the visual that this project has concerned itself with. It is perhaps also fitting for a creative practice acting under the banner of grounded theory which equally merges the process with the outcome (Walsh, et al., 2015).

Donald Schön, in his book The Reflective Practitioner (1983), affords us insight into the relationship between theory and practice through his analysis of reflection-in-action. Schön argues that reflective practice can become a vehicle for the practitioner to become aware of what she already knows in practice: 'the designer may take account of unintended changes he has made in the situation by forming new appreciations and understandings and by making new moves. He shapes the situation in accordance with his initial appreciation of it, the situation "talks back" and he responds to the situation's back talk' (Schön, 1983, p. 79). This notion of a reflective dialogue with the research is telling for the process of this project. Within the sketchbook where the memos and the illustrations have resided there has been an ongoing conversation since day one. Illustrations have been responding to written notes, or to illustrations. Written notes have responded to illustrations responding to the research. Within this practice a continuous sense-making process has taken place, at times at the forefront of the research and at other in the background, but it has been there throughout.

Fig 3. Alicia Smedberg. (2016) *Observation on bus in Forres*

To illustrate this dialogue we may look at the example of the illustrations presented in Fig3 and Fig. 4. Fig. 3 is an illustration done in-the-moment, capturing an observation made during a bus journey in Forres, Scotland. This took place within the open phase and responded to the category of publics which the project was concerned with at the time. The drawing captures information of the scene, the memo captures the context around it. It reads 'I took the wrong bus to Findhorn, and rode around Forres for 45 minutes. Two men got on at one point. One of them explained, loudly enough for me

to hear from my headphones: "THEY ARE BUILDING FLATS FOR THE IMMIGRANTS"" (See Appendix C) This was later in the day followed by a reflection in the sketchbook which reflected on the life in the Highlands and Islands region of Scotland might entail in the light of the underlying fear observed in The Man With The Plastic Bag's exclamation. While it is important to note that this is a subjective observation, the researcher does not claim to know anything about this man or his life. The perception of the man rests entirely on the observations of where he shops, what he had bought and what he brought with him, how and when he travelled, the observation that he was slightly intoxicated on an early Thursday afternoon, his familiarity with a fellow passenger of the bus, the ill-hidden xenophobia in his exclamation, and the lack of agency he expressed with regards to the development of his community (Observe the statement: "*They* are building…"). These so-called subjective observations did not enter the research alone, but they entered it, and alongside other observations and other forms of data generated categories and transported the project towards the generation of a theory. The rationale for allowing these reflections to take up space within the project is the same as the rationale for including illustrations into the collected data; they are already there. The imperative becomes one of recognising what it present in the peripheries of the research.

In Fig. 4. we see the more stylised response which followed the reflections triggered by Fig. 1. It binds together the observations of a stay in the Highlands and Islands region into a narrative. This fills several functions, in particular if we consider the stylising as a communicative curation bringing forward themes and associations which the maker wishes the viewer to perceive. In this particular example the locality - the external circumstance - is first introduced. Then follows the computer with a screen that reads "Talking about the weather on the internet" indicating a sense of distance, but also as a signifier of the present technological age. Then finally a cut to the rain. Fig. 4 takes on a more abstract form than Fig. 3, suggestively because it follows on later in this particular dialogue - after a level of translation and interpretation has already taken place.

In a chapter of Andrew Ortony's *Metaphor and Though* (1979) Donald Schön reflects on the use of metaphors in problem-setting. Here Schön describe how a metaphor can aid the research process in dealing with uncertainties. We cannot research the uncertain - what we do not understand - but if a metaphor for what it is like can be developed then the metaphor offers a starting point (Gray and Malins, 2004; Gaver et.al., 2004). This notion is relevant for one of the functions of illustrations within this project, as can be noted in Fig. 4: it does not tell you what it is to live in the Highlands and Islands, it tells you what it can be like. Further it can explore what it can be like in the future. In problem-setting 'the designer must consider not only the present choice but the tree of further choices to which it leads, each of which has different meanings in relation to the systems of implications set up by earlier moves' (Schön, 1983, p. 99). In a technique referred to as Futuring (Tonkinwise, 2015; Latour, 1985.; Grand and Weidmer, 2010) designers can aspire to tackle that which is the most uncertain of all uncertainties - the future.
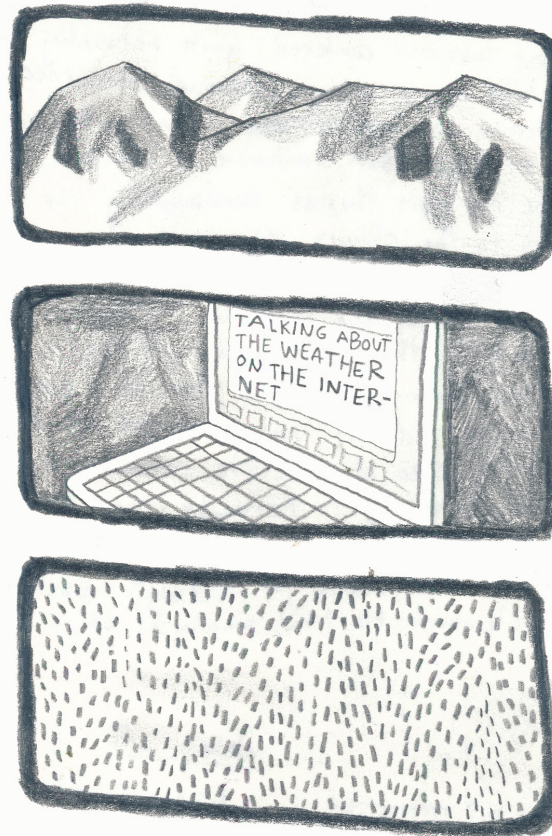
Fig 4. Alicia Smedberg (2016) *Talking about the weather on the internet*

3.3 Analytical framework

While grounded theory in itself provides an analytical model, with which the project has predominately aligned, it also appropriated the analytical framework of Actor-Network Theory during the selective phase. The latter sought to map a network of actors - visible, welcomed, willing (Latour, 2008. op cit.) or not - during the case study conducted in Orkney. Below follows a brief explanation of both.

Grounded theory takes a pragmatist approach to data (Howell, 2013), meaning that it verifies truth in relation to practice (Dewey, 1950). 'Proponents of the grounded theory advocate that an approach which concerns itself with the meanings, definitions, and interpretations which are made by the subjects of the study has greater potential for depicting their world and priorities more accurately than methods which begin by preconceiving the world and its meaning' (Lawrence and Tar, 2013. p.30). To follow this grounded theory conducts data collection in close connections with data analysis (cf. Howell, 2013; Charmaz, 2014; Strauss and Corbin, 1990), in a continuously comparative process. It is an abductive model of analysis where evidence is filtered through systematic coding (open, coding, focused coding, theoretical coding etc) in order to find patterns and tendencies.

The term Actor-Network Theory (ANT) translates to a socio-technical or socio-material analytical framework with roots from Science and Technology and Society (STS). The latter considers research and technological innovation and studies their implication on the social worlds. The term Actor-Network Theory has been debated since its infancy, and has been criticised for it's ambiguity (Law and Hassard, 1999.; Latour, 1999), down to a critique of the hyphen between actor and network (Latour, 2005.). Bruno Latour very helpfully describes his intention behind the meaning of network in this book Reassembling the Social (2005):

'I would define a good account as one that traces a network. I mean by this word a string of actions where each participant is treated as a full-blown mediator. To put it very simply: A good ANT account is a narrative or description or a proposition where all the actors do something and don't just sit there. Instead of simply transporting effects without transforming them, each of the points in the text may become a bifurcation, an event, or the origin of a new translation.' (Latour, 2005. p.128)

Chapter four: Open phase

4.1 Open phase introduction

The purpose of the open phase is to transport the research from its initial unrefined stage to the first check-point of coding; *the open coding* (Glaser, 1978; Harman, 2001; Lawrence and Tar, 2013). This initial stage of a grounded theory study can easily lend itself to wilful confusion when the researcher has committed herself to a data-led research process, but is yet without any data to follow. As the grounded theory process is not intended to test an hypothesis the researcher will have to be extra mindful about such things as evaluation criterium and research directions to not steer too far from the central aspects of the research. Grounded theory was initially known as the constant comparative method (Glaser and Strauss, 1965)- a nod towards the iterative comparison of new data to old data, and of data to the guiding research questions. Glaser (1978) suggest that the researcher keep a set of questions in mind to navigate the initial stage: *What is this data a study of*?; *What category does this incident indicate*?; *What is actually happening in the data?* (Lawrence and Tar, 2013. p.32).

