RENOVATING WITH MEDIA

An interdisciplinary exploration of renovation practice towards lower carbon homes in Australia

Aggeliki Aggeli

BA(Hons) Arch, GradDip Arch, MA Arch, FHEA (UK)

A thesis submitted in fulfilment of the requirements for the Degree of

DOCTOR OF PHILOSOPHY

Centre for Urban Transitions and School of Design

Faculty of Health, Arts and Design

Swinburne University

2021

Abstract

Home renovation is an opportunity for decarbonising existing homes, particularly in high home ownership societies such as Australia where renovation is commonplace. Renovation is a socio-technical and emotional people-focused practice, which can take place as a one-off project and as an ongoing activity. Despite growing interest in investigating renovation in line with other everyday practices, recent literature on renovation emphasises defined periods when homes are materially re-constructed. There is limited understanding and documentation of the process before and after this window, specifically the contribution of intermediation and the significance of media in the everyday life at home. The thesis addresses this gap, by investigating the full scope of renovation practice, paying attention to the periods before and after the materially-engaged stages, to explore the significance of household media practices and intermediation in the adoption of low carbon practices.

Adopting a practice-theoretical perspective and the mediatisation approach, I carry out an interdisciplinary examination of renovation, joining social research with media and cultural studies and design. I explore renovation practice and its association with homemaking, in a mediatised home environment. I map the complexity of the practice, including the non-materially engaged periods, focusing on the contribution of two different kinds of intermediation: the formal, typically short-term interactions with professionals and the informal, ongoing entanglement of people with media as texts, objects and contexts. Using a focused-ethnography and participatory methodology, I use home-tours and a workshop to bring together the actors that shape the practice.

My thesis makes three contributions to renovation scholarship. The first relates to the interdisciplinary understanding of renovation as a practice that extends the materially-engaged periods, spread in five stages (Dreaming/Thinking/Planning/Performing/ Finalising or Sharing). I argue that renovation co-evolves with homemaking, in the mediatised household, and that these two practices get reproduced through common meanings of home, media technologies, emotion, and the tacit, culturally-distinct know-how of householders. This is exemplified through the ongoing Dreaming stage, which

connects the materially-engaged stages with the long-term period of imagining and meaning-making of ideal home in the mediatised home. The second contribution is the identification of media (as texts, objects, and contexts) as everyday informal intermediaries, who shape, incubate and accelerate the elements of renovation and homemaking, as meaning-making agents, materials and competences. I argue that the symbolic space of renovation is now global rather than local. The third contribution is the linking of formal and informal intermediation, with different household typologies and the identified renovation stages, examining how these shape low carbon practices. The complexity of the associated practices and the variation of household typologies explain why adoption of low carbon renovation is challenging. Using my stages model, I identify four formal and informal intermediation practices that can assist in the successful embedment of low carbon practices.

Acknowledgements

This thesis has been a journey and an unfolding story, involving no less than the birth of a new life, an international move, a pandemic and a continuous challenge to keep going. In this process, I am grateful to have met, worked with, and enjoyed the company of many people that have contributed in many different ways to my work, emotional support and personal development. I have also experienced first-hand, the transforming power of media, which enabled me to be together with others alone.

First, I would like to thank my participants, who invited me in their homes and workplaces and allowed me to tell their stories of everyday life. I have been honoured to have met you all, as a person and as a researcher, and experience a part of your lives. I hope I have represented you fairly.

My sincere gratitude to Prof. Kirsten Gram-Hanssen, who 'adopted' me in the Sustainable Cities and Everyday Practice Research group, at SBI in Aalborg University Copenhagen, and allowed me to become part of a vibrant team of researchers in the late stages of my thesis. Thank you for your advice, generosity and opportunity to get integrated in a new (research) culture, as well as the opportunity to work with Dr Mette Mechlenborg as my supervisor. I have enjoyed every moment.

Finally, I am extremely lucky to have so many wonderful people in my personal network, who despite our-sometimes-geographic separation, and through media superpowers, are always close to offer unconditional love and support. I love you and thank you for believing in me. This will be the first female doctorate in my family; which wouldn't be the same without the endless contribution from my mum. This one is for you, I love you.

I don't even know how to express my feelings about my children, Kosta and Rosa and my life partner Tim. They are my extended body parts; we are eternally connected and therefore this thesis is also part of you. Keep challenging me and yourselves.

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma.

To the best of my knowledge, it contains no material previously published or written by another person except where due reference is made in the text of the examinable outcome.

Where the work is based on joint research or publications I have disclosed the relative contributions of the respective workers or authors.

I declare that the work presented in this thesis has been approved by the Swinburne University's Human Research Ethics Committee, and that all the ethical principles and procedures have been followed.

Aggeliki Aggeli

Date: 5.02.2021

Table of Contents

List of tables

List of Figures

Bottom: Example of a more clear-cut stages diagram, which represents a one-off renovation project

Fig.7.2 Renovation stages outline diagram

Fig.7.3 Identification of the dreaming stage (highlighted by author) as drawn by householders

Fig.7.4 Example of Wish list and Thinking stage practices from participant's StorybookFig. 7.5 Participant's perception of time spent for the different activities of renovation

Fig.7.6 Participant's diagram of the stages showing Planning stage in relation to the whole process

Fig.7.7 Examples of priorities for change as conceptualised during Planning stage

Fig.7.8 Example of participant's skills list during Planning stage. These include project management, budgeting, scheduling as well as designing and 'people' skills. Other popular skills identified were negotiation and listening to others, DIY building skills and digital literacy

Fig.7.9 Sharon's ideas and products folder, which she kept informed throughout the process

Fig.7.10 Henry's sketchbook with measurement notes and diagrams. He suggests that he engaged in anthropometrics, measuring the space required to perform certain practices in specific spaces in his house and in other renovated homes, in order to come to the most efficient planning.

Fig.7.11 Participants' descriptions of their renovation intermediaries. There is an equal distribution of formal and informal intermediaries including a high involvement of media.

Fig.7.12 Serena's and Jody's photobook of the renovation process. They kept a detailed record of photographs and drawings from the moment they signed the contract to the end of the project. Serena suggests that neighbours and passers-by commented positively on the final result of their renovation: 'Everybody, people parking here and they just come one-off and look at it and say Oh I like the colour[..] it's nice to get the confirmation'

Fig.8.1 Original ceiling detail that is considered worth preserving and on the right fireplace which is not considered for preservation as its front is probably not original

Fig.8.2 Paul and Tracey's living room view. Tracey suggests that this location makes the house and their connection with it very special and it's difficult to give up.

Fig.8.3 Zoning diagram showing Melissa's house 'wings'

Fig.8.4 Rox and Ben's renovation performance and their back yard which as they explain plays a big part in the making by enabling them to store and experiment with materials and found objects

Fig.8.5 Sophie showing the upstairs 'sanctuary', which includes a home office and their bedroom, which is described as a quiet space away from the kids

Fig. 8.6 Cheryl and Aaron's zoning of their open-plan space

Fig.8.7 Anna explains her idea of making a feature wall using recycled materials, inspired by a Canadian TV renovation show (Masters of Flip). She also mentions Amazon inspiration and other online media searches. Even though the wall will be reusing materials and therefore will be less carbon intensive to make, the emphasis here is on its stylistic and aesthetic value, which is validated (and initiated) by lifestyle media programmes.

Fig.8.8 Mark (to the left), showing me his new tool shed and Rox (to the right) explaining the use of their yard for experimenting with materials

Fig.8.9 Mark showing me his collection of hi-fi systems

Fig.8.10 Dominant stage of households with no children

Fig.8.11 Dominant stage of households with children

Fig.8.12 Dominant stages of empty-nester households

Fig.8.13 Dominant stages of intergenerational households

Chapter 1: Introduction: The renovation challenge

1.0 Chapter overview

This thesis is an examination of the Australian home renovation practice. It is an interdisciplinary study, bringing together perspectives of social research, design and cultural and media studies. Through a qualitative, ethnography-inspired and participatory methodology, the thesis aims to understand and map the complexity of renovation from the perspective of householders in order to contribute to current interdisciplinary understandings of how to successfully decarbonise homes in cities of high home-ownership societies. The study uses empirical data from 13 households and 8 building professionals in South Australia in order to identify, map and interpret the renovation practice. It answers questions about how renovation practices emerge and reproduce within households and how the different kinds of intermediaries, such as people (amateurs and professionals), media, technologies and things, engaged in the process shape it. The emphasis is on understanding renovation as a social practice embedded in the socio-cultural context of the everyday routines of mediatised households.

Chapter 1 sets the background of the study, introducing the context and highlighting critical concepts and challenges of current discourses on home renovation. It explains my points of departure for the study, its scope and the outline of the thesis.

1.1 Context of the study

1.1.1 Housing sustainability in cities

Understanding and improving long-term housing and household sustainability in cities is currently a challenge particularly in westernised owner-societies (Kelly 2009; Horne 2018; Organo, Head & Waitt 2013; Eames et al. 2013). Australia is one of the most carbon-intensive economies in the world (Economics 2014; Yu et al. 2017). Its building construction industry is responsible for approximately 20% of the greenhouse gas emissions (ClimateWorks Australia 2013; Yu et al. 2017), while households' direct

energy consumption contributes approximately 12% to the country's greenhouse gas emissions (Department of Industry, Science 2020; Hulse et al. 2015). Australia is also an urbanised nation with 85% of the population currently living in urban areas and approximately 70% living in the capital cities (Australia Population 2018). Furthermore, approximately 73% of dwellings are currently detached private houses, which in their majority are larger, with more bedrooms than other dwellings (Australian Bureau of Statistics 2018). While size is not the sole indicator of a large carbon impact, detached houses, especially older ones, have been linked with a higher energy demand and consumption (Clune, Morrissey & Moore 2012; Judson 2013a; Horne, Maller & Dalton 2014). Furthermore, detached houses have been found to present the highest potential for- low carbon- renovation as they were in their majority built at a time, such as the 1960s and 1970s, when less strict building regulations existed relevant to energy requirements (Gram-Hanssen 2014a).

Following a century of extensive construction of new houses, partly as a result of the suburbanisation of cities in the twentieth century (Horne 2018), the maintenance and upgrade of existing ones are imperative to the challenging transition to a less carbon intensive society (Konstantinou & Knaack 2011; Kersten et al. 2014). The extension of the lifespan of houses through renovation, combined with appropriate low carbon changes, is less damaging to the environment than the demolition and construction of new built homes (Thomsen & Van der Flier 2009; Konstantinou & Knaack 2011; Weiss, Dunkelberg & Vogelpohl 2012; Janda & Killip 2013; Owen, Mitchell & Gouldson 2014; Sunikka-blank & Galvin 2016). Furthermore, the phenomenon of low dense cities and suburbs, with large plots of detached houses, enables renovations and extensions to happen which cannot as easily be performed in other-space restricted-parts of the world (Burke & Ralston 2015). Accordingly, renovation of existing residential stock in Australia is extensive and continuously expanding (Judson, Iyer-Raniga & Horne 2014). And yet, low carbon initiatives and policy- around the world- primarily target new built houses, with an ambition to produce carbon neutral housing in the near future. However, existing houses are the ones that present the challenge, particularly privately owned ones (Kelly, 2009). Consequently, the low carbon renovation of existing homes in cities, presents an opportunity to make a significant impact on the reduction of carbon emissions particularly on the energy consumption of households (Konstantinou & Knaack 2011; Gram-Hanssen 2014b). While renovating this housing stock is

important, focus should be placed not only on improving energy efficiency of the housing stock but on the 'reproduction, retrofit and the tricky territory of residents' everyday practices' (Horne 2018, p. 11). Additionally, household practices and the industry that provides renovation services have not been adequately examined and apprehended (Horne 2018). My thesis contributes to the combined understandings of renovation as a household practice taking place alongside the everyday homemaking, along with intermediation – of the networks of people, media, technologies and objects- that are involved in the process.

1.1.2 The complexity of renovation: an interdisciplinary challenge

Residential renovations have become commonplace in homeowner societies (Johanson 2011; Horne & Dalton 2014; Maller & Horne 2011); contemporary Australia in particular has been characterised as a renovation nation (Allon 2008). Through the progressive change of status from a nation of tenants, during the beginning of the 20th century, to that of homeowners and landlords, in the last twenty years, property investment and maintenance has become an obsession (ibid). Renovations occur more frequently and in many cases not just for the repair or maintenance of a house (Maller and Horne, 2011). Renovations have been promoted and amplified by media since the 1990s as part of a desirable lifestyle and have been turned into a perpetual activity rather than a once occurring event (Goodsell, 2008).

Engagement with renovation has increased in Australia, with data revealing that in 2016, 8,39 million Australians undertook some kind of renovation work in their homes, compared to 7,5 million in 2013 (Morgan 2017). 'Australia's home renovations sector enjoyed its busiest quarter in 14 years during the three months to September 2018' said Master Builders Australia's Chief Economist Shane Garrett (Masterbuilders 2018). Additionally, the majority of homes in cities (99%) are already built (Horne 2018). Therefore, householders' maintenance and renovation practices become important as they directly affect homes' environmental performance in cities (Munro and Leather, 2000). So, by targeting the renovation practices of households, encouraging low carbon options, and multiplying the effect across millions of dwellings in urban centres, there is an opportunity for a significant reduction on carbon emissions on a regional and national scale (Maller & Horne 2011).

However, renovation is a complex process and more than a technical challenge for households, cities and societies. A thorough review of literature -including that of low carbon focus- displays a diverse picture of interdisciplinary nature (Podkalicka 2018; Hulse et al. 2015; Podkalicka et al. 2016; Melles et al. 2017; Galiotto, Heiselberg & Knudstrup 2015). For example, renovation is frequently presented as: technical challenge, usually involving efficiency improvements (Ma et al. 2012; Trachte & Deherde 2010; Killip, Fawcet & Janda 2014; Konstantinou & Knaack 2011; Heuts & Versele 2016; Thuvander et al. 2012), which requires intermediation from the building industry (Killip et al. 2018; Owen, Mitchell & Gouldson 2014; Janda & Killip 2013; De Wilde & Spaargaren 2019). In line with the challenges of renovation as technical issue, policy perspectives are implicated in order to assess appropriate ways of upgrading the housing stock (Wilson, Crane & Chryssochoidis 2015; Jones, Patterson & Lannon 2013; Weiss, Dunkelberg & Vogelpohl 2012), and understand the decision making process of renovators (Haines et al. 2014; Mjörnell et al. 2014; Abreu, Oliveira & Lopes 2017; Wilson, Chryssochoidis & Pettifor 2013; Thomsen & Flier 2008; Thuvander et al. 2012; Willand & Horne 2013).

Some of these papers adopt the perspective of individual householders' behaviour (Sunikka-Blank & Galvin 2012; Munro & Leather 2000; Hamilton 2012; Haines et al. 2014), while others' discuss renovation as social practice (Maller and Horne, 2011; Maller, Horne and Dalton, 2012; Bartiaux *et al.*, 2014; Gram-Hanssen, 2014a, 2014b; Judson and Maller, 2014; Judson, Iyer-Raniga and Horne, 2014; Abreu, Oliveira and Lopes, 2017; Hulse and Milne, 2019) embedded in the everyday routines of households, an approach to which my thesis also contributes.

Renovation is also considered in terms of housing tenure (Ástmarsson, Jensen & Maslesa 2013) which can be challenging between landlords and tenants particularly regarding efficiency upgrades, where the landlord may bear the costs of upgrades and the tenants some of the benefits, such as lower energy bills. Low carbon or efficiency renovations can also be found in literature as niche examples of socio-technical transitions (Horne & Dalton 2014; Willand, Maller & Ridley 2019; Killip, Fawcet & Janda 2014; Kerr 2018), placing renovation projects within the multilevel perspective (niche-regime-landscape) (Geels 2010, 2012) of sustainability transitions.

Additionally, renovation is investigated as cultural expression (Rosenberg 2011a; Head et al. 2016), such as a Do It Yourself (DIY) project (T.-C. Peng 2013; Mackay & Harvey C Perkins 2017a; Brayham 2015; Rosenberg 2011b; Grubbauer 2015; Mackay & Harvey C Perkins 2017b; Morrison 2012), lifestyle media spectacle (Aggeli & Melles 2015; Zimmerman 2015; Rosenberg 2008; Shufeldt & Gale 2007; Lewis 2008a; Smith 2010; Allon 2008), and a consumption related matter (Allon 2013; Jeffery 2016; Watson & Shove 2008; Podkalicka 2018). Finally, a small number of studies, immersing out of Australia's Cooperative Research centre (CRC) for Low Carbon Living which my thesis originated from, present renovation practice in relation to the media consumption of households (Hulse et al. 2015; Podkalicka et al. 2016; Melles et al. 2017; Podkalicka & Anderson 2020; Podkalicka 2018; Hulse & Milne 2019; Hunter 2019). My research adds particularly to this last emerging body of literature.

Therefore, it is evident that renovation cannot be studied or practised as a technical process addressing amendments to the materiality of houses alone. The transition to lower carbon homes in cities will not be achieved unless the socio-cultural, political and techno-economic challenges are considered simultaneously. Above all, the review of literature highlights the importance of addressing the involvement of householders and their everyday practices by considering the past and present experiences, which shape their decisions and renovation practices. My thesis adopts a theoretical perspective based on the combination of theories of practice and mediatisation, which help guide my exploration of the renovation practice along with the symbiosis of householders with media, which I refer to as mediatised home.

1.1.3 Thesis points of departure

There are two points of departure for my interdisciplinary research: media's role in the everyday life of households (and its implication in renovation) and the two-fold understanding of renovation as a one-off project or an ongoing process over time.

First, media and communication technologies are fully embedded in our everyday lives (Chambers 2016). My extended review of literature on homemaking and renovation reveals that media, through their various representations as texts, objects, contexts and practices are important contributors to both practices. The pervasiveness of media

into social life has been observed and debated since the late 1970s. Robert Snow and David Altheide argued then that media could be considered as a shared awareness (Snow, 1983).

When discussing media in the thesis, my interest is in understanding what people do with or in relation to media (Couldry 2010, p. 41) in their everyday life at home, and how this is interwoven with their renovation practice. Householders, for example, engage with various media devices over the whole process of renovation to research information, plan or get inspiration, while online media texts and platforms, such as YouTube, assist in the advancement of skills or in the connection with other communities of renovators (Podkalicka et al. 2016). In the process of investigating media as practice (Couldry 2010, 2012), I unpack media in their triple articulation, as texts, objects and contexts, and therefore add to existing literature by investigating them as intermediaries in the process of renovation in the context of everyday homemaking.

My second departure point is the range in which renovation is undertaken; as a one-off project or as a series of tasks over time (Hulse et al. 2015; Fawcett 2013). Gram-Hanssen (2014a, p. 137) suggests that the longer people have lived in their homes, the more likely are to undertake a renovation, while they also seem to be doing it as a 'continuous activity, completed during all of the years that people live in their house'. Gram-Hanssen also points to the performance of renovation as a project, explained as an enjoyable process that households undertake, or as a resulting product (result), which usually involves necessary repairs and maintenance (Fig.1.1).

My study adds to existing studies of renovation that usually represent only a part of the story that comprises renovation, usually revolving around the time its building performance, by considering it alongside everyday household practices. My intention is to explore the practice beyond its externalised, or 'visible' part by making the argument that there are further 'hidden' parts that need revealing.

```
                        Lifestyle
                           ▲
                           │
                           │
       Product  ◄──────────┼──────────►  Project
                           │
                           │
                           ▼
                     Wear and tear
```
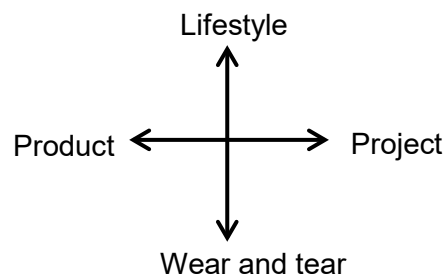
Fig.1.1 Motivations for renovation performance, redrawn by author from Gram-Hanssen 2014

Next, I outline the overall aim of the thesis and the research question that have led the investigation.

1.2 Definitions

Household:

Household in this thesis is defined as 'a societal unit in the meso level of society' (Reid, Sutton & Hunter 2010, p. 309). The household enables its inhabitants, the householders to have powerful control over both their individual micro actions, as well as to connect to larger (Gram-Hanssen 2010b), macro societal processes (Lane & Gorman-Murray 2010). Despite the gradual removal and centralisation of production processes, such as energy, food and maintenance of house that has happened in the recent past (Hagbert & Bradley 2017), the thesis investigates the household as site of both production and consumption. An example of this includes the engagement of householders with home renovation practices such as the installation of r photovoltaic (PV) panels with battery storage systems and rainwater systems (Maller, Horne & Dalton 2012). The majority of the participating households are South Australian owner-occupied homes.

Renovation:

There are several terms used to describe building alteration, which is not universally set (Fawcett 2013), such as: renovation, retrofit, modernisation, refurbishment, reconstruction. The use of each term depends on a variety of issues such as the scale

of works undertaken, the size of building and the motivation behind each operation (Thuvander et al. 2012). The term *Home Renovation* in literature is often used to describe substantial structural alterations to dwellings (Wilson, Crane & Chryssochoidis 2015), such as upgrades to elements such as windows, doors, structural frames and walls (Dietz et al. 2009). On the other side of renovation, sits home improvement or utilities improvement, which involves smaller, modest changes (see diagram in (Maller & Horne 2011)

Retrofitting   **RENOVATION**
....

Do-it-yourself   *Professional*
Low skills, Knowledge, $,   *High skills, Knowledge, $$$,*
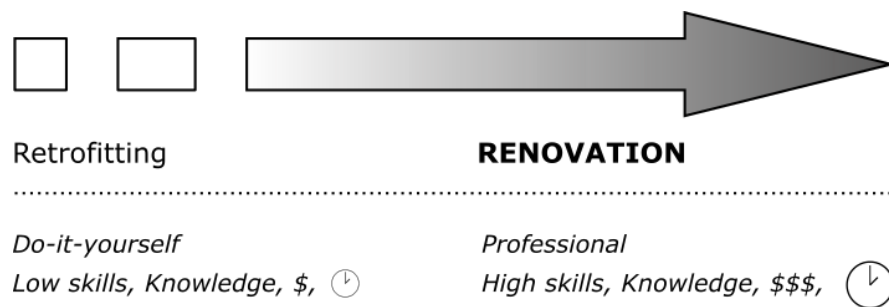
Figure 1.2 The scope of home improvement, redrawn by author from Maller and Horne 2011

Renovation can occur as an one-off event or, in the case of low carbon renovations in particular, as an activity over a period of time, in some cases over several years (Fawcett, 2013). Renovations over time, can provide an attractive motivation for householders, particularly owners of properties, as the cost and disruption caused is spread over a period of time. Also, on the perspective of building professionals, this model of renovation presents an opportunity for the development of a considerate and careful strategy for upgrading a property over time (Fawcett 2013).

The thesis defines renovation as a term that embraces mid to large scale home alterations, regardless of their focus (ie if they are intended to be low carbon). Furthermore, in the participating households presented, renovation ranges between various scales and models, with both one-off and over-time renovations performed.

Intermediaries:

Renovation decisions and practices are taking place not just within the household, but in the wider social context in which they exist. There are several actors that are

involved in a renovation, most of which are interweaved in the household's social network and they are crucial factors that influence the renovation process (Abreu, Oliveira & Lopes 2017). The concept of intermediation is explored here as a way to understand the mediating actors of home renovation, established and emerging, and define the different roles that these might play in the process.

The term 'intermediaries' is ambiguous as it is adopted to describe individuals or organisations which act as in-between stakeholders; however there are various interpretations of the meaning depending on the disciplines involved (Moss et al. 2009). I share Moss et al's explanation that intermediaries do not merely exist as neutral agents but rather have an intented focus or agenda when dealing with others (ibid). Some examples of the term used across disciplines are social intermediaries, innovation intermediaries, transition intermediaries – which have been particularly explored within the sustainability transitions literature recently.

Within literature on home renovation and energy upgrades, intermediaries are defined as technical experts. However, other non-technical intermediaries, which are present in households' everyday life are equally important to the study of renovation as an ongoing homemaking practice. I therefore conceptualise the role and function of intermediaries (including media) as mediators between practices, therefore acknowledging them as links between the elements of a practice (meanings, competences and materials).

1.3 Aim and research questions

The aim of the research is:

> To explore and map the complexity of renovation, as a practice
> embedded in the everyday homemaking of mediatised Australian
> households.

My thesis is situated in recent socio-cultural studies which adopt a focus on the practice of renovation rather than on individual actions and behaviours and it responds to the need for more empirical studies of the process, as part of everyday life. It

contributes to the understanding of the renovation practice as an extended process embedded in the households' everyday mediatised homemaking practices. My aim is to contribute to targeted interventions for low carbon renovation practices, which extend further than the technical resolution of the challenge.

The thesis began as part of a project funded by the Cooperative Research Centre (CRC) for Low Carbon Living in Australia, titled 'Media and Communication Strategies to Achieve Carbon Reduction through Renovation of Australia's Existing Housing' (Hulse et al. 2015; Podkalicka et al. 2016; Melles et al. 2017). The project was part of one of the three strands of research (Engaged Communities), established to conduct transdisciplinary research on 'pathways for carbon reduction in the built environment' (LCL 2019).

My research was guided by three research questions:

1. How do different disciplinary perspectives frame the complexity of the home renovation process?

2. How do home renovation practices emerge, reproduce and sustain themselves in Australian households?

3. How do media and intermediaries configure the renovation practice and process?

My thesis explores the different dimensions that renovation as a homemaking practice takes during its long journey through the life of households. Therefore I set some sub-questions to help guide the conceptual mapping of the renovation practice, which is not necessarily chronological or linear but indicates a window of activity which can have similar characteristics:

2a. What are the stages of a home renovation as perceived by householders and what do they involve?