This project began, in January 2016, with three conceptual and theoretical themes: Social innovation through anthropocentric design; Creative collaboration; and The capacities of the transformative networks of post-referendum Scotland. On the very first day of this project the definitions of the abstracts of the themes read as follows:

1.Social innovation through anthropocentric design
The first theme represents the imperative of aligning design for social innovation more closely with the research area. This proposal holds that the term "transformative" (in particular in relation to a nation, as is the case here) raises a number of questions; Who is doing the active transforming? What is being transformed? How is it being transformed? Who is benefitting from the change and who is paying the cost? This project will approach these issues through citizen-design praxis, hence this theme makes the first frame of the research theme. [...] Here, citizen-design(er) is intended to mean a design praxis with operates with the common good as its primary concern.

2. Creative collaboration
Creative collaboration overlaps with both social innovation though anthropocentric design and the aspect of transformative networks of post-referendum Scotland. Citizen-design is inseparable from it's social aspect and the transformative networks embody creative collaboration for bottom-up initiatives for change.

3. The capacities of the transformative networks of post-referendum Scotland
The primary research area is designed to afford a study of the operating time and place of the project. This proposal holds that a place is the result of local and global materialistic development and that the symptom(s) of which exists inherently in the conditions of the subject matter and further that in any analysis, critique or study this must be considered. In other words, "a place is a space endowed with sense" (Manzini, 2015. p.189), or in other words still, the meaning of the place is the place. Its meaning is fluid and changes with time, and is relative to it's subjects. [...] This research area functions as a query into how (if) the "meaning" of Scotland was affected by the referendum campaign(s) and which aspects has proved the most resilient. This might for example apply to changes in notions of Scottish culture, or a broadening of communities.
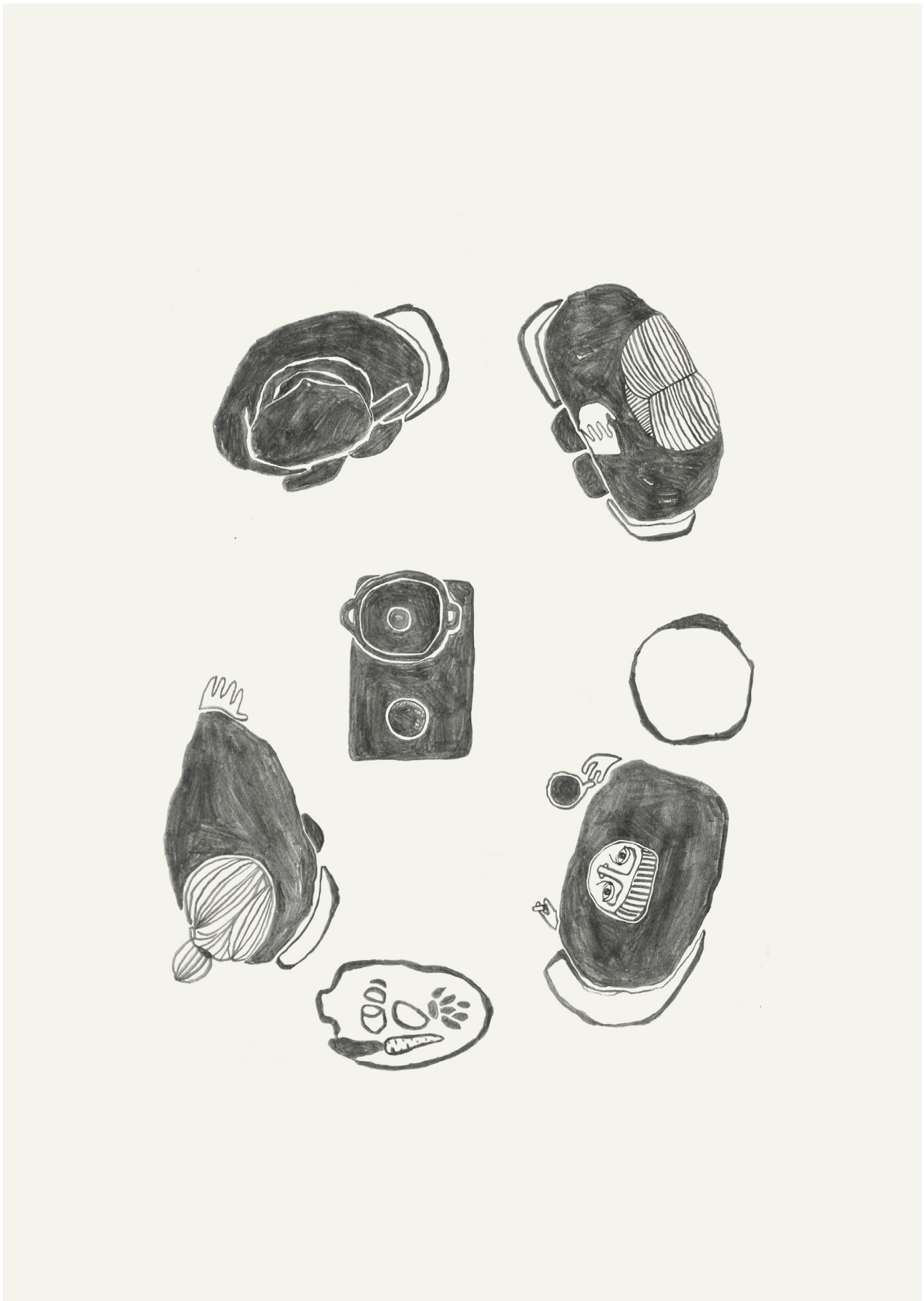
Fig 5. Alicia Smedberg (2016) *Visual reflection of cohort workshop Disir Roaming*

The themes were not only much too vague to conduct any research around, they were also directly contradictory at times (note for example the anthropocentric perspective versus the material perspective). The issue of vagueness stemmed from a backwards reading of the term open-ended; the proposal sought to address within the themes all probable direction rendering them impossible to engage with while also leaving them vulnerable to entangle themselves in contradictions. The first few weeks of this project was consequently spend narrowing down the research proposal and cutting roughly 16 pages from the original document.

This echoes the warning issued by Barney Glaser in his book Basics Of Grounded Theory Analysis: Emergence Vs. Forcing (1992). The book highlights the tensions between emergence and theoretical sensitivity - in short how to ensure that the research remains relevant while exploring new, unchartered territories. Often theoretical sampling is used to regulate this, but only once theoretical codes have been developed (Charmaz, 2014).

From these early stages the project developed in a frequentative spiral - one step forward, two steps back, three steps forward, one step back - constantly examining every last piece of data, constantly questioning every new iteration of truth. By the end of the open phase the theoretical framework had morphed into something very different than what it was in January. This chapter will provide an overview of the research methods at this stage, the activities of the first few months, as well as an account of the open coding.

4.2 Research activities

The case studies looked in at the research question from the perspective of each of the research themes. In the first iteration the project sought to identify projects that had separately, and in their light form a first understanding of the criteria of the subject area. In the second iteration the case studies looked for projects or initiatives situated in the intersections of the themes in an attempt to draw the research themes closer together.

As an introductory exercise the case studies provided the author of this thesis with an opportunity of learning from previous projects by established researchers, designers and social innovators, to develop a first vision of what kind of project the subject area could afford - and equally to develop a criteria of what the project would seek to avoid. A more detailed account of the case studies can be found in Appendix B.

Following the case studies the open phase addressed the research themes as follows: In an effort to explore the theme *social innovation through anthropocentric design* the project followed Leapfrog to a co-design workshop in the Caingorns (See Appendix A) (See Fig 8), spoke to practitioners (See Appendix C), and theoretically sampled the subject.

The theme *creative collaborations* was explored through participation in cohort work such as developing and delivering workshops (both internally for and with each other - See Fig. 5 and Fig 9 -, but also for the broader research community such as the workshop *Somebody Else's Problem* during DRS Conference in Brighton, 2016 - See Fig 6 and Fig 7). The project also proposed and led a creative exercise of collaborative visual dialogue, which the other members of the cohort contributed to. The project also observed and interviewed students on the Performance Art programme at the Royal Scottish Conservatoire in Glasgow (See Appendix A), as their practice entails non-hierarchal collaboration throughout the creative process of imagining, developing and executing a performance. The theme was also theoretically sampled.

The theme *The capacities of the transformative networks of post-referendum Scotland* was researched through engagement with the organisation CommonWeal, and the political party for independence, RISE. The engagement in question consisted of attending the RISE conference in Edinburgh, February 2016, attending a workshop with CommonWeal, and interviews (See Appendix A).

4.3 Open coding and analysis

Grounded theory often advocates that enough data has been collected once the theme reaches *saturation* (Harman, 2011), but this can be an ambiguous when you are in the midst of your research. This project reached saturation of the open phase when the projected could not move forward without a more refined approach, that's when the first open coding took place. The project aimed to revisit the work done up-until this point, synthesis it, and generate a design brief for the selective phase.

While the data in a grounded theory study is never left to gather dust, but is constantly in use, the first point of formal data analysis was during the open coding. 'Open coding is the analytic process through which concepts are identified and their properties and dimensions are discovered in data. It is the part of analysis that pertains specifically to the naming and categorising of phenomena through close examination of the data. [...] During open coding the data are broken down into discrete parts, closely examined, and compared for similarities and differences, and questions are asked about the phenomena as reflected in the data.' (Lawrence and Tar, 2013. p.32)

The data that went into the open coding included transcripts or memos - raw data - from all of the activities listed in this chapter, but also from conversations with practitioners, memos from the cohort sessions, two written reflections, and last but not least the illustrations accompanying the memos. The memos of the first phase were transcribed from their original hand-written state, a long and arduous process which proved to be a valuable synthesising method as it demanded that every single though, idea, and observation was systematically revisited ahead of the coding. During the transcription of the memos old ideas were challenged, lingering misconceptions could be spotted and forgotten questions could be answered. And most importantly new questions were raised.

Fig 6. Alicia Smedberg (2016) *Dear Heather: Visual response to somebody elses problem*

Fig 7. Alicia Smedberg (2016) *DRS workshop*

Fig 8. Alicia Smedberg (2016) *Leapfrog workshop*

Fig 9. Alicia Smedberg (2016) *Portrait of cohort during Disir Roaming*

To use the illustrations in the coding process, in particular when working with the software Nvivo, a translation of the images into text was sometimes necessary. However, this was avoided whenever possible as the project at this stage was beginning to circle around the question of how different methods generate different social realities (Law, 2004). In the light of this a test was done which conducted an open coding of the illustrations in isolation from the rest of the research material. The result was significant as, although the illustrations had mostly been accompanying the memos, they told a very different story. Often the account given in the illustrations was more inclusive to the surroundings than the memos, affording a sense of the room or the scene around the documented incident. This affected the coding when analysed in separation from the memos, but was not enough to support a suggested phenomenon with the memos. The illustration also conveyed a higher degree of empathy towards people within the study, by depicting their body-language and facial expressions - something that the memos often failed to mention. This provided added value to the study, in particular in cases where the interviewee, participant or collaboration partner was somewhat ambiguous in their statements. A note from the illustration coding reads simply: people don't always say what they think. This reinforced the notion that illustrations could act as bearers of intangible data.

The key challenge within the open coding is to maintain an objective transparency when revisiting the data (Charmaz, 2014), and not force the direction of the coding. During the coding in Nvivo the data was categorised against the original themes which were then reformulated accordingly. These were then processed through a mapping exercise (see Fig 10) and formulated into three core categories.

Fig 10. Alicia Smedberg (2016) *Open coding*

4.4 Critical reflection and summary

The outcome of the open phase was a reformulation of the original research themes and a brief for the next phase. During the course of the open phase the themes *Social innovation through anthropocentric design* and *Creative collaboration* had become more or less indistinguishable. Within these theme the issue of agency was the most prominent, although its manifestations varied. The data suggested that it would not be enough to look at the agency of the participant, as this was responsive to the agency of the methods as well as the researcher. To develop this further the project adapted the democratic praxis of participatory design - inclusive of its ties to Science and Technology Studies (Ehn et al., 2014.; Binder et al., 2015.) and Actor-Network-Theory (Latour, 2005) - to enable a further analysis of the socio-material groundings of agency.

The outcome of the open coding indicated that theme *The capacities of the transformative networks of post-referendum Scotland* had been saturated in its original shape. This led to three findings regarding the criteria of citizen engagement. The project had found that any democratic citizen engagement would require relevance towards the participants, and could not be asking for time or effort from them if the project could not benefit them. It further found that any citizen engagement should be conducted through a reciprocal platform, following a Freiran pedagogy (Freire, 1970), and finally that any innovation must be treated as open-ended *things* (Telier, 2011.; Binder et al., 2015.; Ehn. et al., 2014). The capacities of the transformative networks was still a central question but was reformulated into the shaping of publics , which in turn related back to the participatory notion of *infrastructuring* (Ehn. et al., 2014).

Over the course of the first phase an unpredicted theme had emerged within the research, and was demanding attention; namely that of responsive research methods. The discussions around the capacities of non-linear research, knowledge creation, and the agency of the object had been born out of reflections on grounded theory praxis and the use of illustrations. They had made their way into the memos to such extent that they could not be denied. To formally introduce this into the project a method of theoretical sampling was used. Through this the project followed in the light of Nina Wakeford and Celia Lury's book *Inventive Methods* (2012), and adapted this into the research framework.

With the conclusion of the open coding the project closed the open phase chapter. The phase had seen a refinement of the original research proposal and its themes through exploratory and empathic qualitative research.

Chapter five: Selective phase

5.1 Selective phase introduction

The selective phase sought to grant the categories developed by the open phase second iteration of research and more in-depth insights. As grounded theory relies on objective transparency for academic rigour, and this cannot be achieved by one iteration of coding.

At the beginning of the selective phase the project was battling with three central questions; *How do designers do research? How can illustrations perform research, and what kind of data can they generate? How can design researchers engage with publics?*

A case study approach was chosen to address the latter question through experiments of the first two questions. Meaning, the case study approach provided a structured and controlled environment within which all three questions could be explored further, but without the ethical complications which a design intervention might have entailed. This decision rested on the caution from the open phase analysis regarding citizen engagement - stating as it did that citizen engagement ought to be mutually beneficial to both the engagement initiator and the participant, and that the engagement ought to be executed in a reciprocal manner to be considered democratic (see 4.4 Critical reflection and summary p. 33). As this pedagogy was unattainable within the limitations of this project, a case study which analysed their potential was chosen.

It is important to note that the selective phase was complemented by the theoretical phase, and that the two took place at mostly the same time - the selective phase begun four weeks ahead of the theoretical phase, and the theoretical phase ended a couple of weeks after the selective phase was concluded. The theoretical phase will be covered more exhaustively within its own chapter, and will explore the theoretical themes which arose from the data-gathering of the selective phase covered in this chapter.

5.2 The COREP case study

The COREP case study, or the case study into *the Community Owned Renewable Energy Projects*, looked into how the ideation, implementation, and development of renewable energy technology in Orkney had manifested itself over the last 15 years. The case study used an analytical framework inspired by ANT (Latour, 2005), and addressed the affects/effects of engagement between actors - both human and non-human. It was quintessentially a study in the underlying power relations that exists in design interventions. Within participatory design practice infrastructuring and design things exist as methods to approach this, but it is no small task.

'Social innovation involves - indeed, requires - redistributing power. It's well and good to talk about curing diseases, supporting social innovation, changing poor neighbourhoods, improving education, stimulating economic development, sustaining the environment - but changing the distribution of power? Why would those with wealth want to do that?' (Westley, Zimmerman, and Patton, 2007.p.121)

Within design things publics and governance networks are pulled together with a shared goal of social

innovation (Emilson and Hillgren in Ehn et al., 2014), and this case study sought to provide the project with observation of how this had occurred during the COREP implementations in Orkney. Although there was an imperative of social progression within the intervention - to address a number of hardships that the islanders had faced over the last decades such as fuel poverty, unemployment and underemployment, and a growing generation gap - was it really possible to say that the renewable energy projects afforded the citizens agency?

Inspired by the STS school of social sciences the case study traced the interactions between citizens, local communities, governmental bodies, national and international corporations, all of which came to be present in the material form of the wind turbines. As Noortje Marres and Javier Lezaun points out in their text *Materials and devices of the public* (2011): 'an appreciation of the material constitution of political subjects forces us to reconsider received notions of citizenship as well as the conditions, such as autonomy or self-government, commonly attached to participation in public life' (Marres, 2011, p.491)

The methods used in approaching the subject was largely derived from design research, in terms of sense-making through visual mapping, through illustrations as documentation of observations, and drawing as an ad-hoc to the interviews.

This text will offer a brief background to the renewable energy projects, a synopsis of the research process, and finally a section on the focused coding and with a reflection on the case study findings. Further material on the case study - memos and illustrations - can be found in appendix D.