3a. How do media and intermediaries of home renovation facilitate less carbon intensive renovation practices?

The research questions aim to uncover the ways in which emotional, technical and spatial associations of households inform the renovation process and attempt to enrich this analysis with visual data.

1.4 Scope and location of study

This thesis is an interdisciplinary study that includes perspectives from design, social research and media and cultural studies in order to investigate renovation as a socio-cultural practice embedded in the households' everyday life. The focus and scope of this research is to map and interpret the Australian home renovation process, within households' everyday routines and to understand how they are entangled with their renovation practices within the mediatised environment of home. Everyday household practices are conceptualised as media practices, and media are investigated as integral elements of everyday life, as objects, texts and contexts. The interactions and contributions of media and intermediaries are identified and associated with everyday homemaking. The study contributes to current global discourses on the transition to low carbon housing in cities (Horne 2017; Dalton 2018; Horne 2018; Podkalicka & Milne 2017). It advances emerging literature that targets collective rather than individual renovation practices of households, recognising the symbolic and material implications of householders' media use (e.g (Hunter 2019; Podkalicka 2018; Hulse & Milne 2019; Podkalicka & Milne 2017). Furthermore, by adopting a practice theoretical perspective, it contributes to empirical understandings of the practice of renovation, as an integrative practice, which contains several dispersed practices and closely associated with homemaking. Intermediation is finally conceptualised as a dispersed practice of renovation, which, similar to other dispersed practices, contains media as a meaning, competence and material.

The research does not address the technical aspects or details of energy efficiency upgrades per se or deliberately target households that perform low carbon renovations, although these might exist within the participating households. Furthermore, it is not a study about media or intermediaries as independent actors but considers them as

elements of the practices that they are associated with. The thesis is engaged and concerned with the socio-cultural context in which households carry out their renovations and the networks involved and investigates how these are placed within the process of renovation.

Finally, my participants sample is located in Adelaide, South Australia and involves owner-occupied households that have engaged in home renovation recently (in the past 3 years), are currently doing so, or about to set off on a renovation project. It also involves design and building professionals and representatives of local authorities. More details of the location and other contextual issues are outlined in section 2.2.4.

1.5 Thesis outline

The study is presented in 9 chapters and arranged in two parts, which represent the theoretical and empirical elements of the thesis.

Following the introductory Chapter 1, **Chapter 2** provides the research paradigm of the thesis, presenting its theoretical and methodological basis. It discusses the overall interdisciplinary design of the research, followed by the relevance of the theories of practice and mediatisation that underpin the analysis of the thesis.

PART 1 presents a review of recent literature and composes the Australian home renovation landscape, as presented in recent interdisciplinary discourses. It investigates some of the principle challenges surrounding renovation practice and responds to my first research question. Because of the interdisciplinary character of the study, there are three distinct chapters that represent the three domains of this landscape, relating to the strands of literature identified as critical for this thesis: household, renovation and media. Each chapter examines the theoretical issues relevant to each theme, alongside recent empirical literature that contributes to the framing of the challenges identified. More specifically:

Chapter 3 focuses on the household, as the central unit of investigation in the meso level of society and its transition to a lower carbon future is presented as a critical factor for this adaptation. Intermediation is discussed as part of the sustainability

transitions literature. The chapter also discusses the interactive relationship of home ownership and homemaking and their implications in the renovation practice, within the wider household consumption, which is presented as both an antipode and a sidekick to the transitions towards lower carbon homes.

Chapter 4 presents an overview of the home renovation practice and process, through a review of architecture and design literature and discusses the concept of (technical) expertise and intermediation in current home renovation practices. The chapter introduces the complexity of renovation, as an ongoing social and cultural process and as a one-off project and identifies the issues that challenge its transition to a low carbon practice. It identifies the need for a more comprehensive understanding of the process, including the limited focus on its documentation and the limited mapping of the actors that shape the practice, further from the technical performance of building.

Chapter 5 examines the mediatised household, as the context of renovation, discussing the relevance and indispensability of media in the everyday life of households and relate their relevance to the practice of renovation. It highlights the diverse nature and roles of media in households and presents the multiple ways through which renovators engage with media as texts, objects and contexts, to perform their renovations.

Part 2: Empirical findings and analysis, includes Chapters 6, 7 and 8. Each chapter presents findings alongside an analysis and a discussion as follows:

Chapter 6 presents the empirical findings from households and begins the analysis of the close association of renovation and homemaking. It addresses, in part, my second research question by presenting the ways in which renovation emerges and gets reproduced in households. It discusses the common elements (meanings, materials and competences) of the associated practices and their significance in the transition of households towards low carbon.

Chapter 7 presents a novel, empirically grounded model of renovation, comprised of five interconnected stages, contributing to my third research question. It also analyses

the role and impact of intermediaries across these stages, by classifying them into formal and informal, and discusses their impact on the renovation practice.

Chapter 8 continues to contribute to my second and third research questions, by presenting an analysis of the ways in which low carbon renovation practices emerge in four distinct, empirically identified household typologies. By discussing the characteristic ways in which these households engage with renovation, media and other intermediaries, it analyses the implications that they have in the process and identifies four targeted opportunities for the transition to low carbon.

Finally, my Conclusion is presented in **Chapter 9**, which summarises and reflects on the theoretical and empirical findings of the research. By revisiting the three research questions, the chapter comes back to address the aim of the thesis and presents the contributions to knowledge. It also points to future research and practice paths that could be pursued and state the limitations of the study.

Chapter 2: Research paradigm: theoretical and methodological considerations

2.0 Overview

In the current contemporary world of global ambiguity, socio-political unrest and climate change, the production of knowledge responding to these challenges benefits from being co-produced with society (Van Breda, Musango & Brent 2016; Patterson et al. 2013). In addition, wicked problems such as housing sustainability can be more effectively examined by multiple rather than single discipline perspectives (Van Breda, Musango & Brent 2016), and by the involvement of non-academic stakeholders in the research process (Carew & Wickson 2010). Interdisciplinary research provides a platform upon which theoretical innovation can be tested and generated, whilst allowing for a reflection within each discipline (Mackley & Pink 2013). Furthermore, as a response to the techno-economic oriented focus that dominates current literature in energy and sustainability studies, interdisciplinary research enables the merging of the voices of (social sciences) researchers and the provision of different perspectives in the problem-solving exercise (Judson 2013b; Mackley & Pink 2013).

This thesis is an explorative, qualitative and interdisciplinary research study and contributes to both empirical and theoretical knowledge relating to the home renovation practice and process in Australia. The empirical knowledge adds to existing expertise targeting change of household renovation practices, within the wider transition to a lower carbon built environment. It provides a framework for change, combining a sociological analysis with a future-oriented design methodology that can bring about quicker practical action towards it (Pink, Leder Mackey, *et al.*, 2017 p.19). My research design comprises a synergy of disciplinary perspectives, to frame and explore the complexity of the home renovation process in Australia. I locate this applied qualitative study, between the disciplines of design, social research and cultural and media studies as shown in Fig.2.1. The theoretical and methodological contributions to knowledge primarily lie in the crossing of previously unaccustomed disciplinary perspectives, using theories of practice as a connecting link between design (methodologically) and cultural and media studies. By taking practice as the basic unit of analysis, design can inform-through design thinking processes- sociological

transitions of change within the mediatised environment of home, while practice theory perspectives can also inform design practice (in the context of housing design).
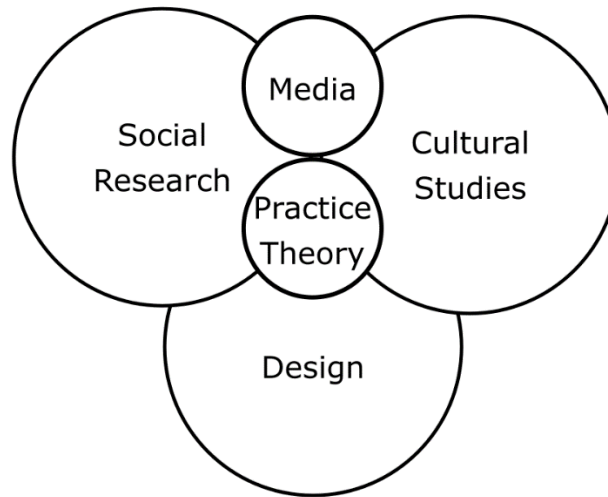
Fig.2.1 The intersection of disciplines that comprise the thesis paradigm

2.1 Ontological, epistemological and theoretical considerations

This section discusses the ontology of the research, or the principles of what constitutes reality, as well as its epistemology, or how knowledge is created. By presenting the ontology and epistemology of the research, along with the methodology and methods used, I compose the research paradigm of the thesis (Scotland 2012). Furthermore, I introduce theories of practice, and their relationship with mediatisation, as the primary theoretical frameworks used to examine and analyse my research.

The thesis is broadly based on a social constructionism epistemology, which supports the concept that knowing is active rather than passive; people construct and make knowledge rather than discover or find it (Schwandt 2000). Crotty's definition sums up the core principles by suggesting that:

'All knowledge, and […] meaningful reality […], is contingent upon
human practices, […] and developed […] within an essentially social
context' (Crotty 1998, p. 42).

These constructions don't happen in isolation but are embedded in the socio-cultural
and political context in which they take place (Schwandt 2000). Moreover, our social
actions are shaped by our culture, which 'gives us a quite definite view of the world'
(Crotty M. 1998, p. 58). Therefore, social constructionism emphasizes the collective
production of meaning, embedded in culture, in contrast with constructivism
epistemologies which support the concept that the 'individual mind' is the central
meaning-making device (Crotty M. 1998, p. 58). Social constructionism examines how
different social phenomena are performed and established as social norms and
traditions (Coolen 2012). This is very appropriate for the study of home renovation as a
social practice within households, as it allows the understanding of their collective
practices and shared know-how, as well as social norms that hold home renovation
practices together.

The underpinning ontology of social constructionism, relativism, accepts reality as a
subjective construction, in which there in no absolute objectivity of the research (Kerr
2018), but 'multiple perspectives' or 'versions of the world' (Burr 2015, p. 223).
However, some scholars argue that social constructionism is 'mute and agnostic'
regarding ontology, as it does not provide a clear subjective or objective form of reality
(Schwandt 2000, p. 198). Lincoln and Guba reinforce this point by suggesting that the
determination of reality is not absolute but extracted from the collective agreement of
community (Lincoln & Guba 2000). They also suggest that an extensive fraction of
social phenomena comprises of 'the meaning-making activities of groups and
individuals around these phenomena' (Lincoln & Guba 2000, p. 167). As these
meaning-making activities are the ones that shape social action, they become the
central concern of social constructionism research (Lincoln & Guba 2000). Finally,
social constructionism is sometimes used to extend and broaden the diversity of the
conversation about human practices through a process of ongoing reflection (Schwandt
2000; Gergen 1994).

In line with the social constructionism epistemology, the thesis takes the theoretical
perspectives of theories of practice as its starting point, which remove individuals from

the spotlight as the basic units of social phenomena (Schatzki, Cetina & Savigny 2001), and instead focus on practices as the unit of analysis (Judson 2013a; Giddens 1984; Reckwitz 2002b). The basic principles of the theories of practice are presented below.

2.1.1 Theories of Practice

The term *Theories of Practice* refers to a 'family of theories' (Reckwitz 2002b, p. 244) rather than a 'unified approach' (Schatzki, Cetina & Savigny 2001, p. 11). Since the 1970s, initially through the work of Pierre Bourdieu and Antony Giddens, they have emerged as an alternative to 'classically modern or high-modern types of social theories' (Reckwitz 2002b, p. 243). Theories of practice have since made significant contributions to knowledge, in diverse areas such as 'human activity […] and the transformation of social life'(Schatzki, Cetina & Savigny 2001, p. 10).

According to Reckwitz, Practice Theories, as a subsection of culture theory, identify practices as the 'smallest unit' of social analysis, therefore placing the social in these practices (Reckwitz 2002b, p. 246). A unique characteristic of practices is that they are repetitive 'bodily routines' affecting and been affected by the relevant materials and competences of participants (Reckwitz 2002b, p. 251). Another useful definition of practice is that of Schatzki, who explains it as 'temporally and spatially dispersed nexus of doings and sayings' (Schatzki 1996b, p. 89). Individuals are carriers of practices, which can be varied and not interconnected (Reckwitz 2002b). According to Schatzki's perspective, practice theories suggest that 'the nature of social consists in routinization' (Reckwitz 2002b, p. 255). Schatzki defines practice in two different ways: practice as entity and practice as performance (Schatzki 1996a). Performance of a practice establishes and sustains the practice as entity (Shove, Pantzar & Watson 2012). The significance of Practice Theories for this thesis lies in their contribution to the understanding of 'shared understandings, norms, meanings, practical consciousness and purposes' (Shove, Pantzar & Watson 2012, p. 9).

Furthermore, practices according to Schatzki, can be conceptualised as dispersed and integrative (Schatzki 1996a). Dispersed practices are found across the domain of social life and are practices of smaller extent, such as 'describing, following rules, explaining and imagining' (Warde 2005, p. 135). On the other hand, integrative practices are 'the

more complex practices found in and constitutive of particular domains of social life' (Schatzki 1996a, p. 98), such as 'farming, cooking[...] and business practices' (Warde 2005, p. 135). Integrative practices are more complex and contain dispersed practices, sometimes in 'specialized forms' (bid). Dispersed practices can be parts of several different integrative practices and are usually guided by 'a practical understanding, the know-how' (Gram-Hanssen 2010b, p. 160). This conceptualisation of practices is of particular importance, as I will demonstrate that renovation practice is an integrative practice, containing several dispersed practices spread through the different stages of its process.

Different theorists define the existence and development of practices through several elements that these comprise of. While there are common characteristics and patterns, these have a variation, particularly when comparing between theoretically or empirically identified elements, as shown in Table 2.1.

Schatzki 2002	Reckwitz 2002	Warde 2005	Shove and Pantzar 2005	Strengers 2009	Gram-Hanssen 2010	Bartiaux et al 2011	Strengers and Maller 2011
Theoretical perspectives				**Empirical studies**			
Practical understandings	Body, mind, the agent, structure/ process	Understandings	Competences	Practical knowledge	Know-how and embodied habits	Know-how and embodied habits	Practical knowledge
Rules	Knowledge, discourse/ language	Procedures		Rules	Rules-based knowledge	Institutionalised knowledge and explicit rules	Policies
Teleo-affective structures		Engagements	Meanings and images	Common social understandings	Engagements	Teleo-affective structures	Common social understandings
	Things	Items of consumption	Products	Material infrastructures	Technologies	Technologies and material structures	Material infrastructures

Table 2.1 Identification of the elements of practice. Re-drawn by author from (Judson 2013a, p. 142; Gram-Hanssen 2011, p. 65)

Shove et al (Shove, Pantzar & Watson 2012, p. 21) define materials, competences and meanings to be the elements by which practices are made and suggest that it is the connection between these elements that potentially sustain and progress or resolve practices. This is particularly important for my study, as it add to existing literature by investigating the empirically-derived, common elements of renovation and homemaking. By identifying these common elements, I seek to see further than the

performance of renovation as a one-off (materially-engaged) activity, to a process that extends beyond this to a routinised activity, involving mental and physical activities. By using Shove et al's definition (2012, p. 21) of elements, I contribute to the establishment of the association between the two practices.

The links and associations between practices can be traced directly to the links or breakages between their elements or as Shove et al suggest elements are 'mutually shaping' (Shove, Pantzar & Watson 2012, p. 32). Often elements can stay 'dormant' before 'being activated' (Shove, Pantzar & Watson 2012, p. 34), which suggests that the involved elements have a life beyond the performance of the practice (Shove, Pantzar & Watson 2012, p. 35). This observation is not only important for the performers of practices, but for the institutions and intermediaries that contribute in the generation and sustainment of the elements, such as dominant cultural meanings (Shove, Pantzar & Watson 2012, p. 39).

A practice theory perspective on home renovation is useful as it creates links between institutions of provision and lifestyle (Karvonen 2013). Furthermore, it is a useful framework through which we can investigate the role of materials and technology, such as media, as an element of the renovation practice, following the argument that 'things are consumed not for their own sake but for what they make possible' (Shove et al. 2007b, p. 22). Schatzki considers that materials and technologies are results of social practices (Gram-Hanssen 2010a), whereas Shove and Pantzar (Shove & Pantzar 2005) consider practices to be responsible for keeping things and technologies together. Furthermore, Gram-Hanssen suggests that technology, alongside knowledge, habits and meanings, hold practices together (Gram-Hanssen 2010a). However, the element of technology is primarily classified under the broader conceptualisation of *things* (Reckwitz 2002a) or *materials* (Shove, Pantzar & Watson 2012). The thesis contributes to the empirical understanding of technology, as an element that is not necessarily materially manifested, but also embedded in the meanings and competences of the practice. Further to the element of technology, my thesis contributes to the understanding and conceptualisation of media as practice, as the connecting point between theories of practice and mediatisation, which I explain in detail in section 2.1.2 below.

On the other hand, criticisms of practice theory as a lens to discuss home renovation involve claims that it focuses too intensively on the micro and meso level of the household and that renovation practice might in some cases be occasional and less regular (Karvonen 2013). Nicolini, a scholar of the 'connected situationalism' group of thought, suggests that 'the basic unit of analysis' is not a single performance of a practice but rather 'a chain, sequence or combination of performances plus their relationships- what keeps them connected in space and time' (Nicolini 2018, p. 101). According to this, large scale phenomena (extending to the macro level of society), can be studied and understood as assemblages of interconnected or associated practices (Nicolini 2018). Schatzki affirms this argument by suggesting that 'macro social phenomena are simply composed of practice-arrangement bundles that are larger', and that large or macro phenomena have the 'same basic composition' as smaller, micro ones (Schatzki 2016, p. 33). Furthermore, as Nicolini adds, smaller scale practices can be examined as local manifestation of the global (Nicolini 2018, p. 102). Examining home renovation practices as part of wider household practices relating to comfort, entertaining and overall lifestyle might respond to the challenge of irregularity of the renovation practice (Karvonen 2013) as well as give us insights into how renovation practices connect and situate themselves within others in the meso and macro scale of society.

2.1.2 Theories of Media as Practice and Mediatisation

Media are increasingly involved in all domains of our society and therefore implicated in the construction of our everyday life (Hepp & Krotz 2014; Livingstone 2009; Bräuchler & Postill 2010). Cultures around the world 'can no longer be understood without reference to the media' (Bird 2010, p. 85). The thesis shares the recent turn of media studies that understands media as an array of practices (Couldry 2010, 2012; Brauchler & Postill 2010). The meeting of media with theories of practice bring about an interesting theoretical debate about the relationship of the two, and contributes to the enhancement of the theoretical strength of media studies (Brauchler & Postill 2010).

The study of the role of media in everyday life is a complex area. Home has been a site of heavy media consumption, therefore a fertile ground for observations regarding

everyday (media) practices. The household therefore lends itself to this combination of the theories of practice with media theories, particularly considering the domestication of media and the more recent mediatisation theory. Furthermore, following Bird's work (2010) on the intersection of media and theories of practice, this interdisciplinary perspective can contribute in responding to questions such as what kinds of things 'people do (and say) in relation to media' (Bird 2010, p. 86), as well as how media are incorporated in everyday life and cultural practices (Bird 2010).

2.2 Qualitative methodology

Qualitative methodologies, due to their 'open-ended and inductive […] questioning' are known for their effectiveness to study complex problems (Guest, Namey & Mitchell 2017, p. 29). The home renovation process is complex and involves several actors, while it is set in a rich field of study, the home (Willand & Horne 2013). Home, and the whole social unit of the household, is a site of continuous change and 'ongoingly imagined' (Pink, Leder Mackey, et al. 2017, p. 31). The way that people make or practise home is 'culturally specific', while the meaning of home comes out of its specific socio-cultural setting, and is expressed through different functions that don't always represent home as the typical site of (harmonious) family life but also home as a site of conflict or home as a place of work (Pink, Leder Mackey, *et al.*, 2017 p.14-15).

The research conducted during this thesis is based on a (qualitative) iterative-inductive process, moving between theory and data collection (O'Reilly 2012) and followed by a qualitative content and visual analysis. The study uses purposive sampling in order to recruit participants from typical, 'ordinary' homeowner-renovators and professionals from the fields of architecture, construction and housing (expert sampling) in order to represent the diversity of perspectives and approaches that comprise the Australian home renovation process.

Qualitative research is a multi-discipline inquiry (Leavy 2014), which 'locates the observer in the world' (Guest, Namey & Mitchell 2017, p. 3). It requires the researcher to immerse into the field of study, work alongside others over a large length of time and generates rich data while paying good attention to the ethics and values that surround the work (Leavy 2014). However, a short-term, intense mode of ethnography, as

discussed by Pink et al (Pink, Leder Mackey, et al. 2017) and Knoblauch (Knoblauch 2005), supported by intensive audio-visual data collection is more suitable for the purpose of this thesis (more on focused ethnography in section 2.2.3). Primarily using a small sample, the researcher produces a rich, in-depth account of social life, by studying people's experiences and personal histories, their emotions and the material world around them (Coolen 2012). The data collection is less structured (compared to quantitative research) and interactive, and involves intense listening, observing and asking questions to discover issues as they arise (ibid).

Within the context of a qualitative inquiry, my interest is to develop a methodology that combines elements of design methods alongside visual and sensory (short-term and visit-based) ethnography. There is a recent 'turn' of qualitative methodologies towards the adoption of visual and sensory methods for investigation and interpretation of research data (see for example (Rose 2016; Emmison, Smith & Mayall 2012; Pink 2014a, 2012, 2009, 2011), which propose a way to experience and record the research field in more diverse ways than the verbal and textual representation. Visual data, such as photographs and images, not only stimulate conversations and reflections about them, but conversations about them can in reverse generate images and visual material (Pink 2013). Employing a visual inquiry in the field of the home does not come without challenges; particularly regarding the ethics of participants as well as their privacy exposed to the 'outside' world. However, it also brings many benefits, such as enabling the rich documentation of everyday life and practices that relate to both the participants' 'embodied experiences' and their relationship with the materiality of their home (Pink 2013, p. 28,175, 181).

Additionally, the interactions between the actors of home renovation need to be considered carefully, as they can contribute to the adoption of low carbon home renovation practices and potentially make these mainstream. Greater participation of all groups of actors, especially in the early stages of a renovation, can be translated in more satisfactory results for homeowners (Thuvander et al. 2012) and ensure the holistic performance of renovation- fulfilling not just its technical but its social and cultural dimensions (Horne & Dalton 2014). In line with this, my intention is to bring together the two major groups of actors (householders and building professionals) in order to generate new insights that go beyond the observed. Through a participatory

workshop, my methodology seeks to enrich and uncover the tacit and latent knowledge of householders, which are often invisible or difficult to explain by just observation or discussion. By using participatory design principles (explained in detail in section 2.33), I wish to instigate insights from the participants through making, telling and enacting (Brandt, Binder & Sanders 2012; Sanders & Stappers 2014).

In doing this, I am applying my personal background as a designer and my experience through architectural practice in the housing domain, to discover and interpret new insights about the renovation process in Australian homes. Researchers from design and social sciences have been found to often hold similar awareness and perceptions about the home as a 'lived environment' (Pink, Mackey Leder, et al., 2017 p.31). By combining the in-depth, interpretative qualities of ethnography and the fast-pace, creative methods of design I wish to contribute to the generation of new insights that include the tacit and unspoken knowledge of the participants.

2.2.1 Ethnography: Sensory, short-term and focused

Ethnography as a methodology is diverse; it is used by multiple disciplines and in different ways; therefore it is challenging to determine (O'Reilly, 2012 p.1). Pink and Morgan reinforce this point by suggesting that: 'ethnography tends to become shaped by the discipline it is being engaged through', therefore it is challenging to define especially in terms of its length (Pink & Morgan 2013, p. 352). Rather than perceiving it as a data collection method, Pink suggests that 'ethnography is a process of creating and representing knowledge that is based on ethnographers' own experiences' (Pink 2007, p. 4). Ethnography, in this thesis, is perceived as a practice which transforms while it is performed, through the contact with people in their everyday life, enabling the capturing of rich stories about the 'complexity of the social world' (O'Reilly 2012, p. 3). As O'Reilly suggests:

> 'Ethnography that pays attention to wider structures and to the
> thoughts and feelings of agents, within the context of daily life and
> individual action, is an ideal approach to research the practice of
> social life' (O'Reilly 2012, p. 10).

Short-term, focused ethnography

Traditionally, ethnography involves a 'direct and sustained contact with human beings, in the context of their everyday lives, over a prolonged period of time' (O'Reilly 2012, p. 11&28). However, when applied by disciplines such as Design, it can comprise of short, intense periods of study of the participants' lives, during which observation might be complimented by more 'interventional' methods of constructing knowledge and understanding (Pink & Morgan 2013, p. 352). Knoblauch suggests that this 'focused ethnography' is 'characterised by relatively short-term visits […] typically compensated for by the intensive use of audio-visual technologies of data-collection and data-analysis' (Knoblauch 2005, p. 2). While this kind of ethnography requires less time in the field of study, it also requires more time for the preparation and analysis of the rich (and often large quantity of) data collected (Knoblauch 2005).

Focused, intense ethnography is more extensively theory-informed and the relationship between research questions and data collection are sharper and in continuous conversation (Pink & Morgan 2013). Finally, in the most private space of social life, home, the use of audio-visual methods for collecting data alleviates the-otherwise-invasive, long-term presence of the researcher (when traditional ethnography is practised) in the most private space of social life (Pink & Morgan 2013). Short-term ethnography is not meant to replace the use of traditional, long-term ethnography but to enable an equally rich investigation into otherwise time-poor projects. It should be perceived as a method to construct 'alternative ways of knowing about and with people in the environments of which they are part' (Pink & Morgan 2013, p. 359).

Use of video and re-enactments

Video recording is 'a key element' of short term, focused ethnography (Pink 2014a, p. 420). It allows-not only-the capturing of in-situ practices but also the potential to reflect on them at a later stage (Pink 2014a). The analysis of video data (and of other visual data) has been evolving in the past twenty years (Knoblauch & Schnettler 2012). However, even though video recordings are good tools for capturing data, the insights and evaluations of the researchers are still required in order to make sense of the data (Knoblauch & Schnettler 2012). One of the benefits of video recordings, is that they can preserve the flow of everyday life, maintaining consecutive practices as they occur (Knoblauch & Schnettler 2012). As this flow of actions is not always possible when the

researcher is present, a re-enactment of these practices can be used as an alternative means of recording a routine or a process. Although video recorded re-enactments facilitate the performance of the mundane but significant everyday moments, they are not 'objective and transparent manifestations of what people do but audio-visual manifestations of co-constructed ethnographic encounters' (Mackley & Pink 2013, p. 343). The videos in this study represented vivid extracts of the home visits, during which there was an opportunity to capture – what I perceived as- the most crucial elements of our conversations, which often involved an activity (such as drawings, or re-enacting a renovation practice) that I would not be able to fully capture simply by audio-recording or observation. Furthermore, during the analysis process, videos became valuable sources of confirming the embodied actions of participants (such as facial expressions, winks, puzzled looks etc) during the interaction, and triangulation in combination with the audio and transcribed material.

Sensory ethnography

The home, conceptualised as a site of sensory, embodied experiences, provokes the researcher to observe and imagine their own sensory response to different practices of the everyday. Taking inspiration from Pink and her colleagues' sensory ethnographic exploration of the home (Pink & Mackley 2012; Pink, Mackley & Moroşanu 2015; Pink & Mackley 2013; Pink, Leder Mackey, et al. 2017), I consciously pay attention to the way that participants engage and interact (in obvious, observable and tacit ways) with the material elements of home. While houses present similar physical characteristics (such as their structure and construction) and households present similarities such as in their socio-economic characteristics, their everyday sensory relationships with the material and digital elements are experienced in diverse ways. Furthermore, by visiting these homes, my own experience of each case is distinct each time, because of the way that participants operate and act around these elements. I am interested in the reasons why that happens, as a way to inform my analysis and as a means to understand how experiences of the material element of homes can be linked to changes in everyday routines.

I situate design within its social context, the advancement and co-ordination of combined methods of design and ethnography, as well as the relationship of design with theories of practice in order to explain how change happens. Even though the perspective of theories of practice has been used frequently in recent literature of transitions to sustainability, energy consumption and sociological studies of everyday house routines (Bartiaux et al. 2014; Judson, Iyer-Raniga & Horne 2014; Maller, Horne & Dalton 2012; Shove 2010; Karvonen 2013; Vlasova & Gram-Hanssen 2014), it is still limited in design research (Sangiorgi & Scott 2018) to which this thesis aims to contribute.

> 'Design is about imagining the future.[…] It is an imagining that is open-ended. It is about hopes and dreams rather than plans and predictions. Designers, in short, are dream-catchers' (Ingold 2012, p. 28)

Design encompasses three human attributes: critical capability, creativity and practical skill (Manzini 2015). Design as a problem-solving exercise can be applied to resolve challenges and problems of different scales, from everyday issues to those of global significance (ibid). In its traditional mode, design places the designer as the expert and leader of the process. The transitional move of the (design) discipline out of the studio, where traditional problem-solving takes place to resolve and create products, spaces and services, to the wider social context as a thinking process, often referred to as 'design thinking', has allowed designers to contribute to a wider range of complex challenges, ranging from environmental and social issues to strategic innovation (Brown 2011; Sanders 2013). Bjögvinsson et al describe this transition of the design community as the gradual move from designing 'things' (objects) to designing Things (socio-material assemblies)' (Bjögvinsson, Ehn & Hillgren 2012). Design Things have their origin in Participatory Design (PD) principles, developed primarily in the Scandinavian countries as a way to democratise involvement of different project actors in the decision making, as well as make use of their tacit knowledge about the object and context of inquiry (ibid).

My intention is to use elements of participatory design (PD) as part of my research methodology, to introduce interaction and participation to the actors of renovation, in the process of unpacking its complexity. Since the 1970s, PD has become a 'diverse collection' of principles and practices which aim to stimulate collaboration and promote the co-design of 'tools, environments, businesses and social institutions in which technologies are embedded' (Robertson & Simonsen 2012, p. 2). PD methods have primarily been associated with information technology projects (Bratteteig et al. 2012). However, PD's primary characteristic is its future outlook and its focus on 'how collaborative design processes can enable the participation of those who will, in the future, be affected by their results' (Robertson & Simonsen 2012, p. 2). Furthermore, PD has questioned the 'issue of who can be a designer' (Redström 2012, p. 89) As I will demonstrate in the following chapters, expertise is a diffused term which can take different meanings under different contexts. In the case of a PD project, professional and amateur expertise as well as user-experience merge in order to produce a more democratic and collective vision (Redström 2012). Essentially PD brings closer the concepts of 'designing' and 'using'.

Within the broader field of PD, co-design and co-creation activities have been expanding (Sanders & Stappers 2008). Co-creation refers to 'any act of collective activity, i.e. creativity, that is shared by two or more people', while co-design refers to 'collective creativity as it is applied across the whole span of a design process' (Sanders & Stappers 2008). Co-design indicates the involvement of non-designers in a process, working together with 'expert' designers (ibid).Within these domains, my interest is focused on generative tools and techniques such as the use of cultural probes and toolkits to enable the capturing of people's experience, not just by observation and discussion but through making (Stappers & Sanders 2010). Design methods such as the aforementioned, as well as others such as cognitive and concept mapping, collage and prototyping are now widely used in academic research by different disciplines in order to 'structure conversations that can help us better understand and empathize with people' (Hanington and Martin, 2012 p.6). Design methods, contribute with 'designerly ways of doing research' by the act of making and evaluating, usually in 'iterative cycles', which generates creative-and collective-meaning of the situation under investigation (Sanders & Stappers 2014, p. 6).

This kind of investigation contributes to the capturing of knowledge that cannot be expressed by words referred to as tacit knowledge (Glanville 2018; Budge 2016; Polanyi 1966). Tacit knowledge, which can be individual as well as collective, has been found to be crucial to 'all human knowledge and knowing' (Gourlay 2006, p. 60). Several philosophical perspectives have been engaged with tacit knowledge (for example Dewey's 'pre-reflexive forms of primary experiences' (Adloff, Gerund & Kaldewey 2015, p. 9), Wittgenstein's philosophy of language and Heidegger's 'fundamental ontology' (Adloff, Gerund & Kaldewey 2015, p. 9), and more relevant to this research, Bourdieu's concept of habitus which has been really influential in the development of tacit knowledge literature (Adloff, Gerund & Kaldewey 2015). Tacit knowledge is 'stored' in individuals but embedded in the socio-cultural contexts in which they exist. Homemaking practices are usually performed using tacit knowledge and experience (Miller, 2001a p.273). Understanding the embodiment of tacit knowledge alongside the explicit know-how and skills of renovators, can give us a more complete picture of how households are maintained in everyday life, and provide new insights on how change can be incorporated.

While this thesis is not using co-design or PD as a means to a design activity (product, space or service), it intends to apply the collaborative and collective problem-solving strategies and tools adopted by them in order to frame and unpack home renovation as a process. By bringing the actors of renovations together, I introduce and create a new community of practice, which comprises not just the householders but the technical, material, social and cultural actors that are involved in such projects. This can be achieved through a participatory workshop (described in section 2.3.3). The workshop aims, through 'making, telling and enacting' (Brandt, Binder & Sanders 2012), to bring out people's dreams, aspirations and challenges and map them(visually) in a process that represents a collective version of a home renovation process in the given context. The cultural probes and toolkits designed for the purpose of this research are discussed in more detail in sections 2.3.1 and 2.3.3.

Finally, I am using design as a method to analyse visual information and track patterns in the data by a four-stage process of identifying, describing, analysing and decoding (Bolton 2018). This method is discussed more analytically in section 2.4.5.

'Design and ethnography are large fields of practice' (Pink, Leder
Mackey, et al. 2017, p. 17).

The two practices have progressively been coming together, as a way to 'understand
the user' (Hunt 2018, p. 87), usually contributing to (mainly commercial) efforts to
create new products or experiences (Pink 2014b; Hunt 2018; Gunn & Løgstrup 2014).
In some other instances, ethnographic methods have been used alongside
participatory design as a way to increase 'revenues' and reduce cost 'inefficiencies' in
different companies (Blomberg & Karasti 2012, p. 107). This synergy has not come
without criticism. Hunt argues that ethnography has often been misused or
misinterpreted by designers as a way to achieve 'quick and dirty' results for commercial
products (Hunt 2018, p. 88), whereas Blomberg and Karasti point out that through its
association with participatory design, ethnography seems to have been reduced to a
method, somehow losing its analytic ability to interpret and 'provide insights that point
to future possibilities and ground these […] in the realities of here and now' (Blomberg
& Karasti 2012, p. 108).

Traditionally ethnography is not engaged with speculations about the future, but
concentrates on what is happening at present or in the recent past (Pink, Leder
Mackey, et al. 2017, p. 22). Design on the other hand, is future oriented (Pink 2014b;
Gunn, Otto & Smith, Rachel 2013). A designer needs to envisage possible future
scenarios to generate a product, which can potentially transform our present or near
future through its use (Hunt 2018, p. 89). Additionally, design's creativity lies in its
ability to enable people to 'respond with precision to the ever-changing circumstances
of their lives' (Gatt & Ingold n.d., p. 145). Combining design with ethnography, and
embracing their sensitivities and capabilities, in researching households, I consider
home not as 'a site that is fixed in the present or only understandable in relation to the
past. Rather, I aim to account for how home is already situated in the temporalities of
people, organisations and discourses, in ways that incorporate a future orientation, but
whereby the modes of future and the experiences associated with them will vary' (Pink,
Leder Mackey, et al. 2017, p. 25). The combination of the methods (design and
ethnography) as well as the interdisciplinary collaboration of design and anthropology-

in its applied form- enables the development of a pathway to the future, practically and theoretically (Pink 2014b, p. 413).

Another aspect that needs to be considered is that of intervention and change. Historically, ethnography aims to produce 'a surgical observational strike that produces new knowledge but not at the cost of altering the facts on the ground' (Hunt 2018, p. 90). However, while not particularly mentioned as a focus, ethnography has been engaged with processes of change (Blomberg & Karasti 2012; Van Willinger 2002).

> 'While ethnography and intervention contrast in terms of their basic approaches and intended results, […] combining the two […] has been an effective way in […] generating realistic visions of future use of technology' (Blomberg & Karasti 2012, p. 93; Kensing, Simonsen & Bødker 1998, p. 266).

Ethnographers-particularly those working with designers- declare that the thorough study of context is an important factor for the production of 'meaningful change' (Blomberg & Karasti 2012, p. 88). On the other hand, change (as a process of altering behaviour or practice) is a fundamental element of design processes and design thinking. Design's problem-solving (and sense-making) capability contributes to the identification and resolution of physical, functional challenges (or in Manzini's definition: aspects of the physical and biological world) but also to the engagement with processes of social change (engagement in the social world) (Manzini 2015, p. 35–36).

Furthermore, in the intersection of these two practices, reflexivity is another important- and diverse- element of both, presenting similarities and contrasts. Ethnography focuses on the relationship and dynamics between the researcher (which is rarely independent and usually embedded in the field) and their objects of study, paying special attention to the people and the context they operate in (Blomberg & Karasti 2012). Participatory design on the other hand, inspired by principles of the reflective practitioner (as initially presented by Schön (Schön 1991), focuses mostly on the interaction of users and their interactions with 'technologies and settings', however, sometimes missing out on putting adequate attention to the role of the researcher/designer (Blomberg & Karasti 2012, p. 103). Therefore, the combination of the two methods, can benefit the research by reinforcing and redirecting the attention

to not only the researcher's own perspective but to those of the participants as well as the role and influence of context, including the role of (media) technologies.

The complementary perspectives of ethnography and PD are shown below.

Ethnography	Participatory Design (PD)
Everyday settings	Respect for different knowledge
Holistic view	Opportunities for mutual learning
Descriptive understanding	Joint negotiation of project goals
Member's point of view	Tools and processes to facilitate design

Table 2.2 Principles of ethnography and participatory design. Redrawn by author from (Blomberg & Karasti 2012)

My intention and interest in this thesis are to investigate and adopt a methodological alliance between design research methods (primarily PD), with short-term ethnography-inspired methods (home visits) in order to contribute to purposes of social change, in the field of housing renovation practices. As Gunn and Løgstrup suggest, 'designing […] is part of social life; therefore building relations between design practices and social life is crucial for design practitioners' (Gunn & Løgstrup 2014, p. 430). Therefore by bringing together two practices that combine the ability to deeply understand human relationships in their socio-cultural contexts, and the collaborative knowledge making-by-doing, I seek to enrich the kind of insights on what change means and how it can be instigated within the everyday homemaking and renovation practices of households.

2.2.4 Context of study

The context of the study is Adelaide, the capital city of South Australia, home to 1,315,777 people (ABS 2019a). Adelaide's dwellings are currently presented as approximately 75% detached, 17% semi-detached and 8% flats or apartments (ABS 2016). Adelaide's city council is committed to turn the city into one of the first carbon

neutral cities in the world (C. of Adelaide 2019). The carbon neutral status would have to be achieved before 2020 in order to be 'a world first' as Melbourne already aims for the same goal for 2020 (SA Department of Environment 2015). Part of the strategy is to make homes more efficient by reducing the amount of energy through consumption and through renovation of houses (C. N. Adelaide 2019). Some of the recommendations identified by the Foundation Report of Carbon Neutral Adelaide, commissioned by the SA Department of Environment, Waste and Resources, suggest that the SA government needs to 'maintain an inclusive bottom-up approach to the development and delivery of this strategy', while also identifying the relevant actors (not only the obvious ones) and engaging them in the process (SA Department of Environment 2015, p. xi). Therefore, investigating household renovation practices in a city that aims to be a world pioneer in zero carbon emissions, is a good contribution to current understandings of the socio-cultural norms that shape household practices and decision making.

2.2.5 Participant recruitment

The thesis complies with Swinburne University's ethics procedures and has been approved by the Swinburne's Human Research Ethics Committee (SUHREC). Further details about the ethics can be found in Appendix 1.

The research uses purposive sampling to recruit participants from both professional (expert sampling) and 'ordinary' homeowner- renovators to reflect the range of actors involved in home renovations. In order to represent a diverse variety of households and professionals, my intention was to collect a mix of genders, amateurs and professionals and a mix of ages and backgrounds and a variety of house typologies. The research participants are presented analytically in Appendix 2.

The criteria for the recruited household participants were that they have either been involved in a domestic renovation in the past three years, currently involved in a renovation or planning to commence one in the near future, as owners or investors, The criteria for selecting professionals were that they were professionally engaged in renovation projects and have at least 5 years' experience in the field. Participants live in the Adelaide metropolitan area. Participants were selected from various locations

around Adelaide metropolitan area, including Adelaide Hills, which potentially allowed variety of house typologies, household compositions and socio-economic characteristics.

2.3 Methods

The thesis combines design and ethnographic-inspired qualitative methods. There are three different methods that took place: home visits (case studies), semi-structured interviews and a participatory workshop. During all three methods of data collection, audio and video recording took place, alongside discussions, touring of homes and working in groups (during the workshop). The structure of the house, as an object of design, is equally important to the practices inside and around it. By visiting people at home, recording their stories I identify collective patterns of their practices, repetitions and relationships with the material objects involved. This method enables discussions of past and present practices, while allowing householders to plan and imagine the future, if they are in the beginning of their renovation journey.

On the other hand, to combine the perspectives of the two groups of renovation actors and to allow an immersion into the latent and tacit knowledge of people's practices, a participatory workshop is used. The workshop supports a collaborative learning by doing environment, bringing people closer and allowing a new collective vision to develop (Brandt, Binder & Sanders 2012). I was continuously aware that the privacy of people's home is important, as is the way in which the visit would take place. In some of the cases, the participants were acquaintances through local social networks, so there was already a link between us. The fact that I often went to home visits as a friend of a friend/colleague/neighbour, made an impact on how people accepted me during the visit, compared to those that I didn't have any previous connection with. Participants that were introduced to me by my network were more willing to open up about their personal stories and ways of doing things. I felt that trust is of great importance in Adelaide and I experienced this intensively through the visits. Similarly, in the professional environments, I often got introduced to others, through snowballing, sometimes getting acquainted through householders and at other times getting introduced between professionals working together. My intention, keeping in line with principles of social constructionism, was to use the three different methods, as

explained analytically below, to approach the renovation journey from different perspectives, while experiencing it in the context of both, everyday life and in (practice) communities of renovators and professionals.

2.3.1 Home visits (case studies) and cultural probes

Case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a project, policy, institution, programme or system in a 'real life' context' (Simons, 2009 p.21). Case study research uses similar techniques with other qualitative data collection methods-although in itself is not limited as a qualitative method only- such as 'narrative, [...] life-history, ethnography, in-depth interview, and observational studies' (Simons 2014, p. 458). Case study is a flexible method of research which allows the co-construction of knowledge, using the participants' perspectives, enabling the collection of data in ways that are familiar to the participants (such as storytelling and interviews) (Simons 2014).

In selecting to use home visits as case studies, I aim to examine the household holistically as a unit. My starting point is the sensory-ethnographic studies of the home by Sarah Pink and her colleagues (see for example (Pink, Leder Mackey, et al. 2017; Pink 2004; Pink & Mackley 2013). Inspired by their tours of participants' homes, using multi-media to capture the interactions or as they suggest: 'the material, sensory and affective affordances of their everyday life'(Pink 2014b, p. 413), I used case studies as extended tours of renovators' homes, observing, interviewing and participating in their daily practices, while audio and video recording them. Home visits act as an intense recorded observation of each household, where, with the participants' consent, I recorded (photographs, audio and video records) the site and the participants' interactions in context. The visits allow for data to be explained and contextualised before they are used for further interaction in the participatory workshop.

A cultural probe, the Renovation Storybook, was adopted to record households' views and stories, using text, drawings, diagrams and photographs (added after the visit, using the recorded material) (see Fig.2.2). I designed the Storybook in the form of a fanzine, which typically represents an amateur, DIY brochure, almost as a notebook that could be the renovators' memo-writing pad. I used bold imagery and graphic

means to highlight different issues and ask for information, ranging between pages to capture the emotions during the process, as well as the priorities, skills and materials used (for more information see Appendix 3). The Renovation Storybook became a very useful tool for the structuring of the extended visits of homes, and for navigating discussions, by keeping the flow, or as a device to draw a story, a sequence, and for working out some the households' ongoing challenges regarding the renovation.
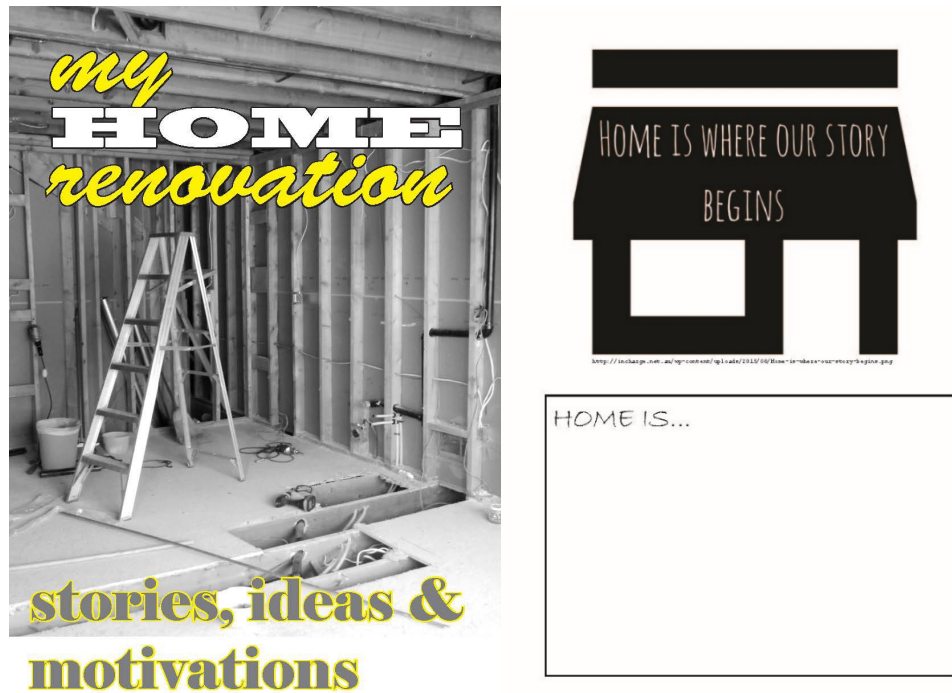
Fig.2.2 Sample of the Renovation Storybook: Front cover (left) and one of the pages (right).Designed and drawn by author
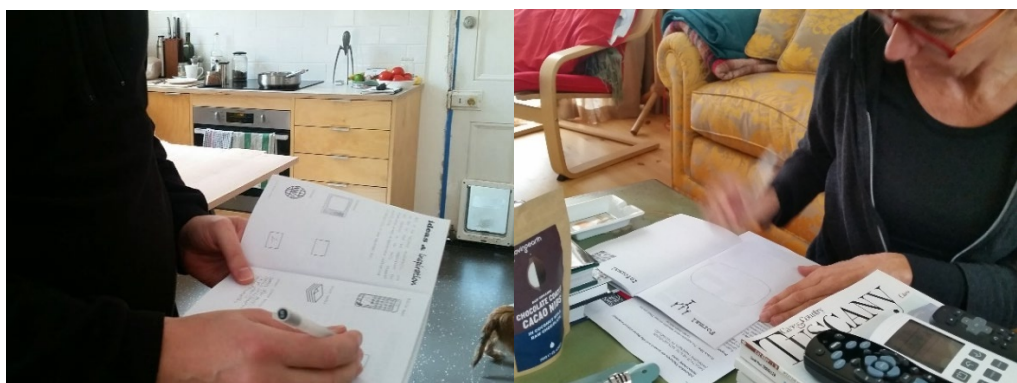
Fig.2.3 Participants with the Renovation Storybook during the home tours

During the visits, I experienced a part of people's everyday life. Although I was not an invisible observer, I felt that most people did not appear uncomfortable in my presence as they continued doing their regular practices; household members or friends kept coming in and out, phones would ring and be answered, (renovation) jobs would continue to take place, children and babies would be looked after, I would smell the food cooking or taste their drinks and-occasionally-their cakes. Some people talked to me while walking through their homes, others preferred to sit down; in both cases, there was always an element of walking and talking through the house in order to explain what the story is and in order to point to the physical aspect of a description. The materiality of homes was always present; it was impossible to discuss the renovation without being there, in the site that it all takes place.

Before each visit, I familiarised myself with the surroundings and in most cases I returned to the neighbourhood to take photographs and walk around. When visiting, I tried to embed myself as much as possible into the household. I experienced a piece of people's private lives, but even in the cases when I knew the people I visited, being inside their world at home was a different experience. I was grateful for the fact that most people did not put any extra effort to accommodate me, they accepted me as an observer of their lives, while they were very keen to share their stories. Being a relatively new arrival in Australia myself (having lived in Adelaide for 3 years), the visits gave me the opportunity to go 'under the skin' of Australian culture by experiencing the most intimate place where life unfolds. Depending on the time of day that I visited, or the people present in the household, some of the practices that were performed, during the home tours were done as re-enactments or performed in real-time while we were discussing. In some cases, people would ask about my opinion on their choice, at other times I would present my own story about similar practices to stimulate discussion.

Houses were very diverse, however the similarities started to uncover as I was moving through the households. Amongst others, the participants also included immigrants, who had either come to Australia as a family, or as couples who then expanded their families (or remained without children). This was a great opportunity to observe how diverse everyday practices adjust to local and Australian social norms, while maintaining originality and uniqueness, linking them back to their experience elsewhere, as I elaborate in Chapter 6. The use of video and audio recordings gave me

the opportunity to capture details of household practices which would not necessarily be observable or noticed by an ordinary interview or observation. Participants gave me tours of their homes, stopping at areas of interest and interweaving their storytelling with showcasing the issues on site. As I used a mobile phone to record videos, the object itself did not cause much concern to the participants, as it is a familiar device (and process) to them from their everyday life with media technologies.

Following each visit, I wrote a reflective account to record my immediate thoughts for using in the analysis. Some of the participants sent me emails or called, providing additional material, such as photographs and other information that they thought might be useful. More details about the way that I interviewed the participants as well as details about the analysis and the follow up from visits are provided in sections 2.3.2 and 2.4.