Background

The Renewable Energy Initiatives in Orkney was, in the most conventional sense, a top-down initiative. Although there was - and still is - an incentive to engage the local population into the decision making process, as well as to ensure that the generation of renewable energy on the islands benefits the local community, the decision ultimately came from external actors. In a Consultation Draft from Orkney Island Council (Consultation Draft from Orkney Island Council, 2005) it is stated that the (then planned) larger commercial wind farms had to be built on private or community owned land, and that to go ahead the Island Council had to write the legislation so that initiatives for renewable energy generation for both private, community or national use would be permissible. 'There is no mechanism in planning law to distinguish between these types of development' (ibid. p.6) It has followed that Orkney now has over 500 domestic sized wind turbines, serving both individual households and community co-ops.

The first wind farms were installed on Orkney were placed there in the 1980's, long before the Renewable Energy Initiatives begun. The difference was that the latter sought to address a number of socio-economic and socio-political issues through its actions. Before the project begun in 2000 there was a shortage of jobs; an increasing generation gap; a trend of islanders leaving their home for the mainland; and there was a sever case of fuel poverty - one of the worst in the UK at the time (Hull and Milner, 2012).The fuel-poverty was a result of the sparse connections to the islands made by the na-
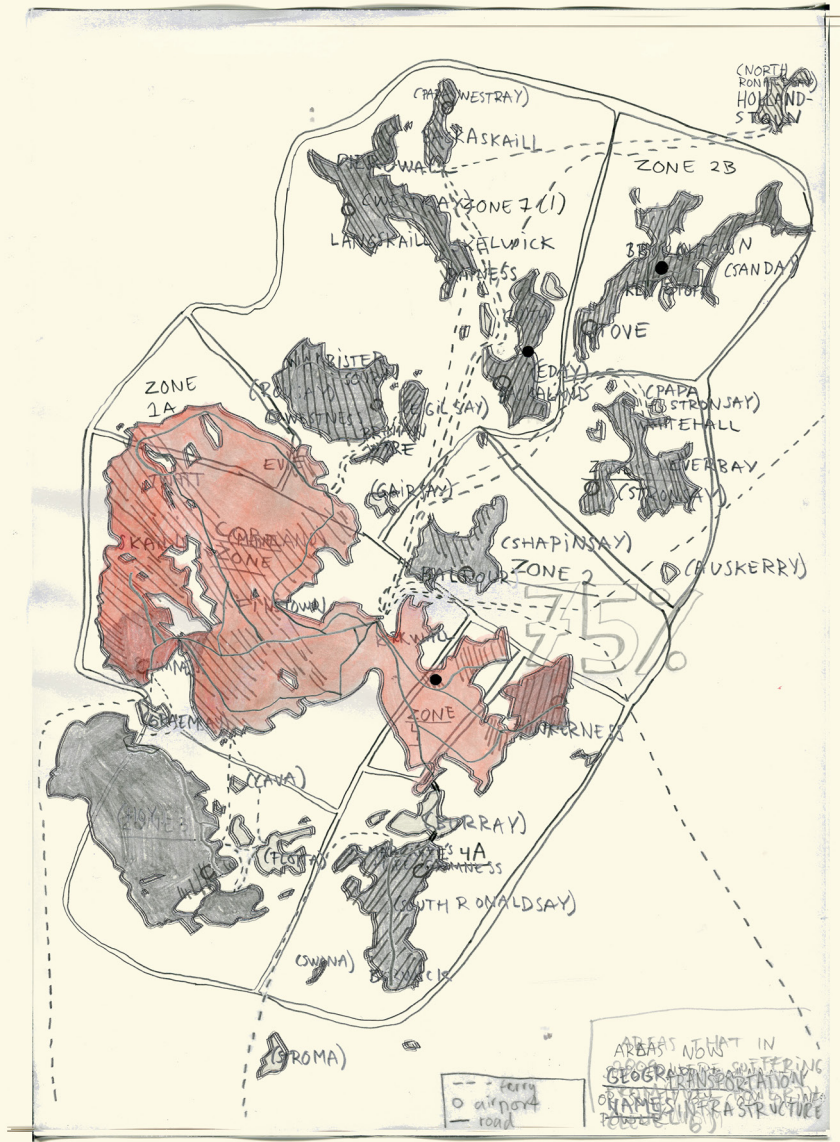
Fig 11. Alicia Smedberg (2016) *Maps of Orkney*

tional grid, and the high prices of transporting electricity to the remote location. In combination with the island's suffering economy - with increasing unemployment and a lack of conventionally skilled labour on the islands - the Scottish Government saw an acute need to introduce new industries to Orkney to boost its economy. This coincided with the Scottish Government's 2020 vision for renewable energy in Scotland, following a route-map first published in 2011, which saw an initiation of a project which had the potential to benefit not only Orkney, but all of Scotland (The Scottish Government, 2015). It was deemed that energy generation on the islands would create new jobs locally, benefit the national industry, and provide a more sustainable alternative to conventional energy generation. A visualisation of the overlapping issues which Orkney faced, and which laid the foundation for the renewable energy projects post-2000 is available in Fig 11, on page 37.

In 2015, however, the British government put a stop to renewable energy subsidies, in a effort to redirect the nations energy development into what was deemed more be profitable modes of production such as nuclear power (The Scottish Government, 2015). This is important to note because it has meant that the field investigations of case study were not done at the "peak" of the renewable energy project, but rather at a time of great uncertainty regarding both the renewable energy production in Orkney and Scotland's 2020 vision.

Synopsis of the research process
To begin to unravel the renewable energy projects in Orkney it was important to form an understanding of its background and context. This was done by first contacting the Highlands and Islands Enterprise (HIE) in Orkney, who had played a central part in bringing the project to life and held an archive of planning documents, minutes of meetings, reports, business plans, presentations and various other accounts that afforded an insight into the process (See Appendix D). By starting locally on the Mainland and trace the constructions of the wind turbines it was possible to map the decision making process. For example, by following the minutes of board meetings and AGM meetings it was possible to see which representatives had been advocates for which interests, and who had been present during important votes. These meetings saw a lot of creative input from citizens on the islands, who offered up new ideas about how the energy could be used alongside the land. There was, for example, a incentive from a Mainland community co-op about heating up greenhouses for local produce that would reduce food miles, increase food quality and boost island economy (Niaros, 2016).

The Orkney Development Trust (ODT), which operates in branches across the islands, was the host of many of these meetings. The trust had a high membership rate, on some islands above 80% of inhabitants are members. As such the level of representation was always high, while the level of citizen participation and collaboration varied. The tracing of the development process indicated that the input into key points such as location, collaboration partners, model and make of the wind turbines, financial agreements, workers' contracts, and revenue to the national grid was all placed outside the hands of the local citizens. However, at a number of sites around the islands the shortcomings of the wind turbines have been solved locally; as in the case of the hydro-electric generator in Stromness water reservoir used for energy storage, or the lithium ion battery in Kirkwall used for energy storage as well as to power buildings and berthed ferries (The Scottish Government, 2015. p. 30). This, the

corresponding creativity that occurred in the shadow of the renewable energy projects, came to be the focus of the field trip to Orkney.

The trip to Orkney was documented through memos and illustrations (See Appendix D), and sought to visit and speak to citizens on the island who had in one way or another adapted the renewable energy project into their own locality. In Stromness the project met with a representative of the working energy co-op, and spoke to local business owners. In Kirkwall the project met with a farmer housing a domestic wind turbine on his land, and spoke to engineering researchers from the Heriot-Watts University.

During all of the above mentioned conversations the medium of drawing was introduced, but with varying results. When engaging with the researchers, a group conversation, the pen and paper left on the table was picked up without question and drawing as an ad hoc to the language was an easy and natural part of the conversation (see Fig 12). As the group in question was close-knit, most of them had moved to Orkney from elsewhere and had lived and worked together for over a year, they were able to complement each other and while one person was describing something with words another could draw it out visually. Or, if one person was talking and drawing, another could pick up the pen and carry on the sentence. As a group they were used to explaining their work, to each other and to others, and as researchers they never questioned the purpose of the drawing but adapted to it quickly. The lines on the paper presented a tangible documentation of the conversation, but it also presented a case of material participation by altering it.
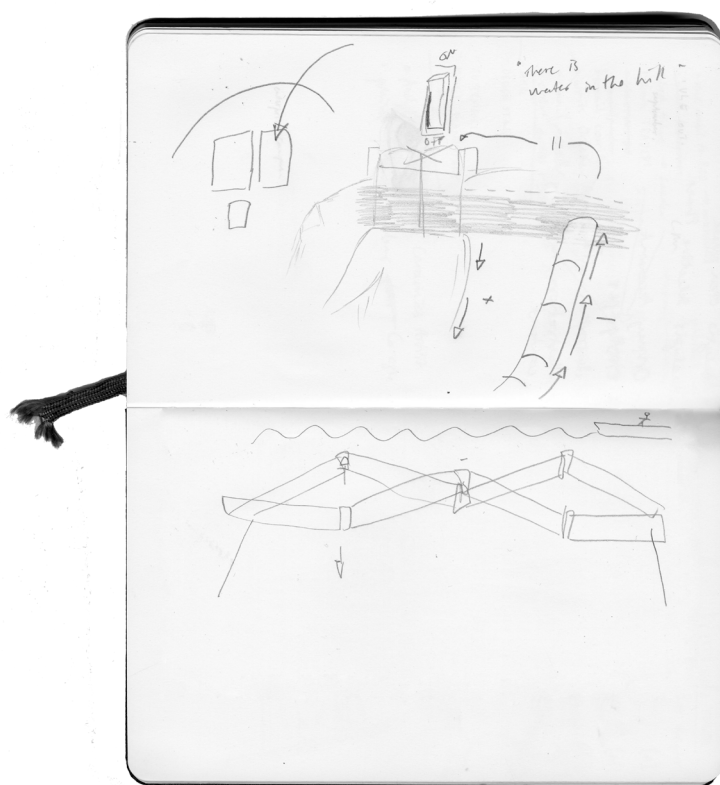