2.3.2 In-depth, semi-structured, multi-media interviews

Interviews are popular qualitative methods for acquiring information and understanding individuals and groups (Gaskell 2000). They are interactive, dynamic forms of communication, which don't just engage with discovering the 'what' but also the 'how' of the activity under investigation (Fontana & Frey 2000). Interviews can be used to construct a story, in which individuals compose a narrative by answering and reflecting on the questions asked (Fontana & Frey 2000, p. 647). The context of interviews is as important as the questions asked and responses given (ibid). Even though an interview is more restricted regarding the 'embodied, sensory and atmospheric experiences, memories, imaginaries and aspirations' it might capture (Pink, Leder Mackey, et al. 2017, p. 99), it is still a focused method to conduct a conversation which allows the observation and capturing of not only verbal but also multisensory responses to questions (Pink 2009, p. 81–82). I share Pink et al's approach of 'interviewing differently to the more conventional renderings of the interview' (Pink, Leder Mackey, et al. 2017, p. 99), in which the researcher participates into people's everyday lives and (interviews) are mixed with other 'performative methods' of collecting data (Pink, Leder Mackey, et al. 2017, p. 99–100).

Semi-structured qualitative interviews, using a cultural probe, were conducted as part of the home tours, and with the professionals. The interviews were in-depth and open-ended, and based on my Renovation Storybook. In some cases, discussions started shortly after entering, in others they happened while walking around or at the end of a walk through. In all cases, I was audio recording, photographing and at intervals, video recording them. The procedure was diverse (at home or at work), however, there were common points to their structure as follows:

1. Introductory part or 'establishing a level of comfort' (Galletta 2013, p. 47): On arrival I greeted and thanked the participants and discussed the aim of the research, following on from my initial email. I explained the ethics procedures and asked them to sign the consent forms, ticking their preferences for anonymity and other issues. I made sure they were happy with the conditions and allowed time for any questions. Then, I started the recording of the session.

2. Middle part: This was the free-flowing part, in which we moved to detailed accounts of the stories. I used the Storybook for guidance, however, as people would start narrating their lives, work and everyday situations, I didn't have a set starting or finishing point. I used video to capture interesting parts of the process, such as when the participants were drawing or when they displayed things of particular interest. This phase could last from about an hour (in the case of the professional interviews), to several hours at a home visit- with the average time being 2.5 hours.

3. Conclusion. Depending on the depth of discussion and the time available, when I had covered all the points in the Storybook, I usually let people know that we could finish the visit. In some cases, we continued our talk, drifting to irrelevant subjects. After that I thanked them, gave them some space for reflection of the process, and then stopped the audio recording.

I aimed to hold the professional interviews at the workplace of participants, usually an office or a building site. This allowed the observation of everyday working practices of the professionals and of their interactions with colleagues. In both home and professional settings, the interviews conducted on site, were supplemented by (written or graphic) documents and information, such as drawings of the renovation, and scrapbooks that the participants used, and media devices and other props and tools that were in use regularly. This material backdrop enabled me to get a more in-depth understanding of the process than if I had only interviewed people at another place.

Fig.2.4 Example planning drawings supplemented by the owner during the visit

Fig.2.5 Householder showing me a visual record of the renovation process, alongside the house drawings

Intensive, participatory, design-focused workshops involving all stakeholders of a project, are usually utilised to address complex challenges, involving public and/or private investment (Roggema 2014). Participatory workshops are suitable for space-related issues, such as architecture, urban planning, community development and product design, and for strategies for sustainable futures (Zhang, Mao & Zhang 2015). These activities provide an opportunity to design with, rather than design for users involved, and present a way to 'use making to anticipate the future' (Sanders & Stappers 2014; Howard & Somerville 2014). Additionally, participatory workshops allow for participant contribution to collective decision making (Howard & Somerville 2014).

The workshop I organised allowed for a collaborative learning-by-doing environment, bringing people closer, and supported a collective vision to develop (Brandt, Binder & Sanders 2012). The workshop I envisioned, was not intended to contribute to a design process, but to enable a collective understanding and mapping of the process of renovation and the intermediaries involved. This collective process is important in order to co-ordinate and support the embedment of low carbon practices in households (Horne & Dalton 2014). It also provided an excellent opportunity for the actors involved to come together in order to understand each other's perspectives and address not only the technical but the social and cultural dimension of the renovation practices.
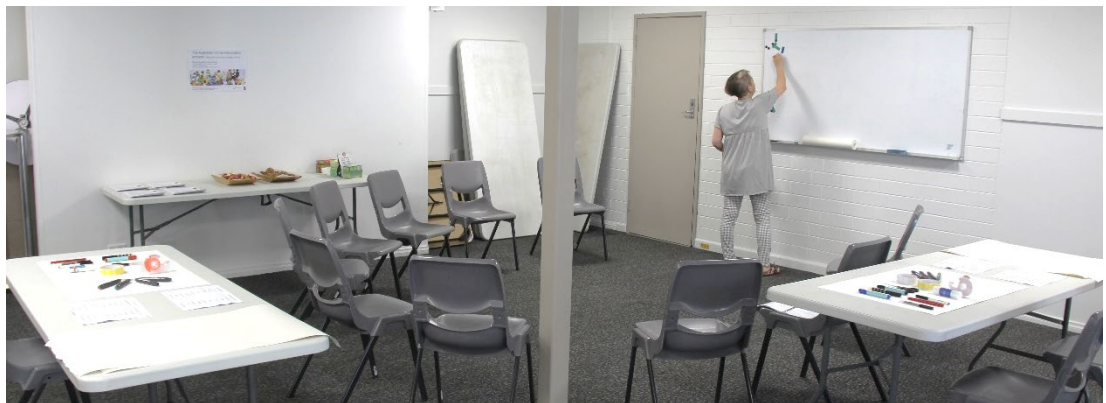
Fig.2.6 Setting up the workshop

Fig.2.7 Participants during the workshop, Photographs by author

Despite inviting all the householders and professionals I had interviewed to the workshop, not everyone attended. The turnout of people included a total of 8 participants, 7 householders and one professional. However, 3 of the householder participants are also building professionals, so their input represented their views as both householders and professionals in the building industry.

In order to run the workshop efficiently, I had planned an approximate schedule and prepared a toolkit, described below. Furthermore, by doing a preliminary analysis of the mapping of the renovation process, following the home visits and interviews, I presented some broad categories, in order to help accelerate the process of the workshop.

Sign a contract		Sign a contract	
Re-use -		Re-use -	
Re-cycle -		Re-cycle -	
Sell on ebay / gumtree		Sell on ebay / gumtree	
Make a wishlist		Make a wishlist	
Apply for permit / approval		Apply for permit / approval	
Calculate home value (pre-renovation)		Calculate home value (pre-renovation)	
Calculate home value (post-renovation)		Calculate home value (post-renovation)	
Make profit		Make profit	
Sell house		Sell house	

Look for a house	Look for a house
Buy a house	Buy a house
Idea to renovate	Idea to renovate
Do energy audit	Do energy audit
Develop vision for home	Develop vision for home
Put ideas together (DIY)	Put ideas together (DIY)
Pause	Pause
Partial demolition / clearance	Partial demolition / clearance
Learn a skill -	Learn a skill -
Visit open homes -	Visit open homes -

Fig.2.8 Preparatory materials made available to participants during the workshop
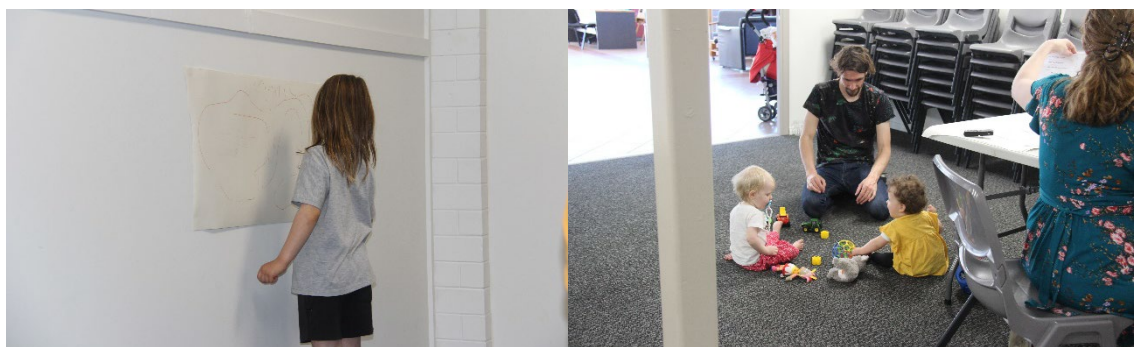
Fig.2.9 Whole family involvement during the workshop

The atmosphere of the workshop was informal; families were invited to bring their children, who also actively took part by drawing and playing on the floor, alongside my own children. I was fortunate to have the help of my partner and a good friend (and fellow PhD researcher) on the day, which made the facilitation much smoother and more pleasant for everyone.
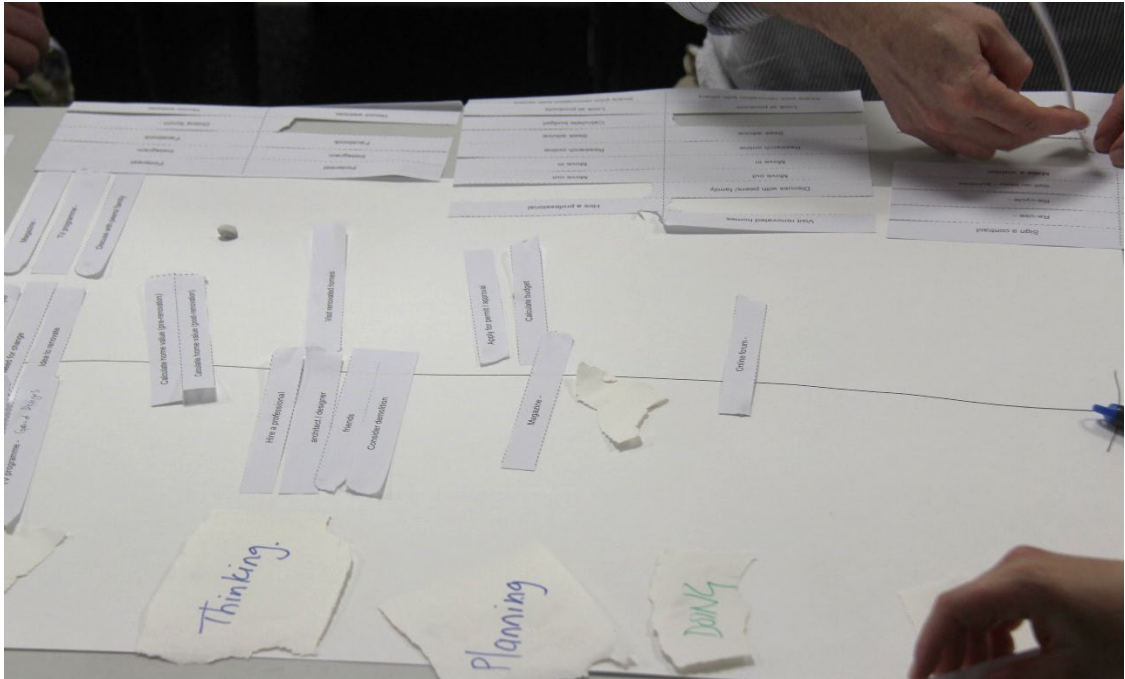
Fig.2.10 Sample of participants mapping the renovation process during the workshop.
Photograph by author.

The participants formed two groups of four and initially mapped the renovation process as a group. There was no influence on my part about the way this should be done; the only limitation was time. After each group had finished with their maps and allocation of intermediaries, the large posters that they produced were pinned up on the wall. We ended the session with a representative from each group presenting their process and a group discussion to reflect on key issues that came up during the interactions.

Fig.2.11 Participant presenting the group mapping

None of the participants were acquainted before the workshop, after their time there, they went home with new connections and excitement about their projects. Except the exchange of contact details, the participants suggested it was a great opportunity to meet others in their close vicinity who are experiencing similar circumstances, renovating their homes. The workshop combined the collaborative knowledge of the householders and professionals of renovation to generate insights into the complexity of the process, particularly relating to the contribution of media in each stage. Even though the sample was small, it indicated that the complexity can be broken down in smaller, more manageable fragments, and as a case study, it can become an example for how this process can be scaled up to involve larger and more focused audiences.

2.4 Evaluation and analysis

The evaluation and analysis of research begins from the first moments a researcher meets the participants (Mackley & Pink 2013; Schutt & Chambliss 2013). Furthermore, using a social constructionism model for explaining knowledge, knowing is deeply embedded in its social context. Achieving a good qualitative analysis is a complex, challenging task; nonetheless, creative and rewarding (Crabtree and Miller, 1999 p.146). The analysis of qualitative data is an interpretation of the experience of the field, which is, often, not a linear process that comes after data collection, but one that jumps forwards and backwards and has been compared to the process of dance :

> ''Interpretation is a complex and dynamic craft, with as much creative
> artistry as technical exactitude[…] like a night at the big dance''
> *(Crabtree and Miller, 1999 p.128-129)*

The analysis and interpretation of the diverse data sets, including text, audio, visual and videos, took place in various cycles of listening and looking, collecting and grouping, coding and reflecting. I repeated the process repeatedly, while critically going through my notes and the Storybooks. While I was open-minded and reflective about the information, I allowed the theoretical and epistemological principles that I have adopted to guide me through the process. The following sections present my two main analysis methods. I also discuss issues of reflexivity and the trustworthiness of the research. I initially considered using computer software to assist my analysis (NVivo). My sample was small and quite manageable, so I decided not to use NVivo, but a

manual method of analysis. A discussion with my supervisor confirmed this was appropriate for the purpose of the thesis.

2.4.1 Triangulation (crystallisation)

'Objective reality can never be captured. We can know a thing only
through its representations' (Denzin & Lincoln 2000, p. 5)

Judging the quality of qualitative research is challenging and continuously debated amongst scholars. Tracy (2010) suggests eight characteristics as indicators of good quality qualitative research. These are: '(a)worthy topic, (b)rich rigor, (c)sincerity, (d)credibility, (e)resonance, (f)significant contribution, (g)ethics and (h)meaningful coherence (Tracy 2010, p. 839). I used these criteria as guidance during the design, performance and writing-up of my research.

A usual method to assure quality and integrity of qualitative research is triangulation. Triangulation endorses the perspective that there is no single reality but a simultaneous diversity of realities (Denzin & Lincoln 2000, p. 7). Usually triangulation is achieved using different, multiple methods of investigating the subject. Richardson (2000) suggests that the two dimensional shape of the triangle is not appropriate for representing the multi-faceted nature of qualitative 'validity' and that it should be better represented by the metaphor of the three-dimensional form of crystal, 'which combines symmetry and substance with an infinite variety of shapes, substances, transmutations, multi-dimensionalities, and angles of approach' (Richardson 2000, p. 934).

Therefore, to balance the reliability of my findings without losing the emotion of storytelling, I employed the following:

- Use of multiple sources of collecting data.

  My methods included case studies, semi-structured interviews and a workshop. The use of these three methods enabled for a diverse understanding of the process, and allowed participants to discuss their perspectives, expanding or amending their opinions between the home visits

and the workshop where collaborative making was facilitated based on the preliminary interview findings.

- Other researchers' input.

Preliminary analysis of my findings through discussions and presentations at conferences assisted in the identification and deepening of my primary inquiry of the data. Furthermore, by presenting to the academic committee that supervises my thesis at Swinburne, at yearly intervals, I was able to discuss emerging concepts and findings, and incorporate their suggestions in the analysis of the work. Finally, ongoing discussions with my supervisors and peers during the length of the thesis presented a valuable source of self-reflection, self-doubt, and confirmation in the journey of interpretation of the complex issues I encountered.

- Thick descriptions

After each visit I produced rich, 'thick' descriptions of the observations and interactions I had with the participants. Thick descriptions are considered as extensive, subjective accounts of the context and objects of fieldwork, usually produced through ethnographic methods. They allowed me to reflect on the immediate thoughts and emotions I had coming straight out of the field and became a record of comparison and validation.

2.4.2 Generalizability

The concept of generalisation in (inductive) qualitative research, or the applicability of the concepts emerging from small-scale samples, to different (and usually larger) audiences and contexts (Ryan & Bernard 2000), is debatable amongst researchers and 'remains a problematic issue' (Payne & Williams 2005, p. 310). In-depth, qualitative research findings 'can never seamlessly generalize to predict future practice' (Tracy 2010, p. 845). The ability to extend the findings of small-scale, qualitative research findings into wider, larger audiences is important, as 'everyday social life depends on the success of actors doing this'(Payne & Williams 2005, p. 296). Rather than seek to

achieve statistical generalisation, which would often represent findings from larger, quantitative research, I aim to achieve a *moderatum* generalisation. *Moderatum* generalisations are moderate depictions of social life: 'they are not attempts to produce sweeping sociological statements that hold good over long periods of time [….]. They are testable propositions that might be confirmed or refuted through further evidence' (Payne & Williams 2005, p. 297). Lincoln and Guba suggest that in order to achieve conclusions that can be generalised, it is important to provide enough thick description of the field and the context in which the research was conducted (Lincoln & Guba 1985, p. 316).

Additionally, an alternative understanding of generalisability is the approach of analytical generalisation, a process which enables researchers to point similarities of research findings with other contexts and situations, of similar theoretical perspectives (Collingridge & Gantt 2008, p. 392). Important factors for the reliability of analytical generalisations are the context in which the study has been conducted, and the theoretical framework which has been applied in order to perform it.

'Studies that build on existing theoretical concepts […] and integrate
results into existing research […] produce results that can be
generalized with a greater degree of confidence'
(Collingridge & Gantt 2008, p. 392)

By guiding the research through practice theories and mediatisation concepts and by conducting an extensive review of literature, I have set the foundations in order to build a step towards the generation of new knowledge on the process of home renovation. My findings extend recent literature on home renovation and relevant interdisciplinary perspectives, as discussed in chapters 3, 4 and 5, and contribute theoretically and empirically to the understanding of the complexity of the renovation, which can assist change towards lower carbon housing.

2.4.3 Reflexivity

Reflexivity is determined as the 'process of a continual internal dialogue and critical self-reflection of researcher's positionality as well as active acknowledgement and explicit recognition that this position may affect the research process and

outcome'(Berger 2015, p. 220; Guillemin & Gillam 2004, p. 274; Stronach et al. 2007). It has progressively been acknowledged as a critical component of composing knowledge through qualitative research (Berger 2015).

My personal involvement in the design and conduct of the research is initially evident by the selection and synthesis of the methods that comprise this thesis, which in turn are shaped by my personal and professional experiences. My personality, as well as living and professional experiences prior to the thesis have shaped the way that I perceived the renovation practices within homes and influenced my interactions with participants. My personal background involves regular changes of living and working environments and immigration to several countries around the world after leaving Greece, my home country. My professional background includes the practice and teaching of architecture and design; I have experienced the housing sector through the drawing board and building site, and through meeting with clients. Despite this, I have never experienced home renovation in my own household. So, in one way, through my professional life, I was an insider to the renovation process and on another level, an outsider, as I have never experienced the full extent of the renovation journey in private.

> 'An observer can never know better than an actor; a stranger cannot
> say more about any culture than a native, but observers and
> strangers can see different things than actors and natives can'
> (Czarniawksa-Joerges 2007, p. 21)

Acknowledging the diversity in environments and culture I have experienced, I also appreciate that the countries belong to privileged, western and predominantly neoliberal economies and therefore everyday practices can be understood, in general, as practices formed by common value systems. However, the reality of each case confirmed that diversity, even in small details, is still observable and is important to recognise, in order to trace how change can happen.

During the research I have taken on several roles to respond to its requirements: a researcher, facilitator, designer, investigator, critic, writer, friend and colleague. This multi-purpose performance reinforces the view of the researcher as a bricoleur or quilt-maker (Denzin & Lincoln 2000, p. 4), assembling collected data into comprehensive

narratives. An interpretive bricoleur generates 'a pieced-together set of representations that are fitted to the specifics of a complex situation' (Denzin & Lincoln 2000, p. 4). This process involved self-reflection and creativity, and at times a spontaneity and preparedness to change the plan of how things were designed to go. I kept a journal of reflections to capture immediate thoughts and impressions and in some cases I audio-recorded my feelings and concerns. This helped me compose files for each case which assisted in the final analysis.

Before starting an interaction, I introduced myself to the participants as a researcher, with a brief explanation about the project and my background. However, it was interesting to observe that people selectively kept their own interpretation of my identity. For example, during a visit, I was introduced to another member of the household as the 'research student', whereas, at times, I was an 'architect doing a project'. In other cases, I was a friend that was researching home renovation or a colleague that was also a researcher. In the professional visits, in architectural/design offices, I was often perceived as a colleague, whereas in building sites I was a researcher interested in finding out about building. Depending on each definition of my role upon my entrance into people's world, assumptions were made about my basic understanding or knowledge of the situation. In some cases, I was perceived as the 'expert', and was asked technical questions or opinion about decisions, in other cases I was perceived as an observer or an 'external voice' and therefore people had to explain themselves a little more. In all cases, I never confirmed or rejected people's view of me, I just let the discussion flow in order to try and not lead or alter their intentions of telling the story. Essentially, people were happy to have a devoted listener who empathised and supported them emotionally in their renovation journeys.

Finally, through the act of writing the stories I experienced, I started to develop a critical view of each case. Writing became part of the analysis process; the themes and categories identified were linked and started to make sense, through the narrative that developed by writing up each section and chapter.

Content analysis is 'a method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns' (Hsieh & Shannon 2005, p. 1248). I used content analysis as an inductive method to analyse the textual body of my data, which I obtained through the transcription, thick descriptions and note-taking of my home visits and interviews. I thoroughly reviewed all the data types collected, systematically and in-depth. Since the home visits comprised of lengthy interactions, captured in different ways (video, audio, Renovation Storybooks and notes), I did not fully transcribe them but used those different sources directly in order to conduct my initial coding and categorise them into themes.

In order to perform the analysis, I prepared the data by scanning in my Renovation Storybooks and other data produced in the workshop and then repeatedly read the reflective narratives (thick descriptions) of each visit and re-played the video and audio files. I also transcribed the professional interviews and reviewed their audio-visual recordings to reinstate my experience of the interactions. While my coding was inductive and derived by the flow of each conversation, the Storybook I had prepared was based on initial themes I had identified through the review of literature and relevant studies which inspired the research. The practice theoretical perspective informed the making of the Storybook, which became a guide when the analysis started to take shape. Because of this, the identification of themes became more manageable, especially as I collected a very large and diverse amount of data.

Despite the analysis of text that was transcribed, most of the data analysed during the home visits were not only on verbal, and therefore textual information but also embodied meanings of people's participation. Through the storybooks, via drawings, sketching and diagrams, and by video-recording the interactions, I was able to observe, capture and re-visit each household's experience of the renovation, whether it was a re-enactment or the actual performance.

The process of evaluation started by the notes I was talking in the Storybook while I was visiting homes. Immediately or soon after the visit, I wrote reflective accounts of

the interactions and composed a summary table with the more quantifiable data, such as house typologies, size and type and renovation. That helped me identify repetition in the themes in order to compose the initial codes. I used descriptive codes to make sense of the data (for example *renovation trigger or experience of home*), and at a second stage I made categories of these which eventually formed my themes.
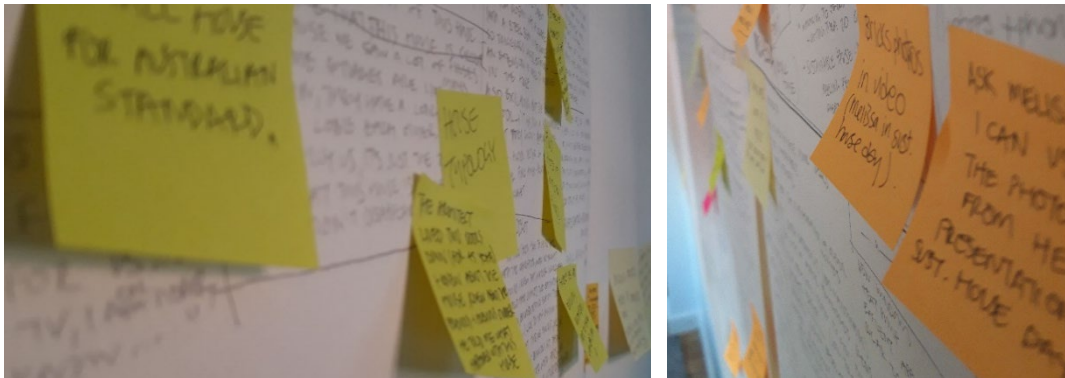
Fig.2.12 Working wall: collating data and categorizing

2.4.5 Visual data analysis

Design thinking, as discussed in section 2.2.2, has been increasingly used in business and innovation to resolve problems- sometimes between industry and customers-using visual and creative approaches in order to get critical insights (Bolton 2018).

> 'Design thinking relies on our ability to be intuitive, to recognize
> patterns, to construct ideas that have emotional meaning […] and to
> express ourselves in media other than words and symbols'
> (Brown & Wyatt 2010, p. 30)

In order to evaluate the workshop data, it was important to consider their highly visual content and value. The two groups that were formed, composed two large maps of the renovation process, on which they marked the different stages along with the intermediaries involved in each one. The maps were diagrammatic and included the participants' own writing alongside stick-on notes and labels I had prepared to speed up the process.