Fig 12. Alicia Smedberg (2016) *Talking about wave energy*

In other cases, such as during the visit to the farmer at his home, the pen and the paper was treated with much more scepticism and was never touched by the participant. Here the project found marginally more success in following the participants words, and using illustrations to play them back to him as a conversation prompt. In this case the act of drawing appeared alien to the participant and was ultimately put aside to not hinder the conversation further.

The outcome of the conversations that took place during the field trip indicated a sense of distrust from the locals regarding the renewable energy projects, and nobody expressed any feelings of ownership in it. Instead remarks were made about scepticism towards the sustainability of the project, a questioning of costs vs benefits and about uncertainties of the future of the project.

The study was interested in the ripple effects of these material alterations to the way of living. In the narratives we find the compromises made by human actants to accommodate the material actants, and the affordances produced by the non-human actants' actions to the net or the individual actant. In the relationship between the farmer and the wind turbine it was evident that, while the turbine in itself was "store bought" and consequently placed into its local setting as opposed to being design for or from it, the use of the turbine was compromised by the farmer himself and the conditions of the place. The turbine in turn altered the space and the space altered the farmer. It is however, in this case, much easier to believe the lie that this is a closed network. The farm in this case could be considered a small ecosystem in its own right, and the farmer would in this case be standing at the top of the food chain, with the divine power to invite or exclude any body into the ecosystem. To correct this misconception it is helpful to return to the section above on underlying controversies and remind ourselves that the world does not reach its edge at the end of the farmer's driveway, nor does it end at the shorelines of Orkney.

The case of the energy co-op in Stromness is far more elusive, a point strengthened by the fact that during a conversation with one of its members it was made clear that the co-op doesn't exist. The boundaries between what human actors were part of the network; part of the community; and part of the network of the community were blurred at best. There was no lie of a members-list to believe, as the organisation of the co-op was openly in flux. There was also no isolated energy circuit, as the locally produced renewable energy was distributed to the national grid, as well as used within the community. Yet the address of the renewable energy project to the aforementioned controversies was inevitable, and the Stromness community has benefitted over the past ten years. This is evident to see in the number of independent businesses sustaining themselves, with running costs significantly lowered since the energy began being produced locally. This has afforded the community higher employment and a development of skilled labour, not just related to the production of energy.

5.3 Focused coding and reflection

The data yielded the project by this case study can be condensed into three key points, which in turn has provided the broader project with a lesson in design infrastructuring. The function of the focused coding which followed the case study was to bring clarity into the insights provided by the data (Charmaz, 2014).

Citizen engagement
The case study found that the renewable energy project in Orkney made a strong case for diffuse design (Manzini, 2015), but also that the more the Orkanians were designed for, the less they designed themselves. As the proverb goes, *necessity is the mother of invention*. When the design solution provided by the government sough to address such a broad spectra of controversies it took the local population on Orkney into consideration, but through a blanket approach - a tactic in polar opposites to that of infrastructuring.

The renewable energy project was not a failure; it succeeded in lowering the energy costs of the people on the islands; generating sustainable energy; and creating new jobs. In fact, it successfully achieved most of the goals it set out for. And despite the scepticism this case study encountered from the islanders towards the project, they were afforded new terrains to act within. For example, the construction of the heated greenhouses for local food production or the locally generated solutions to energy storage were both new actions made possible by the wind turbines. In the design process citizens displayed the critical sense, the creativity, and the practical sense which Manzini describes as the ingredients of design mode (Manzini, 2015. p.31). Although they were not trained as designers, they were designing. Although they benefited from the renewable energy project, their ability to act was defined by it. As with Freire's student and teacher (Freire, 1970) the dialogue between the citizens of Orkney and the decision makers in the project was only open when the latter allowed it to be. Had instead the renewable energy project taken a participatory approach, and followed the notion of infrastructuring, some of the issues which it came to face after ten, fifteen years might have been avoidable: 'The danger is that behind every design lies a potential controversy that has been settled by silencing or ignoring someone' (Storni et al., 2015. p.168).

The renewable energy projects in Orkney raised the question of who should participate, and there was a tension between stakeholders regarding which of the underlying controversies to prioritise. There was a tension between the focus of creating efficient wind farms which could serve the Scottish government's 20/20 vision, and creating wind farms which could serve the local communities. It follows the characteristics for a meeting between citizens and the powerful strangers - actors with 'larger portions of money, authority and access' (Westley, Zimmerman, and Patton, 2007. p.99) - and the powerful strangers walked out with the last say.

The outcome of the renewable energy projects in Orkney was designed, but it was not designed to match the aim of democratic ownership which it had originally set out. This reflection concludes that the renewable energy project in Orkney sought to address a plethora of socio-economic challenges facing the citizens of Orkney by bringing them a material solution for them to own - a paradoxically successful but poorly designed project.

Inventive methods

As for the the second point this case study sought to investigate, namely the use of drawing as an inventive research method, the insight is equally complicated. The case study was used to explore illustration as an analytic tool, as data-collection. During the case study the notion of illustrations as a material participator began to emerge (Marres, 2015).

Within some interactions the use of drawing became a hindrance more so than an asset. It did not present itself as a new and open language with which the participant and research could interact freely, but as a language alien to the participant. In those cases it broaden the gap rather than bridged it. While it is true that other participants were happy to draw, this is not enough to define the method as inventive. The element of collecting the data into a visual documentation did prove to be more inventive than anticipated. One of the biggest reservations that had been held against illustrations in this research project was the bias it carried of the illustrator's/researcher's perspective. During this case study, however, interactions between participants and illustrations took place which indicated that the illustrations physical embodiment of narratives could further the participants engagement in the knowledge creation process. Within itself the material properties of illustrations alters interactions and can hold affordances of correspondence. 'If social interaction is considered in terms of its environment, seemingly arbitrary social behaviours often become clearer. One way to do this is to recast the physical properties of the environment in terms of their affordances for perception and interaction' (Gaver, 1996. p.1).

The new terrain that presented itself had altered the use of illustrations within it. During the open phase the illustrations participated in the research as a companion to the inscription devices responsive to the research, and as a vehicle for prototyping and sense-making. During the selective phase it was tested as part of the materiality of participation (Marres and Lezaun, 2011). Rather than being an outcome of memos, or a reflection taken place in hindsight, it was brought into the very locus of the research. A tangible example of this was the experiment of drawing with the participants during interviews, capturing concepts or descriptions in the moment, allowing them to participate in the capturing of their narrative, or afford them an opportunity to amend it. When this worked well the method enhanced communication as the researcher and participants were no longer merely communicating with each other, but also with the materiality of the narrative. This thesis seeks to suggest that the materiality of participation can be seen as a material assembly (Marres, 2015; Latour, 1985), but also as an *ad hoc* to linguistic communication - a correspondence (Ingold, 2013). Both of these characteristics diverge from the notion that the material is an outcome of participation and begs a reconsideration of what participation entails:

'Material perspectives on participation challenge a vision of public action centred on discursive or deliberative processes. The idea that language is the central vehicle of politics that language, in fact, founds and sustains the difference between human politics and the lives and quarrels of those (beasts or gods) who exist outside the polity is so deeply ingrained in our preconceptions of the political that it is almost impossible to imagine a public, particularly a democratic one, not constituted primarily by acts of discursive deliberation' (Marres and Lezaun, 2011. p.492).

During the selective phase the agency of illustrations as material participators in the research was tested, alongside the agency of human participators taking an active role in the making of the visual material. Tim Ingold poetically describes the correspondence that occurs in the process of collaborative making as 'dance of agency' (Ingold, 2013. p.107). He outlines the difference between participation in interaction (Simmel, 1969) - a linear perspective - and in correspondence which 'by contrast, points are set in motion to describe lines that wrap around one another like melodies in counterpoint' (Ingold, 2013. p.107). If, during the open phase, the illustrations were interacting with the research, it was the goal of the selective phase to make them correspond.

To conclude, the case study of the community owned renewable energy projects in Orkney generated the insights that the initiative of drawing together citizens and networks of governance did not succeed in creating a non-hierarchal knowledge alliance, and as such swayed the outcome to one preferable to the powerful strangers. The case study found that an inventive approach to knowledge creation can increase participation if used empathically. This insight was explored in further depth within the theoretical phase.

Fig 13. Alicia Smedberg (2016) *Travelling in the highlands*

Fig 14 Alicia Smedberg (2016) *Involved*

Chapter six: Theoretical phase

6.1 Theoretical phase introduction

The theoretical phase sought to add context, depth and theoretical relevance to the selective phase research, and to the research project at large. The theoretical sampling took place alongside the selective phase and processed themes as they arose during the data collection. It also responded directly to the categories generated in the open coding (See Chapter 4, page 29): Creative Networks, the issue of agency, and Inventive methods. This was a reflexive process, with live research being saturated by a theoretical vocabulary via memos and illustrations. This stage has also presented itself as the most difficult part of the research project to represent within this thesis. It occurred in parallel to the selective phase and to the COREP case study, and was in the messy lived reality of research inseparable from the field work, data collection and the focused coding. As such it ought to be presented within the previous chapter, but as theoretical coding is an essential element of the generation of a theory within Grounded Theory practice within its own right and ought to be given weight accordingly. It is a strategy of both obtaining selective data, refine existing data and to fill out the main categories (Charmaz, 2014).

The faux separation of the selective phase data and the theoretical sampling may perhaps be best understood through their respective outputs; while the selective phase delivered the COREP case study account, the theoretical phase delivered a vocabulary with which it could be addressed. For the reader's convenience it may be helpful to consider the theoretical phase as a filter through which the selective phase data passed through. The matters of concerns discussed in this chapter are directly responding to the live work of the project, and constructed a theoretical framework around intangible notions within the research that were not as readily defined. These new 'samplings' of theory feed back into the selective phase and further shaped the direction of data collection. The text which follows below is an account of the theoretical framework which accompanied and complemented the selective phase.

6.2 Theoretical sampling

Knowledge creation
John Law (2004) makes a comprehensive argument for how research, within the field of social sciences in particular, not only defines reality but also creates it in his book is book *After Method; Mess In Social Science Research* (2004). As such, the inevitably political question arises of which realities we want to be creating, and how.

'Since social (and natural) science investigations interfere with the world, in one way or another they always make a difference, politically and otherwise. Things change as a result. The issue, then, is not to seek disengagement but rather with how to engage' (Law, 2004. p. 8)

The questioning of ultimate truths has been raised by many social scientists and philosophers over the last decades, in particular within relativist or social constructivist paradigms, but in relation to this text's initial query of agency the work by Michel Foucault on the subject is especially relevant. Foucault has written extensively about the relationship between the creation of knowledge, and power. Foucault's argument is sometimes rather crassly summarised as might makes right as it outlines how the state apparatus creates truths, morals, and a prescriptive correct rational for the society in question. In his early works Birth of the Clinic (1973) and Madness and Civilisation (1995) Foucault

explores how society defines what is normal through what's abnormal, and how we can - in short - regulate behaviour through institutionally prescribed truths.

Law (2004) introduces the concept of method assemblage as a way to conduct research in congruence with the notion that no one scientific truth exists but rather that realities are multiple, fluid and enacted. In Law's statement 'practices of method assemblage crafts out-thereness by condensing particular patterns and repetitions whilst ignoring others: [...]they manifest realities/signals on the one hand, and generate non-realities/silences and Otherness on the other' (Law, 2004. p.113). The research conducted in connection to the literature review has found Law's notes on method assemblage complementary to the methodological approach from which grounded theory originally stemmed.

Instead grounded theory suggests an alternative data-led methodology of research. This way of research encouraged researchers to iteratively analyse and evaluate their data in the process of collection, and replaced the testing of existing theories with the development of new ones. This is intended to help these researchers to control their research process and to increase the analytic power of their work (Charmaz, 2014; Glaser 1992; Glaser and Strauss, 1967; Strauss and Corbin, 1990). The traditional notions of academic and scientific rigour of replicability and objectivity are somewhat difficult to apply to a grounded theory as the rigour lies in the iterate process of constant comparison, and as the researcher holds a central position, thus the rigour of the grounded theory relies on the transparency of the process. However, a transparent process is by no means the same as an inclusive or democratic process. The grounded theory researcher is faced with a dilemma which echoes that of Law's (2004) method assemblage: 'to make realities is to unmake possible realities, endless numbers of them. But which?' (ibid. p.113)

The question is now not whether social realities are created, but why they should be chosen: *Who's realities are we researching?* (and, perhaps more importantly, *Who's realities are we not researching?);* but also *For whom are we researching who's realities?; and ultimately Who is researching whom's realities for whom? And how?* These are explicitly political questions, which Law suggest cannot be answered with a blanket prohibition but will depend on the circumstances.

Knowledge creation and creative practices
It is easy in today's intellectual climate to forget that not that long ago science was science, and art was art. While science was the basis for the teaching and training for the natural and social sciences, the predominant purpose of arts education was 'artistic development' (Kälvemark, 2011. p.34). The journey towards recognition of the cognitive abilities of practice-based research has often been hindered by the monolithic standards of quality traditionally held by academia (Leavy, 2015; Chenail, 2008). The challenges of practice-based research are not so much practical, but rather they exist within a collectively shared understanding of scientific research (Grand and Weidmer, 2011. Law, 2004). The issue often lies in validating the intangible.

Patricia Leavy (2009) defined an arts-based research practice as 'a set of methodological tools used by researchers across the disciplines during all phases of social research, including data generation, analysis, interpretation, and representation. These emerging tools adapt the tenets of the creative arts in

order to address social research questions in holistic and engaged ways in which theory and practice are intertwined.' (Leavy, 2015. p.5) Adjectives such as holistic makes it difficult to evaluate through traditional notions of academic rigour, but it is important to remember that arts-based research is not intended to replace qualitative or quantitative research, but to complement it (Leavy, 2015, and 2016; Chenail, 2008).

Hovering over the terrain of creative research tools and methods we see that research through art and design (Frayling, 1993) can manage an open-ended investigation of the messy complexity and multiple realities (John Law, 2003; Lury and Wakeford, 2012), it can help us see beyond the clinical surface of representation (Ingold, 2016; Latour 1985), it can prototype possible and impossible futures (Grand and Weidmer, 2011.; Latour 1985), visualise complexity and data (Lima, 2011) afford the research intuition and empathy (Leavy, 2016), further improvisation and flexibility (Knorr Cetina, 2002), bridge hierarchal boundaries between researcher and participant (Eriksen et al., 2014), and assist the researcher through 'thinking through making' (Ingold, 2013) to mention a few.

Design practice has an inherent element of inventiveness, and marries well with the visual sociology methodology of Lury and Wakeford outlined in their book Inventive Methods: The happening of the social (2012). It facilitates sense-making and is responsive to the question and to the data. However often falls short on the notion of problem solving. If the design process follows the formula define problem, generate solutions, test solution, identify best solution it simultaneously demands a simplification of the controversies in the social realities with which the project seeks to engage. The act of designing may, therefore, fulfil the criteria of an inventive method provided that it prioritises the question and the investigation rather than finalisation.

Donald Schön (1983) highlighted how design often responds to the name of problem solving, but stresses how the construction of the so-called problem occurs through the practitioner's practice. This is done through skilled reflection and synthesiation of the range of facts available to the practitioner. The practitioner thus condenses the controversies into a problem or a question which can be translated through the practice. 'When we set the problem, we select what we will treat as the 'things' of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. [...] we name the things to which we will attend and frame the context in which we will attend to them' (Schön, 1983. p.40) While this inevitably leads to a certain degree of of simplification, this is not to say that the simplification in itself cannot be responsive. It is also within the process of reflection, synthesis, and re-creation that the practitioner is afforded agency through her work. Reckwitz (2002) summarises Habermas's (1984) definition of a practice within Practice Theory as 'routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge.' (Reckwitz, 2002. p.249) The congruence of Reckwitz's and Schön's definitions of a practice suggests that the means to agency found in a practice is not separated from the means to agency for a citizen within the public sphere.