Therefore, the visual data had to be interpreted both in written word and visual images or diagrams. However, this interpretation, should not just become a graphical visualisation of data, but rather, a form to adopt 'designerly ways of knowing' (Cross 2006, p. 5, 1982, p. 221), which are distinct from science or art and involve-amongst other things- the solving of a problem by synthesis, rather than just analysis (Cross 2006, p. 6). Furthermore, by using design as a method for research and analysis, there is a silent backdrop in which a challenge or research issue needs to be dealt with a 'fairly quick and satisfactory solution' (Cross 2006, p. 7). Conducting research, particularly in the social sciences, is not about providing a direct practical solution to a challenge but rather advance existing knowledge and the determination of contributing issues. However, on an applied research project, design thinking and research can speed up this process and help break down the complexity, particularly on ill-defined, 'wicked' problems (Cross 2006, p. 7), as well as 'connect and integrate knowledge […] into productive results for individual and social life' (Buchanan 2001; Bolton 2018, p. 279).

One specific approach, within the variety of design research methods, is the Visual Thinking Method (VTM), characterised as a 'blended method', which incorporates reflection, as well as the (design) researcher's uncertainty of not being able to anticipate the outcome (Bolton 2018, p. 279). The VTM helps break down the complexity and uncertainty of the issues, by its ability to 'recognise patterns in visual and non-visual data' (Bolton 2018, p. 282). This is achieved by a four-stage process- the 4Cs method- of 'systematic collection, clustering, categorising and classifying of visual and non-visual data' (Bolton 2018, p. 283).

In order to perform this, I clustered the visual maps from the workshop, along with the maps of the renovation process that the householders and professionals had produced in their respective visits. By combining these data sets, I could trace patterns of similarity and contrast between the individual and collective responses to the question of process and intermediation and was able to code but also synthesise a new collective understanding of the process. It was challenging to summarise visual information as they were very varied and diverse, see for example Fig. 2.13, two diagrams of the renovation process as drawn by participants during the home visits and two examples of the mapping of the professionals.

Renovation   mapping

DREAM ABOUT
VISION – IMAGINE the
new life –
clear old House → media (aimtree ** **
ebay)
Budjecting
┌─────────────────────┐
│ Lists – Doing it – │   Longest.
└─────────────────────┘   Time spent

         Decisions in progress   → Media For   ** ** *
                   during the build   products,
                                                 windows
                           ↓   bathroom
                        Mostly   etc...
                        the owners
                          builder
                          architect

→ Media ** **
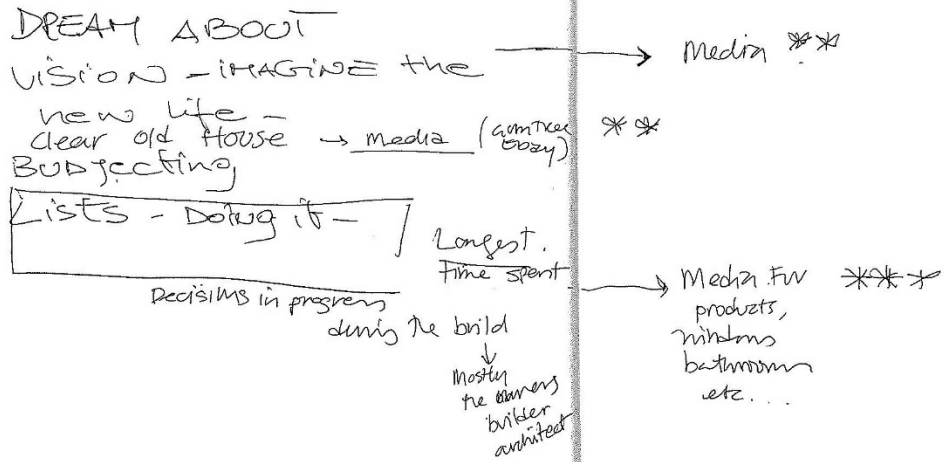
Renovation   mapping
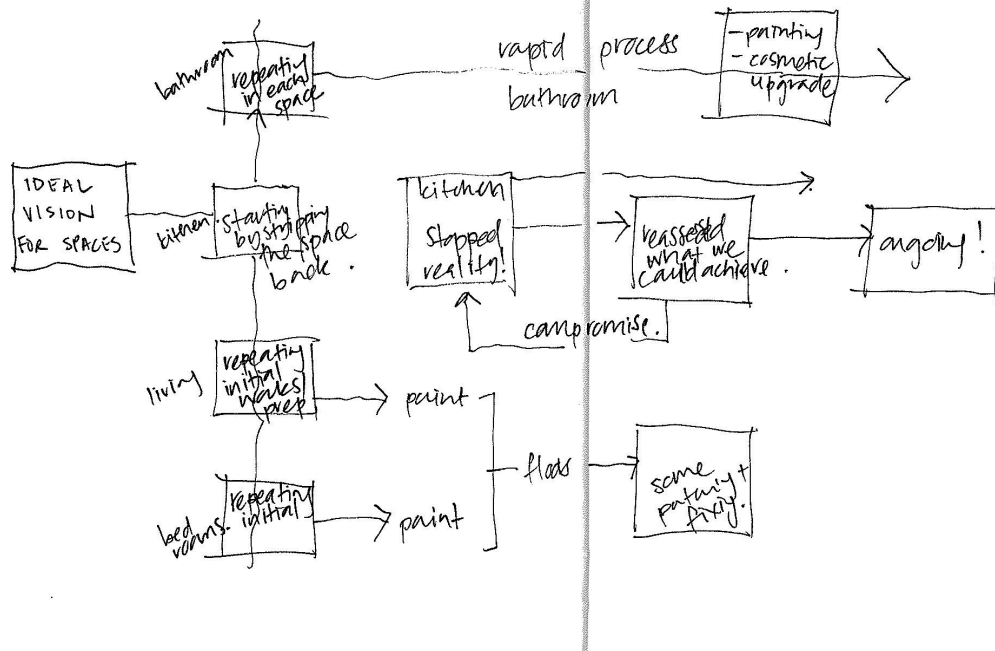
Fig.2.13 Two examples of householder renovation process mapping
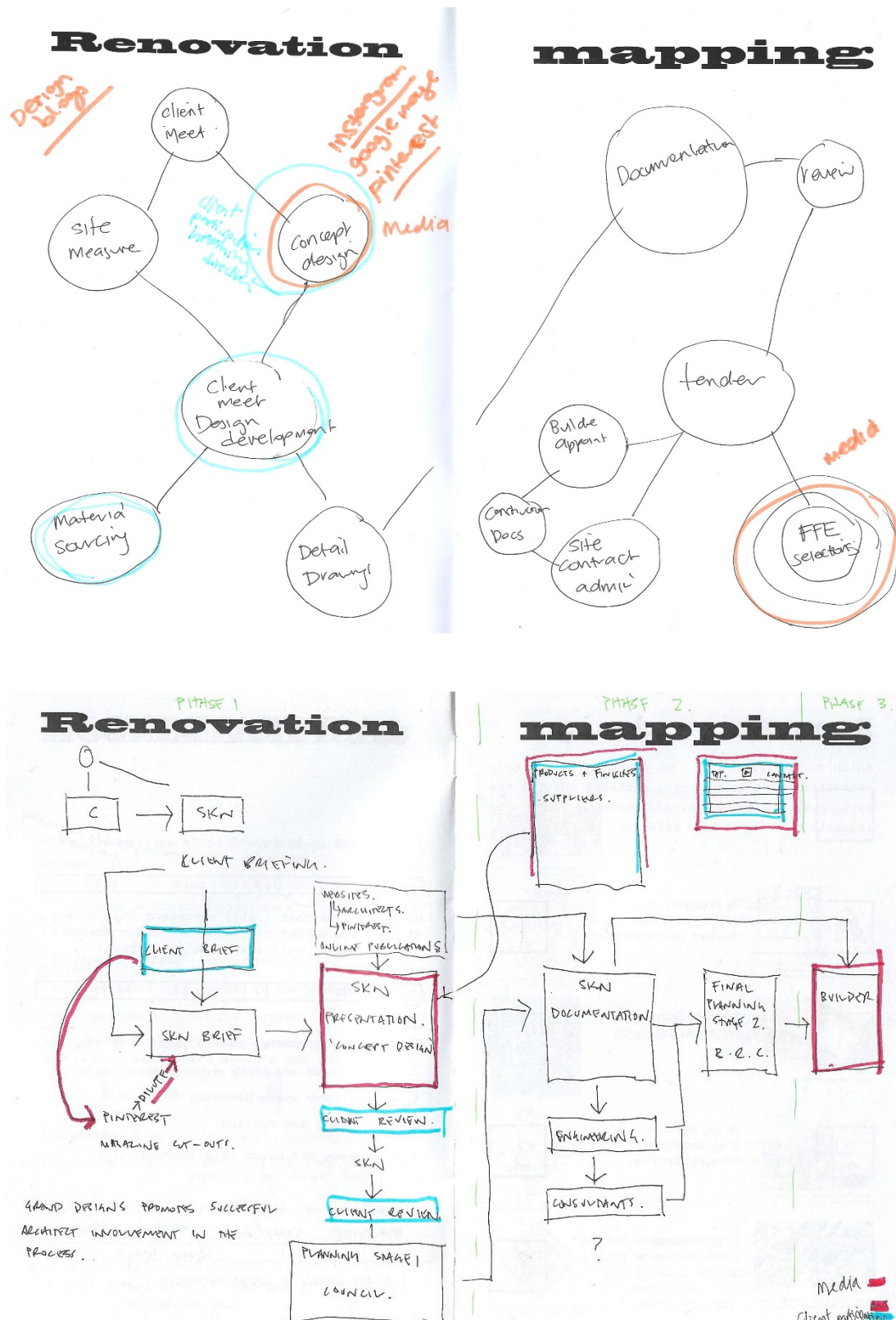
Fig.2.14 Two examples of professionals' renovation process mapping

Eventually, the guiding principles for identifying themes and categories came from the combination of inductive analysis and literature review, through which I had identified similar processes of classifying the renovation process and was able to validate and expand. The VTM also helped with the coding of the data from videos and photographs, allowing me to reflect and conclude about non-verbal, sensory data, such as body movements and signs during the interviews (See Fig. 2.15 below).

Fig.2.15 Example of clustering of body movement as narrative to the design of space

2.5 Chapter conclusion

This chapter summarised the theoretical and methodological considerations of the thesis and provided a detailed record of the basic principles followed for the analysis. In specific, it discussed theories of practice and mediatisation as the theoretical frameworks behind the research design. Furthermore, it presented the concept of short-term ethnography and participatory design, as the chosen methods for investigating the process of home renovation. It demonstrated that the merging of these two complementary methods, with their combined qualities of people-focused, context-based, participatory inquiry, can produce a *district way of knowing,* which is future-looking and enriched with in-depth, detailed description and reflection which can help to move 'forward with people in pursuit of their dreams and aspirations rather than dwelling in the past' (Gunn, Otto & Smith, Rachel 2013, p. 18). The synergy of design and ethnography can advance the construction of new insights, contributing to individual and societal change more effectively than what each discipline or method can achieve individually.

PART 1: Composing the home renovation landscape

Part 1 comprises an interdisciplinary review of renovation, focusing on issues of household practices and household consumption, within the unique Australian suburban context which enables the performance of renovation in distinct ways compared to other, similar economies in the world. The extended review addresses my first research question of:

1. How do different disciplinary perspectives frame the complexity of the home renovation practice?

Through this review, I compose the renovation landscape (Fig.2.16), connecting critical insights from sociological literature on consumption and homemaking, with current interdisciplinary understandings of renovation as a domain of different kinds of expertise and a review of the symbiosis of people with media and communication technologies in their everyday life at home. The analysis of these domains assists in addressing the need to investigate renovation as a social practice, as an activity with shared collective meanings, involving a complex array of meanings, within the household and through its connected communities, materials, technologies and the householders' unique know-how.
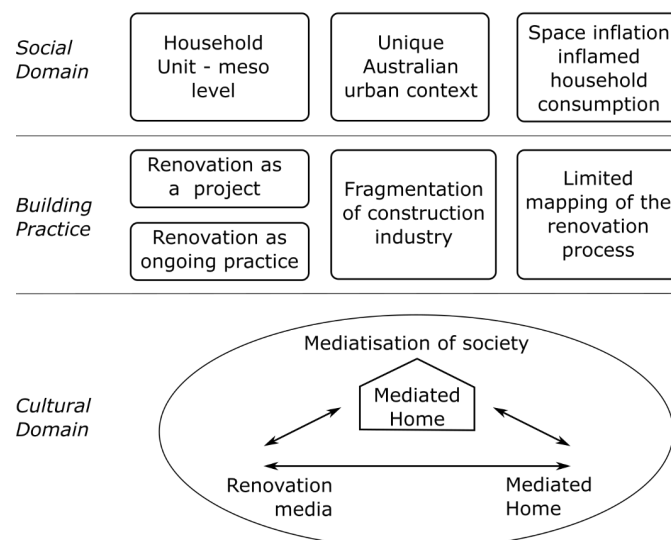
Fig.2.16 The Australian home renovation landscape

Chapter 3: Household

3.0 Chapter overview

There is a current necessity to decarbonise households and everyday life at home (Horne 2018). There is growing indication in recent literature that new understandings regarding daily routines and their implications in these transitions towards lower carbon living are required in order to achieve these (Long et al. 2015; Swan & Brown 2013; Bartiaux et al. 2014; Willand, Maller & Ridley 2019; Collins 2015; Ronald, Druta & Godzik 2018; Hagbert & Bradley 2017; Maller & Horne 2011). As a basic unit of society, the household is a key site for research, where the mediation of challenging societal issues, such as climate change and housing sustainability occur within the backdrop of everyday life (Hall 2011; Judson 2013a; Hunter 2019). Although the familiarity of the household lends itself to more debates than other fields of human interaction, it also brings about assumptions about what constitutes normality and everyday life, particularly relating to aspirations or motivations for sustainable practices (Lane & Gorman-Murray 2010, p.1).

In line with this, chapter 3 brings together literature from social research, sustainability transitions and cultural studies, examining the household as a site of collective identity formation, placing it in the meso level of society, where the micro, and macro, societal levels meet and interact. These interdisciplinary perspectives frame the Australian households within current discourses on housing sustainability and transitions to low carbon cities discussing relevant theoretical concepts and technical issues. The chapter also examines the association of home ownership and homemaking with renovation practices and it discusses household consumption in order to understand how carbon heavy consumption practices contribute to renovation.

3.1 Significance of the household towards lower carbon living

Households of western, affluent societies, such as Australia, are currently in the spotlight- particularly in energy and consumption studies (Gram-Hanssen 2010b;

Collins 2015)- as significant social units for the transition to a more sustainable future within the wider climate change adaptation (Toole, Klocker & Head 2016; Lane & Gorman-Murray 2010; Klocker, Gibson & Borger 2012; Peterson, Rai Peterson & Liu 2013; Organo, Head & Waitt 2013; Doyle & Davies 2013; Hagbert 2016a; Head et al. 2013).

Despite the global decline in average household size in the developed world (Klocker, Gibson & Borger 2012; Keene & Batson 2010; Gorman-Murray & Dowling 2011; Burke & Ralston 2015; Bradbury, Peterson & Liu 2014; Ravetz 2008; Horne & Dalton 2014), the number of households are increasing (Bradbury, Peterson & Liu 2014; Peterson, Rai Peterson & Liu 2013; Ravetz 2008) and their composition is changing due to several reasons such as intergenerational co-residence, aging and diversity of household occupation (such as single parent families, group households and same-sex families aside from the 'nuclear' family type) (Bradbury, Peterson & Liu 2014; Gorman-Murray & Dowling 2011). The growth in households has brought about an increase in the number of houses (Peterson, Rai Peterson & Liu 2013), an increase in household consumption (Burke & Ralston 2015), as well as the production of diverse homemaking practices and new meanings for home (Gorman-Murray & Dowling 2011).

Home is not synonymous with household. The household is characterised by a range of organisational processes which both link it to their broader social context and create the setting that bonds the householders together (Head et al. 2013). I share Head et al's (2013, p. 352) characterisation of households as 'a network of connections' rather than isolated social units that perform only at the 'domestic level'. Following this definition, changes done at the household level can only make a difference if they are related to wider scale contexts (Gibson et al. 2011).

Furthermore, the household is a significant site for the composition of a collective identity of its members (Reimer & Leslie 2004) while its repetitive routines can support or prohibit the establishment of new practices (Collins 2015). These household dynamics attract the attention of policy makers, scholars and other relevant bodies, and, when studied in their relevant cultural contexts, present an opportunity to create a new 'normal', which can potentially shift household practices to more sustainable everyday consumption (Gibson et al. 2011; Head et al. 2013). My thesis concentrates

on household renovation practices rather than individual actions of its members. My focus includes household practices, as shared 'routinised' actions (Reckwitz 2002b, p. 249) which are stitched together and sustained by their daily repetition and interrelation with other daily household practices (Shove 2014, 2003).
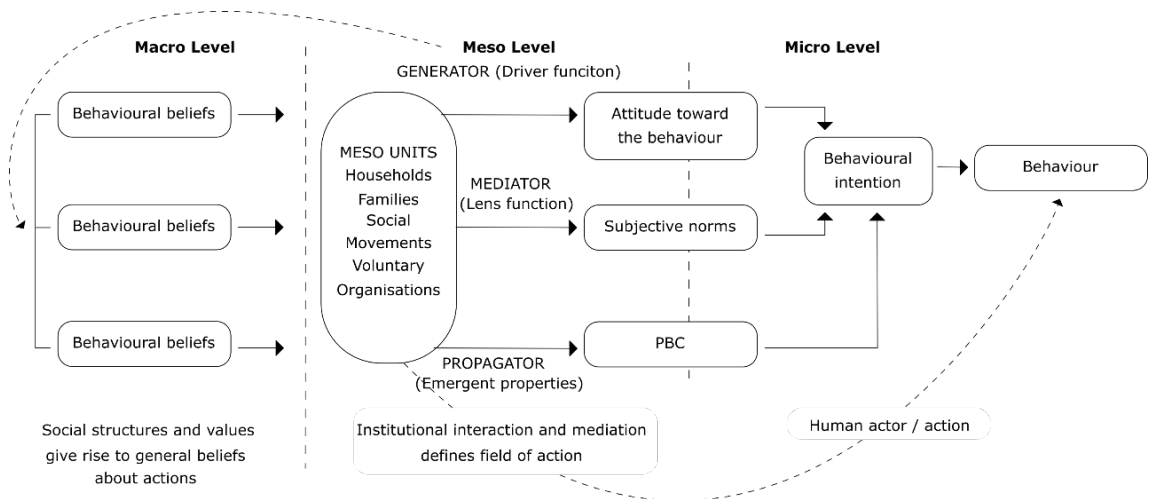
Fig.3.1 A conceptual framework, indicating the role of the meso level on pro-environmental behaviour. Redrawn by author, from Reid et al 2010

The household unit sits at the intersection between the micro, private context of the domestic environment and the macro, national or international level in which global issues take place (Allon 2013; Reid, Sutton & Hunter 2010). Reid et al present a conceptual framework (see Fig.3.1) for the appreciation of pro-environmental behaviour linking the role of the meso level. According to this, the centrality of the meso level can act as a mediator, translating and filtering concepts or practices (such as recycling or energy saving) to households or communities. Furthermore, as a generator it can foster these concepts or practices to the macro level, developing a new set of values. Finally as a propagator it can contextualise these new values in households and families, making it possible to 'activate' individual behaviours which would have not otherwise changed if only held by individual members of each household (Reid, Sutton & Hunter 2010).

The household as a unit of analysis is very important for this reason, as it bridges the micro practices of individual members to the wider social and cultural practices of the macro level. Currently, particularly in western societies, the household is increasingly

becoming the focus of policies for sustainability and on the mission to deal with climate change (Head et al. 2016; Gibson et al. 2013; Head et al. 2013). However, some policies tend to treat the household as a 'black box', or an independent social unit that primarily operates at the micro-level (Head et al. 2013, p. 351–352). An alternative approach to this is presented by Head et al, who suggest that households can be thought of as connected units and 'homes in which social relations are the core human concerns […] families bond, people invest emotions and undertake […] identity work beyond the putatively 'environmental' (Head et al. 2013, p. 352).

3.2. Transitions to a lower carbon footprint of households

Households and their associated building practices have been found to contribute significantly to the greenhouse emissions of Australia (Moore, Horne & Morrissey 2014; Wang, Chen & Ren 2010; Yu et al. 2017). Transitioning to a more sustainable future is now critical and the role of households is found to be essential (Collins 2015; Toole, Klocker & Head 2016; Hagbert 2016b). The field of sustainability transitions, which brings together scholars from different disciplines such as science and technology studies, innovation, political science, ecology and sociology (Lawhon & Murphy 2011; Wittmayer et al. 2017), presents a useful perspective on the progressive change required towards a more sustainable regime within the different domains of technology, culture, politics and social life. In the past decade, research on sustainability transitions has been engaging with the complex understanding of the multifaceted transformations that need to be established in our society in order to achieve change to a more sustainable future (Eames et al. 2013). I adopt the definition of sustainability transitions as ''a radical transformation towards a sustainable society as a response to a number of persistent problems confronting contemporary modern societies' (Grin, Rotmans & Schot 2010, p. 1).

My interest in the transitions literature and relevance to renovation practice lies primarily through its studies of intermediaries, as actors engaged in the linking of associated practices of homemaking and renovation, as well as the explanation of how change happens in the different societal levels, through the multi-level perspective (MLP). Spaargaren et al (2016) suggest that transition theories and theories of practice have certain elements of compatibility in the way, for example, they engage with

explanations of social change, particularly on the emergence and stabilization of practices (Spaargaren, Lamers & Weenink 2016, p. 16). This perspective along with the transitions' analysis of the interaction of different societal levels, from micro to macro are useful for my thesis as ways to bridge these literature perspectives, towards an enhanced understanding of how change in the micro and meso level of the household could be scaled up to the macro community and societal level. My intention is therefore to distil some key insights from the transition literature which could help understand the contribution of households to the decarbonising of homes, particularly through renovation.

3.2.1 Multi-level Perspective (MLP)

A key strand of the transitions literature focuses on the multi-level perspective (MLP), which involves three levels: niches, socio-technical regimes and landscapes (Geels 2010). According to the MLP, transitions emerge from the non-linear, complex interactions between these three levels (Geels 2010, 2012). The MLP engages with macro-level changes at the wider landscape scale, while niches relate to the micro and meso level processes of change (Markard & Truffer 2008; Shove & Walker 2007). Technology is a central focus of the MLP and is used as an empirical tool to find out how change happens (Mcmeekin & Southerton 2012). Despite claims of the social aspects interwoven into the MLP, technological innovations seem to be the core of its concern, while the social and cultural aspects are still under-explored and under-developed (ibid). The MLP has been criticised for lacking a strong link to how technological changes can be adopted by everyday consumers rather than 'special users' that might be engaged through niches (Mcmeekin & Southerton 2012, p. 347–348). Furthermore, critics such as Shove and Walker suggest that a stronger emphasis on practices of everyday life and its dynamics is important in order for change to happen, which involves observing how consumers involved in a certain practice perform and reproduce it (Shove & Walker 2010). Rather than assume that transitions happen as part of an external force, it is important to understand how consumers currently engage with the action in question (Shove & Walker 2010, p. 475).

Additionally, the MLP has been criticised for the lack of diversity of the actors involved in the decision making of transitions at regime level. Dominant approaches tend to

focus on 'the conceptualisation of knowledge as an objective truth' (Lawhon & Murphy 2011, p. 362), rather than seek to understand how knowledge is constructed and what that means in the long-term (ibid). Furthermore, the MLP presents a weak connection between its (conceptual) societal levels with their specific geographical and socio-cultural contexts, which form the ways in which transitions emerge, progress or fail. The linking between MLP perspective with theories of practice, in the context of households, could assist this lack of deeper understanding of the 'relationships and interdependencies' between the different levels bound with their specific contexts (Lawhon & Murphy 2011, p. 363).

3.2.2 Niches

Within the framework of MLP, niches are 'protected spaces' where emerging innovations happen (Geels 2012, p. 472). An important characteristic of niches is that they are based on social learning and networks that involve a diverse set of actors (Seyfang et al. 2016). Niches and their relationship to housing sustainability and home renovation in specific have been investigated recently within studies of urban sustainability transitions (see for example (Moore et al. 2017).

Horne suggests that a niche perspective can be relatively successful in the adoption of a single technology, such as the use of Photovoltaic Panels, which has been taken up and maintained by the Australian households since 2007 (Horne 2017). In the case of solar adoption, it was not just the financial incentives or rationality of the financial benefits that households desired, but also the adaptation to a new 'norm' which allowed installations to continue even when incentives stopped (Horne 2017). However, when it comes to more thorough home renovation practices, the process is so complex, involving 'material and cultural entanglements' and multiple actors, all diverse and localised to each household that the niche gets weakened (Horne 2017, p. 13). Furthermore, the process is underpinned by households' consumption practices and levels of comfort, and so interwoven into everyday life that makes the niche a more 'limited' and 'limiting' concept. Niches have been criticised for not being strong in connecting the 'social' with the 'technical' and the diverse actors, human and non-human, that are part of the renovation process (Horne 2017, p. 15). While my thesis has not targeted niche, low carbon renovations, there are examples in the participating

households that present niche characteristics. It is important to analyse how the practices of such projects can be scaled up to different societal levels (moving from micro to macro) and understand the commonalities of practices between the niche examples and other 'mainstream' renovation practices, particularly focusing on the contribution of media and intermediaries.

3.2.3 Transition intermediaries

Recent literature on sustainability transitions has placed focus on intermediaries (Bush et al. 2017; Barnes 2019; Kivimaa et al. 2018; De Wilde & Spaargaren 2019; Kivimaa et al. 2019). When considering the current challenge of carbon-heavy housing and the potential to decarbonise through renovation of existing homes, households are some of the main actors (Kersten et al. 2014). By taking a socio-technical approach to this transition to a lower carbon future, intermediaries are important parts of the system (Geels 2012; Backhaus 2010).