Drawing things together: collaborative knowledge creation through creative practices

When discussing the power embedded in the ability or the inability to act, it is inevitable that a few questions will arise liked to our perception of the social which we hold the actions to be place within. Notions of what citizenship is, can or should be varies between the traditional ideological stances of liberalism, communitarianism, and republicanism (Dahlgren, 2006), as well as between different schools of social theory and philosophy (Reckwitz, 2002). This text has considered two dominate schools of thought regarding the citizen, *homo economicus* (cf. Jeremy Bentham) and *homo sociologicus* (cf. Emile Durkheim; Talcott Parsons). The prior understands the human being as a competitive, egotistical being seeking to maximise his own utility (Restakis, 2010), the latter seeks to understand actions through collective norms and values (Reckwitz, 2002). Cultural Theory was developed as a response to the two schools, although aligns more closely with the latter. Within Cultural Theory the subtype Practice theory is found, drawn from a plethora of literary sources (cf. Claude Lévi-Strauss; Bourdieu, 1977.; late Michel Foucault; Schatzki, 2002; Jürgen Habermas et.al.) and delivering a vocabulary of understanding the social which is neither tied to purpose or norms. Instead it delivers a framework in which citizen agency and the social structures are in a constant, reflexive dialogue with each other. Relevant to this conversation is the notion of the *public sphere* - 'a realm of our social life in which something approaching public opinion can be formed' (Habermas, Lennox and Lennox, 1974. p.49). *Public spheres* are for the intents and purposes of this text best described as constellations, sometimes permanent and sometimes fleeting. The constellations are far from simple or unitary, but contain contradictions and opposing interests within the publics (e.g. interests of class, gender, and race will play in) are constantly are being negotiated and renegotiated within these spheres (Dahlgren, 2006.; Habermas et. al, 1974.; Reckwitz, 2002). 'The public sphere does not begin and end when media content reaches an audience; this is but one step in larger communication and cultural chains that include how the media output is received, made sense of and utilized by citizens' (Dahlgren, 2006. p.274). Following this logic, citizenship is about learning by doing.

The notions of the public sphere and of Practice Theory provides this text with a vocabulary able to address questions of citizen engagement and participation. Through this an understanding, albeit not exhaustive, takes shape of how knowledge creation relates to the creative practices of social design and participatory design begins to emerge. Once we have established the designer humbly as an actor acting within a greater socio-material constellation (Latour, 2008), then the distributed agency behind the designer emerges (Holert, 2011). The issue is therefore lies in furthering agency in participation in publics, not in merely promoting participation (although, suggestively, the two are interconnected). Tom Holert puts it well in his publication *Distributed Agency, Design's Potentiality* (2011):

'[T]he question has to be asked: to what extent do 'participation' and the programs and methodologies affiliated with this concept need to be revised and adapted considering the ideas about distributed agency and diverse economies put forward in this essay? The communities addressed by designers should be conceived as assemblies where the most heterogeneous actors and constituencies gather whose readiness and willingness to become subjects of interpellations to 'participate' may differ dramatically. Hence, design can only be understood as an activity situated in an arena where 'participation', if at all, is happening under the condition of competition and conflict.' (Holert, 2011.pp.54-55)

Holert carries on to suggest that we acknowledge differences within publics, not as a distinction but as

a struggle. One such struggle, Holert suggests, is the question of the responsibility of design vs. its distributed agency (ibid.). Negotiating such struggles within publics can be conducted through dialogue, enabling a democratic exchange of experiences and perspectives (Freire, 1970.; Brandt, Messeter, and Binder, 2008) provided that the dialogue is con- ducted with an open-ended and not forced by either part (Sennett, 2012). A dialogic approach is already established practice as part of citizen engagement (Escobar, 2012.; Faulkner, 2011) but often met with scepticism. 'Sometimes we are sceptical about public forums. It's 'just talk', some say. They forget that most of what we do is done by talking. Forgetting that social reality is built through interaction distracts us from paying attention to the quality of communication, and certain habits and rituals can become invisible to us. When we take those rituals as given, rather than made, we may come to see them as unchangeable' (Escobar, 2012. p.13). The very final point this text will make before moving into a conclusion is that talking, a dialogue through words or images (Ingold, 2016), is a force which has created, sustained, de ned and re-de ned the social realities which we inhabit and will continue to do so. The question of impact, results, and their value, are responsive to who we invite to the table. The slogan *if it is inaccessible to the poor it is neither radical, nor revolutionary rings true*, and this text will finish on the bold statement that making dialogue accessible is something which design is capable of doing, and has no excuse to avoid doing.

6.3 Theoretical coding

The *matters of concern*, arranged thematically in this text, were *Knowledge Creation, Creative Practices*, and *Creative Collaborations*. By exploring them further a vocabulary has emerged. Inspired by the STS school of Sociology, in particular by the writings of John Law and Bruno Latour it seeks to address the multiplicities of social realities and socio-material networks of actors. By acknowledging this the project hopes to explore how social realities can be defined and created democratically, much in congruence with contemporary conversations Participatory Design. The discipline has a history of addressing these matters, and has developed methods tailored for the task. Recognising the impossibility of universal methods Infrastructuring seeks to ground the research in its socio-material context.

The vocabulary defined by this literature review also acknowledges Design Things - and views it as an inclusive approach to moving beyond Infrastructuring. In simplified terms the section above on *Knowledge Creation* addresses the rationale of Why this project proposes to look at inventive methods for citizen engagement. The sections of Creative Practices and Creative Collaboration expands on the rationale behind the How. 'Social theories provide us with a certain way of defining our position as human beings in a social world, which inevitably implies a political and ethical dimension' (Reckwitz, 2002. p.257). By defining its position the project places its political and ethical dimensions under the spotlight for examination, where they might be tested for rigour. This iterative process has been part of the project's aim to allow the research to shape and reshape itself through its matters of concern. The methods underlying the matters of concern have been selected as examples of methods which may speak to the research with inclusivity and multiplicity collaborative methods, inventive methods and creative methods - without seeking authority. Methods flexible and inclusive enough to process undecidables, uncertainties, and multiple realities. In short the text offers a suggested theoretical assemblage - for a methodological assemblage - for a assemblage of methods - for a assemblage of social realities.

Chapter seven: Discussion

7. Discussion

This chapter aims to synthesise the prior 6 chapters of this thesis, and bring them together to afford an analysis on the outputs of the project, and how they have responded to the original aims and objectives of the project. This is to be followed by a reflection on the strengths and limitations of the project following which a proposal for further research is made.

7.1 Thesis summary and reflection on findings

In the first chapter of this thesis the scope was set up to allow the following thesis to unfold. It was important that the reader was made aware of the particulars of this project - its geographical location, its ties to the creative campus cohort, and its interdisciplinary approach - as the nature of the research demanded transparency. The context of the research would inevitably shape its direction and the quality of the final outcome would be reliant on the thesis ability to demonstrate how, when and why.

Further, the introductory chapter outlined the research question and the research design which the project had applied to address it. As the project followed grounded theory methodology and sought a data-led process rather than a hypothesis-testing process it was imperative that the process would be understood to be interlinked with the question.

The contextual review provided the thesis with a dialectical analysis of the *issue of agency* within social design and participatory design, investigating how methods may further agency of both designers and participants. Here a foundation for the arguments for democratic dialogue within research design that would carry on throughout the research was being laid.

In the methods chapter emphasis was placed on highlighting the hybrid nature of the methodology and the bricolage of methods used in the project. The chapter explained how the methodology had been drawn from the school of Science, Technology and Society - in particular the works of John Law - and inventive sociology had been merged with grounded theory praxis to afford further depth to the practice element of the project. This symbiotic relationship between the practice element and the grounded theory techniques was highlighted further in an account of the use of memos and illustrations. Following the inventive methodology it was imperative that the methods used in the research were responsive to the gathered data, and hence the methods were revisited within chapters four, five and six were they were situated within the process.

The primary objective of the open phase - covered in chapter four - was to transport the original research themes from the original proposal into a design brief for the selective phase. To do this the chapter gave an introduction to the phase, wherein the original themes were signposted, and followed this by a chronological account of a selection of research activities that had taken place within the phase. The chapter then moved on to a reflection of the focused coding and the synthesis of the phase. This chronological account was intended to place emphasis on the continuously iterative process of research and show the emergence of the core categories. This was followed by a reflection on the open phase and its outputs, intended to set the scene for the selective phase. The chapter on the selective

phase placed greater emphasis on the case study of the community owned renewable energy projects in Orkney than on the various activities in the peripheries of the research; reflective of the increased selective focus of the data collection. The case study investigated the public network situated behind design initiatives, and the currents of power running through it. It was a hybrid study which both investigated how and how-to by experimenting with a visual method of data gathering.

Chapter six held an account of the theoretical sampling which occurred in parallel to the selective phase. It brought out the theoretical themes arising within the case study to afford the research further depth, a vocabulary with which to engage with the broader academic conversation.

The themes that this project has dealt with have concerned democratic research, and through its iterative and reflexive process of data gathering, sense making and practice the project has aimed to develop a methodological model for practice-led citizen engagement. The project has held that citizen engagement a) must be stemming from a place of relevance to the citizen(s), b) must be conducted through a reciprocal platform c) any innovation must be treated as open-ended *things*. Responding to this criteria of engagement the project investigated the use of inventive methods - illustrations and drawing in particular, but the *inventive* methodology in general - during the COREP case study, and through theoretical coding. The project found that illustrations and drawings have the following affordances a) as a empathic, and inclusive method of data-collection capable of capturing intangible narratives b) a tool for visual dialogue c) as a material participator and 'prototyper'.

The project has through theoretical saturation placed its findings in a theoretical framework which has served as the foundation for the research proposal presented at the end of this chapter. This proposal serves as a final conclusion of the project, adhering to the notion of open-ended exploration.

7.2 Responding to research questions, and aims and objectives

The project has worked through three phases (Open, selective, and theoretical), appropriated from grounded theory praxis, and delivered a working prototype of an inventive, creative praxis. The research process has been responsive to its location in Scotland, and inclusive of the socio-political narratives of the Highlands and Islands - in particular that of the Orkney Islands.

While grounded theory conventionally holds and imperative of generating a theory, it served in this project as a vehicle for transporting the investigation forward as a data-led process rather than testing of an hypothesis - as was congruent with the project's methodology.

The primary research question was approached through three subquestions. The first subquestion read *What are the implications, limitations and benefits of inventive methods in terms overcoming tensions around the agency of citizens in engagement processes?* To answer this immense question in short, this project has found that inventive method's fundamental imperative is its responsiveness. The implications of this within a citizen engagement context is that it alters the instigator's role from one of defining social realities to one who connects the dots. The limitation of this is that there in this distribution still remains a misbalance of power in favour of the instigator. This project suggest that participatory

design measures such as thinging can invite the participants into the sense-making rooms as well as into the data-collection. If we, as this project has done, accept that a reflective and creative practice can tackle messy social realities (Law, 2003), and that a design-led interrogation can aid us in processing uncertainties (Grand and Weidmer, 2010), then thinging can democratise the process.

This lead us to the two last subquestions: *How is the agency of participants affected by the use of inventive methods?* and *Is the agency afforded the researcher through inventive methods reciprocal to the agency of the participant in design research?* Here, the answer amounts to something so unsatisfing as 'it depends'. The agency which the inventive methods can afford the participants is entirely dependent on the relevance of the question which the methods set out to answer has to the participant. While yes, inventive methods can further the voice of the participant, and yes, the ties between the (in this case) researcher are reflexive, it is depended on a mutually relevant research or engagement paradigm.

Addressing, finally, the primary research question *What is the role of inventive methods in developing understanding of agency within citizen engagement interventions in the Highlands and Islands region?* this project has found that to investigate agency without seeking to further it becomes a performative act of ethical responsibility (Tonkinwise, 2004). Inventive methods have, in this project, provided a vehicle for both investigating - for data-collection as well as analysis - and altering both the researcher-participant relationship and altering the participant's locus within their own social reality. The imperative then lies in how this can be channeled into the progressive action (Lury and Wakeford, 2012) which the notion of citizen engagement asks (Escobar, 2012). From the research this project has conducted in the Highlands and Islands the obstacle towards this was overcoming social barriers and establishing a relationship with participants which could prove mutually beneficial. The COREP case study showed that the previous engagements initiated in the region were founded on a relevance constructed *elsewhere.* Here inventive methods held the capacity to form an understanding of what *local* relevance might entail.

7.3 Strengths and limitations

There are lessons in life that you can only learn through trial and error, and the upmost strength of this project has been the opportunity it has afforded an unseasoned researcher to construct, conduct, and deliver a research project of her own making. Here, the mistakes made along the way have taught the author of this thesis about their consequences in ways no textbook ever could. Richard Sennett, in his book *Together* (2012) speaks of the professional practitioner as equipped with a quiver of knowledge, experience, and practical skills. This research project has placed invaluable communication skills, theoretical knowledge, analytical skills, organisational skills, and research and academic experience in the quiver of this thesis's author, to borrow Sennett's analogy. However, as no practitioner or practice is ever perfected it is important to highlight some of the limitations of this research project, and below follows some of the more difficult lessons learned - some practical and some methodological.

While grounded theory praxis comes with strategies and guidelines to ensure objectivity, it is often criticised for being heavily reliant on the researcher's bias. Indeed, the entire set-up of this project has strived for a transparency of the researcher's position within the research, and has held that this is a question of recognising the body that was already there; There is always a researcher within the research. However, the same argument which this project has applied to the agency balance between re-

searcher and participants could also be applied to the balance of agency between the researcher and the research data - especially as we consider a material participation of the data. Grounded theory does lend itself to many crossroads, where a decision of direction has had to be made. At these crossroads the data has been consulted, but the researcher has been the one to start walking. A more experienced researcher might have ensured that a criterium for making these decisions had been in place from the start, but in this project the directional decisions have been empirically grounded, data-consulted, biased decisions. The strength of the design of this research is that the continuous use of memos means that every decision can be traced, and there lies a transparency and accountability in that. At times this is a transparency of the accounts has meant being able to trace misguided decisions. For example, grounded theory practice holds that theory should not be leading the research in the early stages, to prevent it from force the direction (Glaser, 1992), and that during the open phase the researcher should dedicate herself to the empirical evidence of the data (Hartman, 2001). This project was forced - by the researcher's inexperience - to allow literature to assist the process. This was apparent in the choice to include case studies during the open phase (See chapter four), as it enabled the researcher to borrow experience from established researchers, designers, and social innovators, to drive the project forward.

Equally the context of this project has influenced decisions made. As the nature of the Masters of Research programme has meant that the length of the study was not determined until late September, the project has been wavering between a one-year investigation and a three-year study. The evidence of this can be seen in the aims and objectives of the project, and to some extent in the choice of methods. If the project had been designed to be a one-year independent study then a case study might have been deemed to passive to provide the core set of data. However, a case study was chosen as an infrastructuring exercise, to lay the foundation for further research in the region, for example through *participatory action research* (Whyte, 1991).

Another tension which has travelled through the project has been the one posed by the lack of research question. This stemmed from an orthodox reading of grounded theory practice in the first few months of the project, and responded to the methodological approach. Again, the project wished to avoid the testing of an hypothesis to afford a more inductive research process. At the last trembling hours of this project, when this section is being written, the methodology behind this decision still remains valid to the author, but she suggest that for future projects a sense of nuance could be afforded the question. In the suggestion for future research which follows below more care has been placed in constructing an inclusive research question - from which the research proposal has been built - rather than operating around the idealistic exclusion of it.

7.4 Further research

A research proposal following this project would concerns itself with the affordances of agency through illustrations as inventive methods within citizen engagement. It would build upon the present paradigm of a practice-led inventive sociology study, seeking to mobilise the use of visual documentation, visual communication and material participation within publics. However, if the project of this thesis can be said to have sought to define the role of illustrations as inventive methods, any

further research would now primarily concerned with how they may be mobilised. The author of this thesis would be interested in exploring further, if given the opportunity, the capacities of illustrations to capture narratives of multiple social realities - as individual pieces, or placed together into more conventionally coherent storylines - and to explore the potentiality of the illustrations in creating a dialogue with participants. The hypothesis would then be that this dialogue in turn could mobilise the social realities captured by the illustration - thus pursing citizen engagement through material participation (Marres, 2015). The imperative of social change is as central to inventive sociology as it is to social design, and in this study the aim would to bring them together. This calls for a more actively participatory method of investigation, and as such the project intends to structure its methodology on participatory action research (Whyte, 1991) praxis, while maintaining influences from the Freirian pedagogy (Freire, 1970).

Responding to this the project would aim explore how illustrations and drawing may capturing socio-material narratives, as well as how they might perform them. The project would tackle some of the questions that the project of this thesis has been unable to answer fully, such as How do creative practitioners do research, and what are the limits and affordances of practice-led interrogation in relation to the academic dialogue? (See methods chapter) These questions, to be given justice, require further practice-led investigations but could, if given the opportunity, lay the foundations for a socially conscious creative practice.

The project would aim to deliver a methods/methodology package, alongside a body of work - illustrated and captured narratives.

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