In recent literature on sustainability transitions, different typologies of intermediaries have been identified:

> (1) 'systemic intermediaries', who operate on all levels of transitions (niches, regimes and landscapes) and who are usually considered as neutral agents

> (2) 'regime-based intermediaries', mediating within the system between the various actors

> (3) 'niche intermediaries', engaging in the advancement of a particular niche, often connecting local with global projects

> (4) 'process intermediaries', who engage in the facilitation of a process within a broader niche but without a specific agenda, only with a general focus on the broader transition goal and

> (5) 'user intermediaries', who mediate between users and new technologies (Kivimaa et al. 2018, p. 7–9).

Transition intermediaries, those that operate within niches in particular, have been documented to be important actors for the connection of 'expectations and visions' towards change to a more sustainable regime (Kivimaa et al. 2019, p. 4). In this context of an MLP niche, that of low-carbon, water-efficient renovations in Australia, Horne et al (2014) identify that the mutual reliance of households and intermediaries involved are critical as they display a form of 'co-production' rather than supply and demand relationship (Horne, Maller & Dalton 2014, p. 544). This is particularly important for my study, as I present different kinds of co-production between householders and intermediaries in chapters 7 and 8. Niche intermediaries have the potential to define the required direction of a transition, while connecting the micro-level of a project to the macro-scale level or regime (Kivimaa et al. 2019). However, it is important to investigate the relationships and interconnections of the niche intermediaries and their relevance or presence in the other levels of the MLP, in order to understand how change can be scaled up in order to support the transition to lower carbon home renovation practices.

The next section bridges the macro level with the meso /micro household level, discussing the associations between home ownership, homemaking and renovation practices, by examining how people relate to their homes and how dominant social norms shape their practices.

3.3 Home ownership and homemaking

> 'Owning a house has long been the Australian Dream, rich and poor
> alike equating home ownership with identity and citizenship, with
> what being Australian is all about' (Allon 2008b, p.61)

Since the second world war, home ownership has turned into the prevailing tenure of households of anglophone societies such as Australia, encouraged by government incentives and private institutions' promotion of ownership as equivalent to security (Bate 2017). In this backdrop, homemaking has progressively been associated with home ownership, often equating successful homemaking with ownership generating concerns in the academic literature about whether home should be studied with the presumptions, as 'it excludes the large proportion of people who rent both publicly and

privately' (Bate 2017, p. 2). This section discusses the relationship of home ownership and homemaking to home renovation.

Housing tenure has multiple variations, described through the status of people as 'owners, owners-owners, renters and renter-owners' (Hulse & McPherson 2014, p. 1028). While most households will only belong in one of these tenure positions, there are increasingly more occasions in which tenure is much more flexible and involves a combination of above (ibid). Householders owning more than one property or owners who live at a rented property can have significant implications in the way homes are maintained and renovated. While I recognise the implications of this position, my thesis concentrates on owner-occupied households, since this was the dominant model of tenure that I encountered. Renovation practice in multiple tenure households could be another pathway to investigate the transition towards lower carbon homes.

Home ownership is a predominant social norm in Australia (Hulse, Morris & Pawson 2019; Belot 2017) and a 'distinctive feature of Australian culture' (Bessant & Johnson 2013, p. 178). Private home ownership has been growing since the second world war (Yates 2012), and prioritised by governments through 'low-interest housing loans'(Bessant & Johnson 2013, p. 178). Since the Menzies government in the 1940s, Australians were encouraged to own a plot of land with a home and a garden, as a way to have a 'stake in the country' (Troy 2000, p. 717–718). Aside from its financial benefits, home ownership has been associated with security, independence and flexibility of living options, particularly for families (Troy 2000). Additionally ownership reinforces people's ontological security, or a feeling of being in control in a safe environment (Dupuis & Throns 1998).

The promotion of home ownership has been a fundamental target of housing policy in the last eight decades, however, in the last three it has also be associated with a 'successful' lifestyle and citizenship (Mckee 2012; Rowlands & Gurney 2000). Buying a home is usually the most expensive single purchase that a household would make and its most important financial responsibility. Home ownership represents a household's 'financial self-discipline, […] ability to make sacrifices, accumulate savings' as well as 'defend' notions of successful citizenship and national identity (Allon, 2012, p. 405). While the majority of renovations are performed by owner-occupiers, there is significant

interest in the renovation for investment and resale. This could be problematic for the adoption of low carbon renovations, as investors are not always aware of how to incorporate energy upgrades or keen to bear the weight of the investment since they will probably not profit from it directly, e.g. through increases in rents (Hulse et al 2015, p.12). My thesis is focused on renovation of owner-occupiers, although an example of investment renovation is found in my participants.

Furthermore, the age of owners is changing; people are buying their first property much later in life than they used to (Hall 2017). Younger people, particularly from mid-to-lower incomes have gradually come to be phased out of ownership, either unable to afford property or opting to rent one in areas that would be too expensive to buy (Gray 2015). The declining ownership rate and age contribute to ongoing inequalities in housing and prosperity (ibid). The changing composition of households and the modified models and rates of ownership, consequently, influence the practice of homemaking and household decisions to stay in place or move. Homeownership satisfies the ability to 'do your own thing' (Baum, Scott; Hassan 1999, p. 25), and therefore implies more extensive renovation practices amongst homeowners rather than tenants (Maller & Horne 2011; Judson & Maller 2014). It has also been suggested that ownership changes people's commitment and responsibility to their homes once purchased, in terms of appearance and maintenance (Munro & Leather 2000). The fact that ownership is commonly identified with home (home ownership) rather than house, indicates how closely related homemaking is to the acquisition of homes (Blunt & Dowling 2006, p. 93). Blunt and Dowling suggest that ownership, in combination with successful, usually gendered, practices of homemaking and renovation, translate into a considerable 'capital gain' of a household (Blunt & Dowling 2006, p. 93).

Homemaking is an important and emotional social practice (Dowling & Mee 2007). As an ongoing process, it involves the continuous remaking of the household's identity (Morrison 2012). Furthermore, homemaking combined with the continuous interaction with the material matter of home, develops the feeling of homeyness-or unhomeyness-which defines feelings of comfort, pleasure and security (Dowling & Power 2011; Cox 2016). The material reconfiguration of home, particularly through interior decoration, in combination with immaterial elements, such as senses and sounds, assist in the making of home atmospheres, which represent people's sensory appreciation of home

(Olesen 2010; Pink, Leder Mackey, et al. 2017). The term atmospheres, in relevance to homes, refers to the aesthetic and sensory qualities which can distinguish a room with furniture from 'something more' (Olesen 2010, p. 32), relating to the sound and light qualities of space (Böhme 2013). Atmospheres are 'always located in-between experiences and environments' (Bille, Bjerregaard & Flohr 2015, p. 32), can be collectively understood and sit between the subjective perception of space and its objective reality (Böhme 2013). The significance of home atmospheres is that they are critical elements of 'the things people do in their homes', such as 'design interventions' or changes in order to achieve them (Pink, Leder Mackey, et al. 2017, p. 55). Renovation can therefore be perceived as a reason to respond to atmospheres; either as changes to achieve a new desired atmosphere or as amendments to eliminate an undesirable one.

Furthermore, homemaking, as a transformation of the house into a home is a non-linear process, particularly during the times that home is actively under construction (Gillon 2018). Gillon, studying the effect of building construction in everyday homemaking practices, found that in the time that houses are 'being built', homemaking gets challenged, generating feelings of unsettlement and disruption in everyday life and can even challenge fundamental meanings of home that owners hold (Gillon 2018, p. 469). This is an important consideration for the thesis as it observes the association of the two practices (homemaking and renovation) in order to understand how they are mutually shaping and being shaped by households.

Homemaking is a continuous practice, with blurry points of onset and end (Dayaratne & Kellett 2008). It is a practice motivated by the dreams and desires of homemakers and anchored in the social networks that validate its presence (ibid). Furthermore, homemaking is often guided by past experiences and nostalgic ideals of home that householders have, which present significant contributors to their visions of future or ideal homes (Ellsworth-Krebs 2016). However, romanticising the past might present challenges for the present and future homemaking practices, as representations of a good home may not line up with modern desires or needs (Ellsworth-Krebs 2016; Flanders 2015). The significance of this nostalgic past in homemaking, for renovation practice, is that householders might not be willing to sacrifice or amend architectural characteristics of their homes through renovation, even if that would improve efficiency,

in order to maintain its identity and satisfy their desire for a connection with the past (Sunikka-blank & Galvin 2016; Ellsworth-Krebs 2016).

Another element of homemaking relevant to the thesis is its association with media. The way that people use media at home, as well as their specific engagement with media as objects and media as texts, contribute to their daily homemaking practices (Pink & Mackley 2013). Considering home as a mediatised environment in which media comprise its consistency (Chambers 2016), but also home as not necessarily 'fixed in space' (Douglas 1991), media can become 'homemaking tools' cultivating the feeling of being at home, particularly in cases of migrant households (Bonini 2011). Media and communication technologies not only shape the way that people make home in their everyday life, but contribute to the way home is experienced through mediated communications (Skype for example) for the people that live far away and virtually 'visit' the home(Chambers 2016). It is therefore important to understand the entanglements of media with everyday homemaking and their implications in the renovation practice. Interactions and entanglements with media are further discussed in chapter 5.

Overall, homemaking is a dynamic practice which shapes the future visions of home while continue to cultivate past experiences, memories and desires of householders, making the achievement of their 'ideal' home a 'moving target' (Ellsworth-Krebs 2016, p. 3). The next section discusses housing as a 'consumer good' (Rowlands & Gurney 2000, p. 126) focusing on different expressions of household consumption and its implications for renovation.

3.4 Household consumption

Home as a site of consumption is an important consideration for the practice of renovation. Consumption, in the context of this thesis, is not focused on the actions of individuals but it is rather considered as an element or 'a moment in almost every practice' (Warde 2005, p. 137; Welch & Warde 2015, p. 3). Adopting a practice theoretical perspective can help break down household consumption practices, as elements of other everyday practices, some of which are currently problematic in terms of carbon intensity.

The material backdrop of home is not a passive environment but rather, it frames its consumption in intentional ways (Horne 2018 p.105). The subject of household consumption has been in the spotlight from different disciplines, such as material cultures, social sciences, housing studies and sustainability research, and because of this, it has developed into a diverse research subject (Warde 2014). In recent years, consumption studies have turned towards theories of practice. These perspectives identify consumption as 'an aspect of practices', as 'performing a practice, usually requires using various material artefacts, such as equipment's, tools, materials and infrastructures' (Røpke 2009, p. 2490). Despite people's engagement with everyday activities associated with goods and services, they rarely consider themselves involved in consumption but rather in 'meaningful' practices (Røpke 2009, p. 2491). The change of focus from consumers to practitioners, that theories of practice defend, puts emphasis on the 'doing' rather than the 'having' and it can turn consumers into motivated and experienced actors that have the competences to perform a specific practice (Røpke 2009; Shove et al. 2007a, p.43). This is a more dynamic definition of consumption, which moves away from the perspective of passive individual, easy to seduce victim of advertising (Røpke 2009; Warde 2014).

The carbon intensity of everyday life and consumption practices of wealthy westernised nations such as Australia need to be replaced by new modes of living, working and recreation, if the climate change challenge is to be effectively managed (Shove 2014; Salo et al. 2016). Household consumption includes a broad range of services and consumables such as energy and water consumption, but also consumption of food, goods, services, mobility as well as consumption for housing (Salo et al. 2016). Some forms of consumption, such as water and energy use in the form of heating are easily observable and understood by households, however, there is another, inconspicuous element of consumption which relates to services and goods implicated with households' everyday routines, which is difficult to untangle from the practices themselves (Welch & Warde 2015).

Energy consumption is usually the primary focus of research relevant to household sustainability, it is however important to study other aspects of household consumption, such as space related and goods or products relevant. Renovation is a practice closely associated with the improvement of comfort, energy or function of a household

therefore has consumption integrated in its performance (Munro & Leather 2000; Gabriel & Watson 2013; Thuvander et al. 2012; Willand et al. 2012; Wilson, Chryssochoidis & Pettifor 2013; Fawcett & Killip 2014; Hulse et al. 2015). As practices are associated and co-evolve, the study of consumption is therefore incomplete without the understanding of the process of simultaneous and associated practices, such as homemaking and renovation of homes. The variations of consumption practices might reflect variations in these practices and vice versa. This section concentrates on different kinds of household consumption practices, unpacking those mostly relevant to homemaking and renovation. While investigating consumption's impact on household practices, the reverse interaction, which is how practices themselves affect consumption, is equally important to address, in the distinct context of Australian households.

3.4.1 House size and 'space-inflation'

Despite recent statistics suggesting that house sizes have hit a 22-year low, Australia still holds the second position worldwide in terms of big, detached houses, with an average size of 186.3 sq.m (Commonwealth Research 2018; BuildSearch 2019). The size of houses in Australia has been steadily increasing since the 1950s, when the average size was 100 sq.m, peaking to 240 sq.m in 2016 (Stephan & Crawford 2016). This phenomenon of oversized homes in some of the most advanced economies such as Australia and the US has been labelled as McMansionism and has generated concern and debate across different academic disciplines, policy and public discourses particularly through popular media (Dowling et al. 2012; Wiesel, Pinnegar & Freestone 2013). This oversized 'Australian dream' (Gillon 2018, p. 459), has been explained as an expression of-primarily- middle class families' identity and 'respectability', while satisfying their desire for 'togetherness' and' individualisation' (Dowling et al. 2012, p. 612). Choice and desire for this larger homes are embedded in cultural preferences which comply to social norms, such as having separate rooms for each child in the family and priorities relating to people's leisure and lifestyle routines (Dowling et al. 2012). This is an example of how established, socially embedded homemaking practices have an implication in the renovation and extension of homes.

Crocker (2016) describes this phenomenon of the desire for increased space and 'fascination with the home and interior' as 'space-inflation'. He suggests that:

'The quest for the 'right' home, and especially the 'right' interior,
becomes a particularly powerful driver in consumerism'
(Crocker 2016 p.108)

Innovation in design and home building technology have accelerated this inflation, and despite stricter building regulations, energy rating tools and smart technologies, consumption of housing doesn't show signs of deceleration (Crocker 2016). Similarly, Dowling et al (2012) discuss the middle class families' symptoms of 'affluenza', the inclination to accumulate wealth in the home environment, with the continuous build-up of material possessions, while the large size of their home reflects their status and respectability (Dowling et al. 2012, p. 612–613). Furthermore, people feel the pressure to extend and enlarge their homes to accommodate more goods and appliances, as well as spaces related to their desired lifestyle. This pressure is social rather than individual, prompting people to display proof of achievement and commonly accepted normality (Hand, Shove & Southerton 2007).

The space-inflation and affluenza concepts are particularly observable in specific zones within a home. One such priority and focal point in new build homes and renovations is the kitchen (Hand, Shove & Southerton 2007; Parrott et al. 2008). The kitchen is considered as the hub of the house, providing multiple functions and patterns of consumption other than the preparation and storage of food, such as entertaining family and friends and leisure activities (watching TV or listening to music) (Southerton 2009). Kitchens were usually located in the private part of the house and were not visible from strangers, except if invited into them, and they hold 'special emotional meanings' to the family (Southerton 2009, p. 183). However, progressively the kitchen has transformed from a 'back region' dedicated to food production, to a 'place of sociability' (Shove et al. 2007a, p. 22) and 'an orchestrating concept', explained as a 'force field' that catches and repulses an array of 'images, materials and forms of competences' (Hand & Shove 2004, p. 250–251). The kitchen is a place where the economic and cultural capital of the household interact (Shove et al. 2007a, p. 24). It seems that the 21st century kitchen is 'bound up with the pursuit of happiness' (Mackay 2010, p. 5). And while householders seek to achieve their ideal space, updating and

designing kitchens, they will most likely leave all this behind them when they move on (Mackay 2010, p. 6). This is a critical issue for the study of renovation, as it signifies a tendency to optimise lifestyle aspirations through space-related priorities during the re-making of home.

Except the symbolic and conceptual narratives that relate to the construction and display of kitchens, the production of waste associated with its frequent renewal is an important issue (Mackay 2010). While IKEA currently markets kitchens and appliances with a lifecycle guarantee of between 5-10 years, with the exception of one model (IKEA 2019; Crocker 2016 p.109), some affluent Australian households aspire to renew their kitchens every 2-3 years (Crocker 2016 p.109). This frequent replacement, particularly through outlets such as IKEA, promote a disposability of the housing environment in the affluent world, supporting a culture where value is ephemeral (Hartman 2007). Furthermore, kitchens, as well as bathrooms, are often one of the top priorities for improvement and replacement in a renovation project (Risholt 2013). While literature on kitchen waste related to its renewal is almost non-existent, the kitchen-building industry continues to promote frequent replacement and fitting of intricate- and unsustainable- models of kitchens to match prevalent lifestyles and fashions (Mackay 2010).

Popular media platforms and programmes, particularly through TV makeover shows- in the last two decades-have been confirming the image of the kitchen as a desirable and comfortable space to be, while advising on 'low-cost, big-impact' changes that can transform a room in a very short time (Rosenberg 2008, p. 509). Following this trend for frequently updated, 'lifestyle-inspired' kitchen, the replacement of appliances generates and sustains consumption in the household, which often aspires other transformations in the home (Crocker 2016 p.105). This phenomenon, termed as the 'Diderot effect' (McCracken 1988, p. 118–130), is frequent and often undetectable. By replacing one object or upgrading one space, one triggers a transformation of (sometimes) the entire home, which looks 'shabby' and outdated because of the initial change (Crocker, 2016 p.107). This process generates acquisition of more goods (Ingram, Shove & Watson 2007) in order to maintain 'symbolic unity' (Hand, Shove & Southerton 2007, p. 670). This escalating consumption could be a significant trigger for renovation practices in households. It is important to observe whether there is evidence of the Diderot effect in

the participating households and how it relates to the process of renovation, in the short and long-term.

3.4.2 Household materiality

The inflation in house sizes, as discussed above, continuously sets the base for an inflated consumption. Household consumption here is understood as both the embodied energy of the materiality of home, including consumption of lifestyle-driven goods-such as furniture, appliances and devices, as well as direct energy use to operate the utilities of the house (Burke & Ralston 2015, p. 7). The overall, low density, urban form of the Australian suburb, with the dominance of-usually large- detached homes and heavy use of cars, is associated with high carbon use and 'unsustainable consumption' (Davison 2011, p. 43). Furthermore, this unique-Australian-landscape enables renovations and extensions of houses, at a scale which would be difficult to achieve in more dense urban conditions elsewhere, helping the acceleration of housing consumption (Burke & Ralston 2015). Additionally, the Australian inner-city housing stock, similarly to that of the suburbs, especially this built in second half of the 20th century, is of a 'sufficiently good quality' (Burke & Hulse 2015, p. 9) in order to be preserved and gentrified in the years to come. The quality of the housing stock in combination with more opportunities for employment and income security, even for disadvantaged members of the population, means that Australia has been found to hold a spatial advantage in comparison with similar economies around the world (Burke & Hulse 2015). Therefore, the housing stock conditions combined with the housing plots' character, are critical aspects in the study of renovation, as they determine the distinct conditions for Australian property development and renovation.

Returning to materiality and expanding on a practice theoretical perspective, Warde suggests that consumption takes place 'as items are appropriated in the course of engaging in particular practices' (Warde 2005, p. 131). Everyday household practices, such as cooking, cleaning, and maintaining the house, involve material goods and products, used to perform them. These products, in combination with the householders' competences, shape these practices and contribute to their reproduction and evolution (Watson & Shove 2008). Therefore, material objects, including the technologies that

link the household with the world, comprise the core of homemaking practices (Baxter & Brickell 2014).

However, homemaking practices are interactive, rather than one-way; in this way the material goods of the home are 'appropriated' in order to accomplish 'feelings of homeyness', such as the creation of space that is enjoyably 'lived-in', (Dowling & Power 2011, p. 76). These material goods are associated with imagined, dreamed futures for the life of households, linking aspired activities such as dinner parties to acquired products (Hand, Shove & Southerton 2007, p. 670). The relationship between space and householders' needs and practices is challenging; some people fit their practices around existing space, others conclude that more space is required (ibid). Exploring this relationship, Nansen et al have found, in their study of suburban Melbourne households between 2004 and 2008, that there are four categories of the 'dynamics of relationships of dwelling': the found home, the imagined home, the designed home and the renovated home (Nansen et al. 2011, p. 700):

- In the 'found home', space arrangements, practices and stuff are adapted to the existing structure

- In the 'imagined home', householders envision and conceptualise an adjustment of arrangements and practices through a possible future renovation

- In the 'designed home', householders design the desired elements, through space making, for the adaptation of their home to their practices and stuff acquired

- In the 'renovated home', householders fabricate their vision to accommodate all the spatial requirements, practices and stuff

Within this interactive material backdrop of space, the architecture of the home is responding to householders' requirements, rather than exist as a passive structure. A relevant observation comes from the cultural geography literature which, expanding on anthropological perspectives about the social life of things (see for example Appadurai 1986), suggests that 'consumption must always involve the consumption of time and

space' (Mansvelt 2005, p. 23). This spatial interaction of goods and products with their context, including the structure of the house, is particularly relevant for the thesis, as it can help explain how household consumption practices relate to associated practices relevant to renovation such as homemaking. Understanding the space in which household practices take place in combination with the appropriate and site-specific material goods can help analyse the ingredients that can bring about change to lower carbon routines. Using theories of practice, which suggest that material objects of our environment co-evolve with the practices they are involved in, and the skills of their practitioners, consequently suggests that for change to happen, the generation or acquisition of new products is not enough (Shove & Pantzar 2005).

Furthermore, the relationship between material goods and consumer practice has been mediated and underpinned by design practice. Aside from the architecture of the house, which determines allowances for household consumption, household goods are often designed with an embedded 'script' that prescribes their use (Ingram, Shove & Watson 2007; Jones 2014; Shove 2004; Gabriel & Watson 2013). This concept of 'scripting' in design, deriving from science and technology studies, presents a flexibility in its application as it is not always intentional (Hand, Shove & Southerton 2007, p. 679; Gabriel & Watson 2013, p. 222). The concept of scripting has also been applied to the architecture of the home, including the technologies within it. Gabriel and Watson have examined 'scripts' embedded in post-war Australian homes in order to understand how these relate to people's sustainable home adaptations (Gabriel & Watson 2013, p. 222). Jones, however, has found that scripting of (eco)homes was not enough to instigate change to more sustainable living practices of the householders, as they 'appropriated' their homes in different ways that those were designed to perform (Jones 2014, p. 236). Even though designers can expertly set up this interaction of people and products (including larger, architecture pieces), consumers can also 'appropriate' or manipulate these goods in many different ways than those that their designers intended (Hand & Shove 2004). Pink et al (2017) confirm this by suggesting that even if homes are 'materially identical', variations would still exist because of the way that people appropriate spaces and technologies (Pink, Leder Mackey, et al. 2017, p. 16). Therefore, efforts to lower the carbon of household practices, including renovation performance, should recognise this variation of household practices and should

redirect the focus from the efficiency of houses as inactive shells, to that of the lived experiences of homes, which includes their everyday routines.

Accepting that products are the bearers of the relevant practices they are involved in and that they help shape the competences of their practitioners, it makes sense to extend the design practice to include reflections of these practices as ways to inspire new designs and services (Ingram, Shove & Watson 2007). Furthermore, the challenge for designers is to progress from designing 'things (products and services) to designing Things (socio-material assemblies)' or clusters of human and non-human actors (Bjögvinsson, Ehn & Hillgren 2012, p. 102). The design of Things involves not just the 'agency' of designers and users, but that of non-human, material objects and 'design devices' (Bjögvinsson, Ehn & Hillgren 2012, p. 103).

Material culture studies in the home environment have engaged with issues such as agency (of human and non-human actors) and the interactive ways in which they shape each other (Latour 2005; Gabriel & Watson 2013). The concept of hybridity within actor-network theory for example (Latour 1992), which suggests that competences are shared between the 'embodied knowledge' of human and non-human actors of a practice (Wakkary et al. 2013, p. 6), can be a useful perspective in the interdisciplinary study of homes. While agency of the non-human actors/ material objects, as co-actans in practices, is important, I share Lees and Baxter's argument that the actor-network approach to the study of architecture does not fully account for the householders' emotional and 'lived' experience (Lees & Baxter 2011). Therefore, it will not be expanded for the purpose of this thesis, which concentrates on practices, which have material objects embedded in them as core elements. It might be useful however, to observe how the materiality of home is shaped and influenced by non-material objects, such as media texts, but also how home is materially represented in its non-material, digital dimension through media content.

3.4.3 Household 'ethical' consumption

Within the context of the affluent, western consumer societies, concerns are rising, and promoted by popular media, about the impact of this 'commodity culture' to society and our environment (Lewis 2011b, p. 1–2). This ethical turn of consumption involves

discourses in several domains of social life, such as fair-trade production, sustainability concerns, consuming less and considerations of altruism to people and cultures (Hall 2011). Ethical consumption is currently perceived as a 'dominant form of governance' which directs citizenship and political practices to be expressed through 'consumer choice' (Crang & Hughes 2015, p. 133). These discourses are often concentrated around the home, a site of ultimate 'self-reliance' and 'self-efficiency', placing greater responsibility in the householders as rational agents of choice for pro-environmental choices (Allon 2013, p. 204). Considerations of ethical consumption within household practices, bring in the foreground neoliberal associations of the private domain of home with responsible citizenship (Allon 2013), domains which have long been separate and distinct (Moran 2004). This emerging ethical focus on consumption is suggestive of current conditions of 'civic involvement and citizenly participation'(Barnett et al. 2010, p. 1) and an attempt to 'globalise responsibility' (Barnett et al. 2010, p. 2).

However, according to Barnet (2005), everyday consumption routines are 'ordinarily ethical', as they convey the moral emotion of responsibility and care for others (Barnett et al. 2005, p. 28). Considering that everyday consumption therefore reflects ethical considerations anyway, the emergence of ethical consumption, is more of a marketing and business-oriented concept creation (Barnett et al. 2005). This (constructed) phenomenon of heightened anxieties about ethical consumption is increasingly becoming a focal point in popular media, particularly with a focus on pro-environmental practices (Lewis 2011b, 2008d). Ethical consumption is a kind of caring or action-at-the-distance, which, in order to be mediated, requires a complex form of action, and relies on 'cultural forms of government' (Barnett et al. 2005, p. 30).

This cultural authority comes through various intermediaries, which aim to move the focus of consumer choice from individuals to more collective, 'peer networks', which can initiate curiosity and influence discussion (Barnett et al. 2010). Bourdieu considered (cultural) intermediaries as the conveyors of the ethical values required in the arising consumption practices of the petite bourgeoisie (Bourdieu 1984, p. 367; Smith Maguire & Matthews 2010, p. 408). In their role as mediators between production and consumption, intermediaries are shapers of taste, through expert manipulation of consumers' desires and needs (Smith Maguire & Matthews 2010, p. 407–408) and therefore important actors in the circulation and interpretation of ethical

matters in consumption. An example of this in the context of home building and renovation is through property TV programme Grand Designs. Consumption practices in the programme communicate 'symbolic dimensions of social and material worth' (Podkalicka, Milne & Kennedy 2018, p. 73), making connections for example between sustainability and ethical consumption (Podkalicka, Milne & Kennedy 2018, p. 82).

Along these lines, green or low carbon renovation performed by households can be perceived as forms of ethical consumption. They enable householders to act in response to current global and local environmental challenges, while simultaneously create a lifestyle which reflects values of self-sufficiency or as Allon claims, they build 'a better self and a better house' (Allon 2013, p. 213). Carfagna et al (2014), have found that ethical consumption, particularly related to household sustainability practices, are directly linked to patterns of 'cosmopolitan taste' (Carfagna et al. 2014, p. 175) and is expressed as a characteristic of an ecological habitus. The concept of habitus (Bourdieu 1984), expresses the sum of habits and practices that people engage in and which is directly obtained from their social class and up-bringing (Galvin & Sunikka-Blank 2016). Carfagna et al suggest that this ecological habitus is not just characterised by concern or interest in the environment, but by a re-arrangement of 'high-status tastes' (Carfagna et al. 2014, p. 160).

This green 'turn' in consumption has been a prominent focus of popular media platforms (Allon 2013), which disseminate lifestyle advice and opinion on how to live a 'greener life' (Lewis 2008d, p. 1). The rise of ethical lifestyle consumption has also been accompanied by a range of ethical, green products bespoke to consumers' needs, which can tame consumers-in the global north-guilt about their potential carbon intensive lifestyles (Lewis 2011b). However, Miller suggests that ethical consumption concerns 'seem to be at the expense of the moral concerns for one's own family and household'(Miller 2012, p. 89). This tension between household moral economy and civic practices of responsible citizenship are important to observe in the context of home renovations, in order to perhaps understand to what extent ethics are translated as civic responsibility, through eco building practices for example, or as internally processed values that satisfy households' own dispositions, tastes and desires. Furthermore, it would be interesting to understand whether green or low carbon renovation practices are considered as ethical consumption practices and to what

extend this household responsibility to renovate efficiently is determined by affordability or lifestyle preferences.

3.4.4 Energy consumption

Aside from the consumption of goods and products, the majority of the energy consumption that occurs in a household is by the dwelling itself (Burke & Ralston 2015), with the majority of the energy spent to achieve a satisfying level of indoor climate ('temperature, daylight, noise and indoor air quality')(Hansen et al. 2019, p. 157) and comfort (Gram-Hanssen 2010a). Most houses in Australia are not performing well in terms of efficiency and were built before 2004- when the national minimum standard for energy efficiency was introduced, as part of the National Framework for Energy Efficiency (NFEE) (Willand et al. 2012). Therefore the reduction of carbon emissions, particularly regarding the thermal performance of houses is critical for Australia (Clune, Morrissey & Moore 2012).

Larger house sizes have a larger impact on the energy requirements of households (Clune, Morrissey & Moore 2012). The bigger the house the higher the energy consumption and accumulation of goods and appliances that occurs (Clune, Morrissey & Moore 2012). However, energy consumption is not merely regulated by the house structure or by the performance of technologies available, but by householders' everyday use (Gram-Hanssen 2010a; Madsen 2018) and their perception of comfort. Furthermore, the profile of householders has been linked to the house's building characteristics and the energy consumed in them- for example higher income households, who live in larger houses, consume more energy (Hansen et al. 2018; Hansen 2016). Hansen suggests that the socio-cultural composition of households, and especially aspects such as educational and occupational status and cultural background of householders, make a significant effect on their heat consumption, due to the diversity of everyday practices (Hansen 2016). However, it is suggested that further research is required to understand the types of household practices and how they are performed by people in their everyday routines, in order to be able to conclude on how these directly affect heating consumption (ibid).

Additionally, recent research makes links between householders' profiles and energy consumption. Van den Brome et al (2018) suggest for example that house types' characteristics, such as their state of repair, have a much greater impact on the energy consumption of elderly rather than younger people and recommend that policy should be prioritising renovation in those households (van den Brom, Meijer & Visscher 2018). Policy and public discourses concentrate mostly on either the technical elements of energy efficiency, for example the house efficiency, or the behaviour of individuals, relying on their judgment to change their daily habits (Gram-Hanssen 2015). Both of these approaches have been challenged for their weak ability to achieve reductions in energy consumption, either because of their excessive focus on technology or because of the exclusion or insufficient consideration of processes of societal change and transition (Shove 2010; Strengers & Maller 2014). Furthermore, policy assumes that feedback given to people, regarding their energy consumption, usually via smart meters, is enough to persuade them to reduce their consumption (Buchanan, Russo & Anderson 2015; Faruqui, Sergici & Sharif 2010; Strengers 2013; Darby 2010). While information and knowledge are useful, they are not enough on their own to increase efficiency (Gram-Hanssen 2015). Instead, sociological perspectives of theories of practice suggest that focusing on the everyday practices, as in routinised activities that also incorporate and contain the use of energy is more appropriate. Understanding the complexity of everyday routines, such as what holds practices together and the meanings they hold for the practitioners, as well as the connection of different practices, provide meaningful insights for energy consumption in households (Gram-Hanssen 2010a).

3.5 Chapter conclusion

This chapter has found that the meso level of the household is a more diverse arena- compared to individual or macro level strategies- to observe and contextualise collective everyday practices of householders as a site of primary consumption, and to monitor the interaction with people, objects and technologies involved in these practices.

Homes are major financial and identity assets for most people, and therefore their maintenance and improvement are essential in order to preserve their financial and

emotional value. The role of the household in the transition to a lower carbon future is critical and although green or low carbon renovations can develop easily in niches, the challenge remains in their augmentation to wider macro-level changes of societal practices. The linking of theories of practice with perspective from the sustainability transitions literature can be beneficial to the study of change towards low carbon homes.

Additionally, home ownership is closely associated with households' everyday homemaking, reinforcing emotions of ontological security and safety to people. Home ownership bolsters householders' ability to 'do their own thing' and therefore makes renovation practices more possible to emerge and continue over time compared to rental households. Furthermore, homemaking, as an important and emotional everyday practice often involves material reconfigurations of homes to respond to desired atmospheres and contributes to the construction of homeyness and comfort. Therefore, there is indication that there might be strong associations between homemaking and renovation which are important to investigate.

Finally, household sustainability as a multi-faceted issue, requires investigation of the economic and socio-cultural aspects of everyday consumption practices. Consumption of housing in Australia sits in a unique landscape in which the (good standard) housing stock conditions combined with the large size of individual housing plots, allow and enable extensive renovation practices which would be difficult in comparable, but denser economies. The prevailing social norms of inflated space and material consumption further intensify the frequency and scale of renovations, which take place to accommodate the growing material stuff that households accumulate over time. Renovation therefore contributes to the amplified consumption of households. Recent discourses on green and ethical consumption, call upon households to be mindful of their consumption practices, often associating sustainability with ethical consumption, and trying to engage households to become co-actors in the process towards low carbon housing. However, tensions exist between what householders consider good for their household and their responsibility towards responsible citizenship, as often ethical or responsible consumption involves higher costs. It is important to observe to what extent households consider renovation low carbon practices as part of an in-house value or as an act of responsible citizenship and observe the influence of

affordability in the process. Overall, households have come to hold high responsibility and duty of care, not just for themselves but for the common good, which is particularly apparent through their homemaking and renovation practices. As households progressively become such significant social units, it is important to understand their contribution to wider social change, through everyday homemaking and renovation practices.

Chapter 4: Renovation

4.0 Chapter overview

Chapter 3 discussed the significance of households in the transition to a lower carbon future and presented the importance of the maintenance of homes as substantial personal, cultural, emotional and financial investments for people.

Chapter 4 begins by reviewing households' motivations for renovation and challenges to the uptake of low carbon or energy-efficiency renovations. It examines the practice of renovation that takes place routinely in the household. The complexity of the process of renovation and its representation in literature is reviewed in order to consider the different elements that comprise its experience. Following this, home renovation is investigated within the architecture and design literature, in order to discuss the material dimension of it and its relevance to professional architecture practice and construction.

Finally, the concept of expertise and intermediation are analysed which lead to questions about the roles of professionals in the process and their contribution in households' renovation practices.

4.1 Why do householders renovate?

Widespread renovation and refurbishment of homes started in the early 1960s, with post-war housing in need of repair, and the middle classes becoming more affluent (Grubbauer 2015). The house, i.e. the structure of home, is an indispensable aspect of most people's lives, representing and materialising their dreams, aspirations and life principles (Maller, Horne & Dalton 2012; Mallett 2004). Households that perceive their home as a site through which their identity is built and expressed, are more likely to engage in a renovation (Wilson, Chryssochoidis & Pettifor 2013). However, renovation intentions might take some considerable time to develop to solid decisions to start a project, with 90% of renovators, in a two-year UK study (2011-2013), suggesting it took them more than a year to actively start (ibid). This is partly because people renovate

their homes in order to respond to complex issues, which involve strong emotional, technical, financial and socio-cultural entanglements (Podkalicka & Milne 2017). Furthermore, prevailing social norms on renovation practice, such as attending to what others do to their homes, have a great influence in householders' renovation practices and decisions, particularly in the early stages (Wilson, Chryssochoidis & Pettifor 2013). Therefore, the meanings of home that householders hold in combination with social norms of the context, present important contributors to the emergence and performance of renovation.

Householders identify numerous reasons for renovating their homes; a popular one being the need for modernisation and upgrade of the structure of home (Hulse et al. 2015; Podkalicka & Milne 2017; Wilson, Chryssochoidis & Pettifor 2013). Similar pragmatic and rational reasons include the improvement of households' running costs (Maller & Horne 2011; Hulse et al. 2015), lack of space, unsatisfying conditions and technical faults (Grubbauer 2015). One way in which householders respond to technical disrepairs, is by trying to improve their houses' energy performance through an upgrade of fittings and appliances, such as LED light fittings, wall and roof insulation and energy efficient appliances (Maller & Horne 2011). However, upgrades in efficiency usually happen because of householders' underlying desire to improve their comfort, interpreted not just as thermal comfort but also as an emotional contentment of being at home (Tweed 2013; Hulse et al. 2015). Comfort interpreted as such is an important consideration, as it is not necessarily measurable and highly depending on the socio-cultural background of each household.

Similar to comfort, aesthetic alterations also feature high in renovators' reasons for upgrading their homes (Maller & Horne 2011). Style and aesthetics are in fact major contributors to households' renovation practices (Podkalicka et al. 2016; Sunikka-blank & Galvin 2016; Sunikka-blank, Galvin & Behar 2018), and represent significant qualities of peoples' perception of a good home (Willand et al. 2012). Hulse et al (2015) found that Australian renovators rate the appearance of their home only second to comfort, in term of priorities for upgrading (Hulse et al. 2015). Similarly, in a Danish study conducted in 2005, renovations relating to lifestyle and aesthetic reasons were prioritised over energy efficiency ones, with householders suggesting that their renovation fulfilled the dreams and aspirations of themselves and their family (Gram-

Hanssen 2014a). Furthermore, aesthetic priorities of households, such as layouts, style and quality of light were often reasons to 'reject economically viable […] energy efficiency interventions' (Crosbie & Baker 2010, p. 70). The visibility of aesthetic improvements of homes are important to householders, as these communicate their taste and social status (Sunikka-blank, Galvin & Behar 2018). These definitions of taste, according to Bourdieu are not individual expressions but characteristics of class-related distinctions (Bourdieu 1984). It is important to recognise households' interpretation of taste, in order to target satisfactory low carbon changes (Sunikka-blank, Galvin & Behar 2018), which incorporate these particularities. Guidance on aesthetics, lifestyle and taste are prevalent components in popular media texts, such as home improvement shows, which reinforce the importance of home ownership, while reflecting the overall 'lifestylisation' process of our living environments (Rosenberg 2008, p. 506). Home makeover shows are consistently used for the purpose of marketing of products and services, with corporate sponsors offering 'solutions' to home renovation issues (Lewis 2014, p. 410). I expand on the impact of lifestyle and media in chapter 5.

Additionally, financial reasons are also important motivators. Householders undertake renovation to add value to their house (T. Peng 2013), or simply to save money, particularly from energy upgrades (Fawcett & Killip 2014; Willand & Horne 2013). Householders usually stage their renovations over time in order to allow for spending to be spread alongside other life events, such as births, retirements and other life changes, that pose a financial load or opportunity to the household (Simpson et al. 2016; Tjørring & Gausset 2019). In fact, life changes or events themselves comprise reasons for renovation (Hulse et al. 2015; Fawcett & Killip 2014; Hamilton 2012). These life events are particularly important 'moments of change' (Darnton et al. 2011, p. 32; Karvonen 2013, p. 569) or 'windows of opportunity' (Schäfer & Jaeger-erben 2012, p. 67; Darnton et al. 2011, p. 33). Usually these terms are used in the context of psychological research of habit (Schäfer & Jaeger-erben 2012) or other individual behaviour studies, which are not compatible with the theoretical perspectives of practice theories, which consider change or continuity as the consequence of the links between the elements of practices (Gram-Hanssen 2011; Miranda 2016). However, as Glover (2014) suggests, such events or 'junctures' in everyday life 'precipitate changes in practices' (Glover 2014, p. 128).

Finally, a useful insight into renovators' motivations comes from the concept of the association of consumer-oriented homemaking practices with people's desire for the new. This is often linked with a craving for new products or services which in turn contain and amplify this artificial 'need' (Campbell 1992). Campbell (1992, 2005) provides three definitions to the term: 'There is, first, the new as the fresh or newly created; second, the new as improved or innovative; and third, the new as the unfamiliar or novel' (Campbell 1992, p. 52, 2015, p. 30). Similarly, 'old' at the other end represents the worn-out, tired or deteriorated (ibid). As far as home renovations are concerned, we encounter all three variations of the 'new'. Initially, a renovation, as an upgrade of a deteriorated space, introduces the idea of the 'new' as freshly created. Campbell states that people often 'prefer the new to the familiar and hence desire new products' (Campbell 1992, p. 48). Secondly, the embrace of re-use or extension of the lifecycle of materials, defined as the 'improved' has the potential to address sustainable practices in home renovations and finally renovations provide the experience of the 'novel', with the introduction of upgraded or extended spaces that in turn offer opportunities for new 'novel' living practices to emerge.

Overall, the motivations for renovation comprise a complex interaction of emotional and practical components, while renovators try to balance between these two (Hulse et al. 2015; Abreu, Oliveira & Lopes 2017; Gram-Hanssen 2014a). People and their practices, along with their emotional association with home, are contributing to the needs for material repair of homes, and need to be considered appropriately in regard to the practice of renovation (Gram-Hanssen 2014b). Households are not isolated units but exist in a social network which also contributes to householders' renovation motivations (Abreu, Oliveira & Lopes 2017). Finally, motivations for renovation, do not necessarily encompass low-carbon renovation practices, although in many cases low carbon upgrades are a consequence or an 'integrated part' of a mainstream home improvement process (Wilson, Chryssochoidis & Pettifor 2013; Gram-Hanssen 2014a, p. 137).

4.2 The challenge of low carbon

Renovation of existing homes, as discussed above, involves several complex issues that need to be considered not only during the performance of renovation, but a while

before it starts and after it is completed. In many cases the process is long-term, often spanning through various life-stages of the households involved. Households don't only consider the techno-economic issues of their renovation, but also the socio-cultural conditions in which it takes place (Horne & Dalton 2014; Allon 2008). The successful engagement of households in low carbon renovation practices is critical for the transition to a more sustainable future (Kersten et al. 2014). There are different perspectives as to how this engagement can happen. One of them targets the individual consumer/householder, using rational models of choice, which support the concept that individuals are able to make rational choices based on information (Shove 2010; Hulse et al. 2015; Karvonen 2013). This model usually involves top down strategies and policy, which identifies barriers that households might face in the process of renovation and which might affect their adoption of low carbon improvements. However, barriers to certain behaviours can also be considered as motivations, depending on the viewpoint (Shove 2010) and it is important to recognise that an endless list of enabling or disabling factors could be added or removed continuously. Below, I discuss some of the perceived barriers to low carbon renovation so that I can get an insight into how these might be understood as elements of everyday practice, rather than isolated, exogenous factors.

To begin, some householders don't have low carbon renovation in their agenda when undertaking refurbishments or alterations (Williams & Dair 2007). For example, there is a perception amongst householders that adopting low carbon applications and installations in their homes would involve a lot of hassle and disruption to their living practices (Hamilton 2012; Wilson, Crane & Chryssochoidis 2015; Cherry et al. 2017). Furthermore, lack of trustworthy, comprehensive and apprehensible information on current support schemes and incentives contributes to householders' lack of understanding of how things work in practice in order to help them take decisions (Gabriel & Watson 2012; Leary 2008; Hamilton 2012). Additionally, as low carbon products and services are in their majority geared up for new built homes, there is a lack of experience about 'best-practice' (Meijer, Itard & Sunikka-Blank 2009, p. 548). A common defect of home renovation discourses, particularly of low carbon focus, is that they consider houses as building structures rather than homes, often ignoring the lived or imagined experiences and practices that go on inside (Wilson, Crane & Chryssochoidis 2015). Therefore, the provision of information satisfies only parts of

homemaking and renovation practice, for example respond to *how-to* questions or skills required. The meaning of available information, even when clearly communicated, can take diverse dimensions and interpretations in each household, therefore it can't be adequate on its own in order to contribute to change. After all, renovation decisions are 'processes that emerge from […] the conditions of everyday domestic life' (Wilson, Crane & Chryssochoidis 2015, p. 18). Close social networks- such as friends and family- play an important role in the building of trust and information access in regard to renovation, as unlike professionals, they hold no 'self-interest', therefore regarded as more reliable (Stieß & Dunkelberg 2013, p. 254).

In other cases, where householders are conscious about low carbon improvements, they initially lack awareness of schemes and incentives, such as grants or rebates available to support their choices (Leary 2008; Ástmarsson, Jensen & Maslesa 2013; Wilson, Crane & Chryssochoidis 2015). An important challenge when considering low carbon renovation is the long payback time or the large costs often involved (Meijer, Itard & Sunikka-Blank 2009; Williams & Dair 2007; Leary 2008; Gabriel & Watson 2012). Despite concerns they might hold on environmental issues, householders are only willing to commit a limited amount of capital in order to practically apply low carbon design in their homes (Maller & Horne 2011). Householders primarily consider investment repayment when making decisions about renovation alternatives, without necessarily taking into account the life cycle of their chosen materials and services (Mjörnell et al. 2014). Furthermore, some householders, especially first-time buyers, often focus on issues of style, re-sale value and house size when considering alterations, while they are less willing to pay for energy efficiency upgrades, mainly due to lack of awareness of the options available (Pitt&Sherry & Swinburne 2014). This unresolved level of low achievement regarding energy efficiency of (renovated) homes, is currently supported by low regulation and low pressure on behalf of policy, preventing low carbon investments from becoming a high priority in renovations, as opposed to issues of structural performance, bushfire preparedness and health (ibid).

Slow response of householders' implementation of low carbon home renovations is the result of socio-cultural and institutional factors, such as householders' lack of interest or experience, insufficient policy on low carbon renovation and lack of appropriate interest or action from the building construction trade (Gabriel & Watson 2012; Leary 2008). For

example, inadequate legislation strategies prevent architects from 'positively' engaging 'to low carbon housing refurbishment' (Davies & Osmani 2011, p. 1692). In other cases, lack of prominence of low carbon practices of building construction professionals prevents good practice to take place (Abreu, Oliveira & Lopes 2017). Renovation in Australia is performed by a combination of professionals, comprised by a disconnected network of small and medium size firms, employed by householders directly or by contractors (Horne & Dalton 2014; De Wilde & Spaargaren 2019; Karvonen 2013) and DIY work (Maller, Horne & Dalton 2012; Hulse & Milne 2019). These multiple actors or intermediaries, which involve not only architects and builders but other consultants (such as estate agents and energy consultants)(Gabriel & Watson 2012) are only partially engaged in the renovation process. This lack of sufficient or continuous engagement has been identified as a reason for the absence of low carbon improvements, especially when decisions are left solely to building professionals (Williams & Dair 2007). The Australian home construction industry needs to improve its integration of low carbon home renovation practices in order for them to become part of the mainstream acceptance and practice (Gabriel & Watson 2012).

It is therefore critical to ensure that the technical information and knowledge becomes embedded in the social context of home renovations, including the acceptance and embrace of the issues from the close networks of householders (Stieß & Dunkelberg 2013). Recognising home renovation as a social practice, performed frequently by households and intersecting with their living practices (Judson & Maller 2014) allows the development of insights and can help break the barriers that particularly technical solutions offer. Finally, a better integration of householders and intermediaries in line with a better understanding of the socio-cultural elements of everyday living in households would allow for a better integration of low carbon principles in policy and vice versa and in the strengthening of appropriate social norms required for this transition.

4.3 Home renovation practice

Home renovation is a 'ubiquitous practice' (Horne & Dalton 2014, p. 3445) as it covers a range of improvements, not necessarily determining low carbon changes to the house envelope or the household's everyday living routines (Horne 2018; Maller, Horne

& Dalton 2012). Recent research suggests that the transition to low carbon housing will not be achieved unless social, cultural and economic considerations are adopted during home renovation and improvement practices (Owen, Mitchell & Gouldson 2014; Ravetz 2008; Thuvander et al. 2012; Horne 2018). Existing houses are not only physical structures but inseparable parts of everyday life and the community, as well as expressions of people's dreams and ideals (Ravetz 2008; Maller, Horne & Dalton 2012; Tjørring & Gausset 2019). Moreover, a house's cultural heritage and significance and the householders' emotional attachment to it are reinforcing the intentions for preserving and upgrading the existing stock rather than demolishing and starting again (Gram-Hanssen 2014a; Judson 2013b).

Home maintenance and renovation activities are regular and continuous commitments of householders in Australia (Horne 2018), which has been characterised as renovation nation (Allon 2008). Grubbauer (2015) suggests that a renovation can be considered a firmly rooted social practice, despite being an out-of-ordinary event, as it is embedded in households' everyday life. In particular, in renovation taking place over time, rather than a once occurring, whole-house event (Fawcett 2013), this definition of home renovation as social practice is even more relevant. As discussed in chapter 2, social practice can be interpreted as a kind of routinised behaviour, comprising of associated elements such as '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 2002b, p. 249). The definition of renovation practice, which is diverse and variable is based on an interpretation by Judson et al. (2014, p.65) who suggest that 'the practice of renovation is governed by a system of permits, together with the physical condition of the existing building, and the available technology and infrastructure, as well as the capabilities of home renovators, professionals and contractors'. I share Bartiaux et al's (2014) argument that considering renovation as a social practice can switch the focus from an individual (micro) perspective to a more collective practice, engaging the meso and macro societal levels.

In fact, householders' everyday routines are just as crucial as the energy improvements of the house structure (Vlasova & Gram-Hanssen 2014). In order to transform householders' practices to more sustainable ones, more in-depth understanding is

required on the association of renovation practices with the household's everyday living practices (ibid). Following Maller et al's (2012) suggestions, I consider renovation as a practice that is interwoven into the household's daily routines, which are shaped and in turn shape the material objects involved, the relevant technologies, such as media, and skills of the householders (Maller, Horne & Dalton 2012). As everyday practices and technologies co-evolve in households (Vlasova & Gram-Hanssen 2014; Shove 2003; Hand, Shove & Southerton 2007), it is important to examine household routines within the existing structure of the house and the household's consumption practices. Furthermore, the learning and interaction that happens between households and their close networks and communities, whether these are physical or digital, are equally important for the adoption of low carbon practices (Gram-Hanssen 2014b) and they need to be closely documented and considered.

Recent literature has engaged with understanding households' renovation practices from a practice theory perspective (Vlasova & Gram-Hanssen 2014; Bartiaux et al. 2014; Grubbauer 2015; Karvonen 2013; Gram-Hanssen 2010b; Judson, Iyer-Raniga & Horne 2014; Maller, Horne & Dalton 2012; Thuvander et al. 2012; Judson 2013b; Abreu, Oliveira & Lopes 2017; Maller & Horne 2011; Judson & Maller 2014; Hulse & Milne 2019). These studies represent the *practice-turn* of social science studies which aim to re-focus attention of literature from the individual actors to the collective household practices which are embedded and interdependent on the relevant social, political, economic and cultural contexts. Defining home renovation as a social practice recognises it as a widespread 'socially shared bundle of activities that involves the integration of a complex array of components: material, embodies and affective' (Welch & Warde 2015, p. 2). The implication is that in order to understand and potentially influence renovation practices, we need to observe them alongside the household's established and emerging homemaking practices and observe the intermediaries, materials and technologies involved. The thesis contributes to this practice theoretical focus, further connecting it with theories of mediatisation, as discussed in chapter 2, by associating renovation practices and routines with the intermediaries and media in the mediatised household.

4.4 Renovation process

The concept of process can be defined as 'a temporal, linear sequence of different states, assumed to belong together; a process thus takes place in a well-defined dimension, has a clearly defined starting point and a direction' (Krotz 2007, p. 256). As process indicates change and transition from one state to another, its mapping can become a useful conceptual and practical tool to identify and understand the elements that comprise change, in this case relevant to renovation practices performed alongside everyday homemaking.

Renovations are complex processes that involve more than just technical improvements of a household (Willand & Horne 2013; Willand et al. 2012; Maller, Horne & Dalton 2012; Judson, Iyer-Raniga & Horne 2014; Thuvander et al. 2012; De Wilde & Spaargaren 2019; Haines & Mitchell 2014; Hulse et al. 2015; Judson & Maller 2014; Podkalicka 2018). Even though some households perform large one-off renovation projects, renovations are often continuous activities, at a smaller scale for a long period of time, alongside the various life events of householders' lives (Tjørring & Gausset 2019; Gram-Hanssen 2014a). Renovations are performed alongside current and future (anticipated) everyday practices, which present a large diversity from household to household, which adds to their complexity (Judson & Maller 2014). In some cases, the renovation project presents the reason why the house was purchased in the first place (Gram-Hanssen 2014a). Gram-Hanssen (2014a) has classified renovation intentions according to the different possible foci of a project, identifying renovation as a product on one end and renovation as a project on the other. In other cases, renovation is seen as an 'uninteresting duty' (Abreu, Oliveira & Lopes 2017, p. 56) or a disruptive hassle in the household's everyday life (Hamilton 2012; Pettifor, Wilson & Chryssochoidis 2015). The process of renovation needs to be considered and examined as a 'service-minded process rather than a merely technical' and its elements and meanings need to be more clearly defined (Thuvander et al. 2012).

Hulse et al (2015) identify the concepts of renovation as project and renovation as process, as key characteristics of current home renovation practices in Australia. The time range of ongoing renovations (renovation as process) varies; they could last from 2-3 years to over 30 years in some cases (Fawcett 2013). Usually ongoing renovations

involve small or minor changes to the house and are undertaken commonly by householders through DIY or through the combination of DIY and professional work (Hulse & Milne 2019; Goodsell 2008; Maller & Horne 2011). The majority of the ongoing renovations involve small sections of the house and is performed primarily for repairs or modernisations and very rarely for energy upgrades (Hulse et al. 2015). Householders indicate that over time have the opportunity to consider or think about energy renovations, as part of the routine home maintenance processes (Gram-Hanssen 2014a; Hulse et al. 2015). Furthermore, ongoing, over time renovations allow households to spread their cost over a longer period of time, particularly in those that low carbon upgrades are the focus (Fawcett 2013). Aside from the financial aspects of this timing of renovation, there are also consequences on how different professionals and intermediaries are engaged in the project and to the overall experience of the household (Fawcett 2013). Over time renovation supports the better integration of intermediaries, such as building professionals, through a longer period of adjustment to the needs of each household, and through more opportunities for further training and consultancy on low carbon amendments (ibid). On the other hand, in renovation as a project, the work is usually carefully planned and managed (often by professionals) and there is a more defined beginning and end of the project. This type of renovation can be performed at multiple occasions during the time that owners live a household. Furthermore, they tend to involve more substantial changes to the house's envelope, as well as some demolition work and major extension (Hulse et al. 2015).

Additionally, it has been suggested that the renovation process should include the period before and after the execution of the work as changes of direction can occur at any time, since households continuously assess their economic, technical and lifestyle circumstances (Gram-Hanssen 2014a, 2014b). This suggestion follows Warde's (2005) argument that 'practices contain the seeds of constant change', as people are continuously devise ways of performing these practices (Warde 2005, p. 141). The maintenance and renovation of houses have progressively been embedded in the cultural practices of households and increased in frequency so that they are now performed 'regularly and habitually' (Horne, Maller & Lane 2011, p. 100). My thesis therefore contributes to the need for further research to understand household renovation practices over time, compared to one-off projects (Fawcett 2013; Simpson et al. 2016), concentrating on their significance to the adoption of low carbon practices

and observing them alongside other associated practices of the household. The following section presents a review of the current representation of the renovation process in academic literature, observing the presence of stages and their relevance to the short or long-term performance of the practice.

4.4.1 Mapping

A review of recent literature on the renovation process reveals that there are several aspects that characterise it, such as the element of time, planning the practical aspect of doing the renovation (for example the construction), priorities of households and the staging of it (renovation phases or stages). Devoted studies of the mapping of the renovation process itself are limited, however, as the renovation process is often discussed amongst other areas of interest within the home renovation, retrofit or energy efficiency literature. Furthermore, the term process in most cases is referring to the decision-making process rather than the progression and phasing of the renovation activity overall. In the following paragraphs, I present and discuss a few examples of the mapping of the home renovation. The importance of mapping the renovation, particularly on behalf of householders, can contribute to the more holistic understanding of the process, including the non-material and intangible engagement that households have with the practice alongside other practices of everyday life, in order to identify the practices, materials and competences required which can assist the embedment of low carbon practices.

To begin with, Fawcett (2014) analyses the time dimension of low carbon renovation, introducing the concept of renovation over time, as discussed in the previous section, similar to the concept that Hulse et al (2015) present in Australia. A model that maps renovation decisions is presented by Wilson et al (2013), in their UK Verd project that took place between 2011-2013. As shown on the diagram, the decisions of renovators are presented in four stages, starting from the moment that renovators start thinking about renovations, until they have finalised the work and start experiencing the renovated home. Stages seem to get more focused and less timely as they get to the practical part of doing the renovation (Wilson, Chryssochoidis & Pettifor 2013)(Fig.4.2).
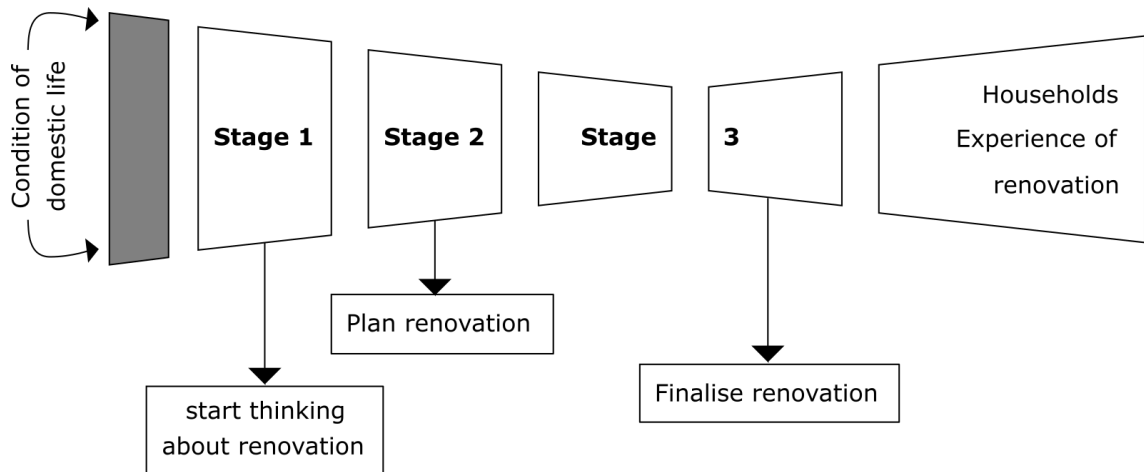
Figure 4.2 The renovation decision making process, redrawn by author from Wilson et al 2013

Similarly, Pettifor et al (2015) present a linear process indicating five stages: Stage 0 (Not thinking about renovation), Stage 1 (Thinking), Stage 2 (Planning), Stage 3 (Finalising) and Stage 4 (Experiencing). This model adds on to the one by Wilson et al (2013), by recognising the period before householders start to think about a renovation. Their representation is based on an innovation model by Rogers (1982) which requires householders to take individual action in each of the stages (Pettifor, Wilson & Chryssochoidis 2015). Despite the fact the study recognises the impact of social networks and professionals to the process, none of these are represented in the schematic description. Furthermore, the element of time, and the fact that each phase is not equal with the others, although recognised, it is not also represented.

Another diagrammatic representation of the process is presented by Thuvander et al (2012), who suggest that renovations follow similar stages as those of new buildings. They identify that renovations need a more thorough preliminary investigation period in order to define what it more significant for each building. They recognise that renovation of existing buildings is more complex in terms of planning and process from new built construction. Their research however does not specifically target homes (Thuvander et al. 2012).

Owen and Mitchell (2015), in their project about energy home renovations, have identified 6 stages, while they recognise the significant influence of intermediaries, and they map their skills alongside each phase. Their stages are: 1. Pre- installation:

Identifying the retrofit opportunity, 2. Pre-installation: Identifying retrofit options, 3. Pre-installation: Selecting options, 4. Installation: Retrofit activity, 5. Commissioning retrofit measures and 6. Post-commissioning: Use and maintenance of retrofitted home. This study is significant for the identification and connection of intermediaries and their roles in the process of (low carbon) renovation, however, it leans heavier on the perspective of the professionals and their capabilities in the different stages of the process. Renovation practice is considered as a professional activity which doesn't involve the active participation of householders, except as decision makers. The involvement of household practices and the contribution of householders' lives are not discussed or mapped in this, as in most of the other renovation process maps presented.

Finally, YourHome, the Australian online home renovation guide (YourHome 2019) provides a reference for renovation, which briefly outlines five stages: Stage 1: Getting started, Stage 2: Concept design, Stage 3: Detailed design, Stage 4: Construction and Stage 5: Living in your new home. These stages involve the period before the thinking and planning of the renovation begins, similar to other models above. The advice provided for Stage 1 is mainly focused on the financial and technical investment of the property (how to choose professionals, how to investigate value, budget planning) and less on the cultural and social reasons that are involved in updating a home (choosing where to live, lifestyle options). Furthermore, the advice is targeted to individuals rather than households as collective units, and it considers them as rational decision-makers guided by information. They identify, finally, that the process is not necessarily linear and that refinements happen as you go along (YouHome 2019).

In sum, current models or maps of the renovation process are not thoroughly researched from the perspective of households. There is no single definition of the process, which seems to vary from that of models similar to new build homes to decision-making planning maps. Furthermore, there is no reference, to any of these maps, of the contribution of media, as texts and as objects, in the process of renovation. Neither is insufficient reference to the alignment of renovation with other household practices or stages of life of households, which involves the immaterial, unseen elements of the practice. There is therefore an opportunity to explore the complexity of the renovation practice through the mapping of its process, considering its long or short-term engagement of households, in which my thesis contributes.

Adopting the perspective of householders, this mapping can outline the practice alongside other everyday practices and events and indicate the contribution of intermediaries, such as professionals and media. The following section introduces the ways in which the materially-engaged performance of renovation usually takes place in Australian households, as well as some of the professional intermediaries involved.

4.5 Renovation conduct

Home renovation involves a broad range of actors (such as the owners, architects, building professionals, contractors, product manufacturers and retailers, inspectors and local authorities), each of which can influence the householders' decisions and eventually the outcome of the project (Hoffman & Henn 2008; Karvonen 2013; Janda & Killip 2013; Thuvander et al. 2012; Owen, Mitchell & Gouldson 2014). The complexity of the interactions that these actors, which are considered the renovation intermediaries (Janda & Killip 2013), generate in home renovations makes it challenging to establish a systematic plan for the process (Karvonen 2013), particularly when a low carbon agenda is in place. Furthermore, renovation should be considered a 'political and social project' (Horne 2018, p. 136) rather than only a technical (Dowling, Mcguirk & Bulkeley 2014; Horne 2018).

Recent literature suggests that it is important to concentrate on the different ways that intermediaries and householders are engaged in a renovation in order to co-ordinate and embed low carbon practices in the mainstream (Horne & Dalton 2014; Willand & Horne 2013). It is also argued that greater participation by design industry professionals and policy makers are required in order to support not only the technical but the social and cultural dimension of the practices (Horne & Dalton 2014). Bartiaux et al (2014, p.536) reinforce this point by noting that householders should not be considered as individuals but as 'carriers of social norms' who represent typical everyday practices.

The timing of involvement of intermediaries is also important; the earlier their engagement in the process the more likely the final outcome will be relevant and satisfactory for households (Thuvander et al. 2012). In workshops set up in Sweden, to evaluate the decision making tools available to households, participants stated that for

more successful results, all contributors should be involved earlier in the process, and that simpler and more targeted tools for their decision making are needed (Thuvander et al. 2012). Furthermore, social networks and interactions with building professionals, provide a platform for shared knowledge and experience and are important for the building of trust (Bartiaux et al. 2014).

Home renovations are usually carried out by design and building professionals, by DIY practices or in some circumstances as hybrids of the two (Maller & Horne 2011; Goodsell 2008; Hulse & Milne 2019; Horne, Maller & Lane 2011). The following sections discuss these two main methods of conduct, starting from the amateur, DIY home renovation and concluding with the professional engagement and expertise.

4.5.1 DIY renovation

Houses, as other architecture structures, require maintenance, re-design and adjustment to fit their purpose (Jacobs & Merriman 2011). This maintenance work can be carried out by trained experts- such as architects and building professionals- or by the householders themselves. Despite the fact that experts have a specialist knowledge and experience acquired through years of training and practice, the practical knowledge and expertise of 'ordinary' inhabitants is often underestimated (Jacobs & Merriman 2011, p. 216). Despite the substantial significance of the conventional, self-organised retrofit and improvement of homes, DIY renovation tends to be disregarded in the literature of architectural and urban interventions (Grubbauer 2015).

The amateur remodelling of homes throughout history, evident in scholarship both in vernacular architecture and in the social sciences (theories of practice and human and cultural geography) (Grubbauer 2015) is important for this study, as it has been identified as a frequent practice amongst participating households. DIY or do-it-yourself renovation indicates the work undertaken by householders in the process of repairing and maintaining their homes, without the participation of building professionals (Mackay & Harvey C Perkins 2017b). DIY is frequently undertaken in renovations performed over time (Hulse et al. 2015). Householders identify areas for maintenance and seek the appropriate tools and knowledge to carry out the tasks involved.

114

Furthermore, DIY renovation work is often prevalent in renovations that are not focused on energy upgrades (Abreu, Oliveira & Lopes 2017).

DIY renovation is significant in Australia, as it represents the long history of house building and improvement of the Australian suburbs (Dingle 2000). However, there is currently a shift from the post-war, thrift-based engagement of Australian households with DIY practices because of lack of building trade professionals or skills, to DIY practices that focus on lifestyle issues. These usually involve aesthetic improvements and profit making (Rosenberg 2008; Smith 2014; Rosenberg 2011a), as well as the concept of 'serious leisure', which concentrates on a more systematic engagement with an activity that offers complexity and challenge to its participants (Stebbins 2001, p. 53; Brayham 2015, p. 90; Gallant, Arai & Smale 2013, p. 92). Similar and relevant to this perspective, is Campbell's concept on 'craft consumer', as the person that engages in 'creative acts of self-expression' without the need to create a new identity (Campbell 2005, p. 24). DIY engagement with and within the structure of the home can therefore be perceived as the transformation of necessity (repair or maintenance) to a hand-crafted practice which reconstructs the home into a unique product and space. A characteristic of the craft consumer is one that utilises 'mass-produced' products in order to create one-of-a-kind artefact or product which is 'intended for self-consumption'(Campbell 2005, p. 28). This customisation through DIY is also part of the process of 'appropriation' (Warde 2014; Campbell 2005), a concept borrowed originally from anthropology to describe the process through which people familiarise new objects (material or technological), giving them new meanings and embedding them in their lives (Warde 2014).

The advancement of technology along with professional tools for domestic DIY use-and their subsequent promotion by DIY stores - has assisted amateurs' ability to reproduce design artefacts and repair homes (Van Abel et al. 2011). The material objects of DIY activities, such as tools, and the skills of their practitioners are implicated in the execution of DIY practices and reinforce their 'ongoing reproduction' (Watson & Shove 2008, p. 70). The practice theory perspective on DIY can help relate to the phenomenon of increasing diversity and availability of DIY resources, available online and through DIY stores, which aim to connect the consumer with the specialised world of building trade. The access and familiarisation of people with new tools and products

and their promotion through the media, has supported the normalisation of DIY home renovation practices, and fed the continuous aspiration of householders to keep actively engaged with them (Watson & Shove 2008). DIY practices and the association with the material dimension of the home, allow householders to develop a deeper understanding of their dwelling over time. This understanding or 'folk knowledge', can complement the technical knowledge of building professionals, especially towards an energy upgrade of the household (Gabriel & Watson 2013, p. 220).

DIY renovation practices are often overlooked by designers and architects and design research respectively, as activities outside their immediate extent of work, whereas on the other hand it attracts an extensive consideration and recognition from the media (Smith 2014). On one side of DIY practices we observe the rise of lifestyle, makeover shows, with lifestyle experts performing a kind of neoliberal politics, advising people how to upgrade and improve from a distance (Rosenberg 2011b). On the other side, we watch the gradual transition of an emergent DIY movement, a culture of active citizenship (Ratto, Boler & Deibert 2014), with a mediated community of 'proams' and 'prosumers', challenging the 'monopoly' of professional expertise and leading to 'direct consumer (user) productivity' (Hartley 2012, p. 119). Therefore, DIY sits in the intersection of consumption and production and enables the materials and competences of the renovation practice to shape new meanings for its performance in the context of an ongoing engagement with the re-making of home.

On the other hand, the participation and leadership of architecture and building professionals in renovations, whilst characterised by technical rigour, can bring solutions that are not always aligned with households' culturally appropriate needs. The following section expands on the architects' and building industry's contribution to renovation practice.

4.5.2 Architecture practice and the house-building industry

The practice of architecture has varied expressions; it embraces the material subject of building, as well as the 'human mattering' which relates to people's emotions, and creation of atmospheres (Jacobs & Merriman 2011, p. 212). Architectural practitioners can include skilled professionals- architects, builders, designers, as well as

householders, 'DIYers', artists and enthusiasts, all of which can claim to practise architecture (Jacobs & Merriman 2011, p. 211). On the other hand, the term architecture has historically been used to describe prestige buildings such as cathedrals and major public buildings, whereas smaller, domestic structures such as houses and sheds are characterised simply as buildings (Miller Lane 2006). However, houses or in their more holistic definition, dwellings (Giddens 1984), are the majority of the buildings found in cities (Miller Lane 2006). The terms of house and home are often merged, particularly in popular media, especially when marketing home ownership (Mallett 2004).

Houses, as the physical manifestation of homes, are often experienced as a project (Mee 2007; Pink, Leder Mackey, et al. 2017; Pink 2004) that requires continuous reconfiguration by householders in line with their visions and aspirations for a future dream home (Pink, Leder Mackey, et al. 2017; Horne 2018). In contrast, the deterioration of the house structure and the engagement of the owners with its maintenance and repair is considered part of the daily life of households, who often carry out work by DIY, however, larger alterations or extensions are the ones that demand the professional involvement of architects and other building professionals. Architecture, in this case relating to domestic structures, 'as a practice and a product, is performative, in the sense that it involves ongoing social practices through which space is continuously shaped and inhabited' (Lees 2001, p. 53). This conceptualisation and link of architecture to practices is relatively new in literature. Lees suggests that we need to appreciate that the conceptual meaning of architecture is not simply communicated by its (architectural) design, but also by its 'active and embodied engagement with the lived building' (Strebel 2011, p. 245; Lees 2001, p. 56). This perspective presents an opportunity to study home in its full active containment of people, practices and materiality, as an ongoing process of transformation, which sometimes moves outside the 'scripted' use that the designer or architect had envisioned. This goes under the assumption that architects and designers are the ones responsible for the design of buildings, including houses, which is not the case for many residential dwellings, particularly single detached houses.

Buildings as architectural forms, are the material representations of 'expert design' (Jacobs & Merriman 2011, p. 215). While larger, mainly commercial buildings, carry the

117

mark and prominence of their architect or designer, the housing sector lacks equal prominence, support and involvement of architects or designers, especially in the mainstream provision of homes (Jenkins & McLachlan 2010). However, the current under-representation of architects in the housing market has not always been as that. Until the 1930s, architects performed a powerful part, producing intelligent home designs (Rybczynski 1997). In Australia, architects' involvement, such as Gruzman and Seidler, in housing design during the 1940s and 1950s, produced some iconic house designs (McMahon 2001). From that point on, however, the prominent reasons for this disengagement of design professionals from the private house development were the opposed values of modernism to that of the developers; concerning form, function as well as symbolism and aspiration of the living environment (Jenkins & McLachlan 2010). More recently, in a Scottish study on the role and value of design in private house developers, results indicated that 'design added to sale value; helped with obtaining planning permission; fitted company objectives; and improved the company image' (Jenkins & McLachlan 2010, p. 158). However, this doesn't directly translate to more involvement of architects and designers in housing developments.

Currently, the small number of houses designed by architects or design professionals is attributed to primarily the high cost of their professional fees, based on a percentage of the project's overall cost, and a frequent misalignment of values between clients and design professionals (Rybczynski 1997). One of the reasons behind the schism between designers and householders is that they are not clients as such but consumers, who, in contrast to clients, are principally concerned about the product rather than the process itself (ibid). Furthermore, since the 1930s, architecture and design have had trouble with catching up with home construction technologies (Putnam 2004). The house building industry has been characterised as more traditional and backward in comparison to the commercial building technology (Putnam 2004). More recent concerns over the rapid increase in the demand for housing provision, has resurfaced the housebuilding's industry need to integrate Modern Methods of Construction (MMC), such as Offsite Manufacturing (OSM)(Pan, Gibb & Dainty 2007, 2008). The Australian Construction industry has identified OSM as a 'key vision', however, it is still under-developed and not well documented (Blismas & Wakefield 2009, p. 73). UK studies have found that householders' negative perceptions of OSM, and associations with post-war prefabricated structures, oppose any attempt to move

away from the image of 'traditional' home. Resistance for adoption has also been observed by architects and designers, while housebuilders (contractors and builders) were in their majority (82%) more satisfied by traditional on-site construction methods, than offsite manufacturing (47% satisfaction), in a sample of 100 house builders in the UK (Pan, Gibb & Dainty 2007). An older critique of Boyd for the Australian housing suggests that: 'House building postpones the economies of mass-production for fear of losing individuality and personality around the family hearthstone, and the trade perseveres with ancient craft methods barely modified by the atomic age' (Boyd 2002, p.184). While this can be considered as dated and old-fashioned, it would be interesting to investigate its argument by exploring how householders perceive this individuality of their homes, and how professionals represent it.

The partial disconnection of architecture practice with the housebuilding industry, and the deceleration of the house construction industry, are challenges to the perception and evolution of future homes. Cox (2016, p. 66), suggests that 'the material properties of homes can be valued for social and cultural as well as practical reasons'. She argues that familiarity and satisfaction with the home environment is not only provoked to people because of the contents of a home but by its structural materiality and layout (ibid). Therefore, the processes of maintaining and renovating a home must be in line with what households consider familiar and culturally appropriate. House building technologies need to co-evolve with emerging aspirations and visions of home and embraced by both architects and other intermediaries of the renovation practice. Next, I present the concept of expertise in relation to the professionals involved in renovation and discuss the intermediaries of home renovation relating to the building industry.

4.6 Expertise

Expertise is important in the transition to low carbon homes, however, it is not always 'equally distributed' (Janda & Killip 2013, p. 36). While professional intermediaries of renovation carry specialised and different kinds of expertise, this is not always comparable or 'responsive to the demand' (Janda & Killip 2013, p. 36). Furthermore, there are different kinds of expertise further than the technical knowledge, which relate to the cultural capital of people and communities (Bassett, Fotopoulou & Howland 2013). This section explores expertise in relevance to the renovation practice.

The term and concept of expertise is complex and multi-representational, both in terms of definition and significance (Kennedy et al. 2015; Brand & Karvonen 2007). Usually expertise is examined in discipline or domain specific contexts (Cellier, Eyrolle & Mariné 1997). Experts are generally professionals that are considered the carriers of domain-specific knowledge (Cellier, Eyrolle & Mariné 1997; Kennedy et al. 2015), including the thorough understanding and contextual operation of terminology of the relevant area, ability to critically decide about issues and understanding the significance of these, as well as anticipating and preparing for any adverse conditions (Xiao, Milgram & Doyle 1996). Furthermore, expertise is considered as a 'techno-social system' (Bassett, Fotopoulou & Howland 2013, p. 21) in which the material, social and technological dimensions need to be evenly considered. However, another definition or interpretation of (amateur) expertise is one associated with the rise of lifestyle programmes on media and DIY culture. Networks of pro-ams, or amateur professionals, engaging in 'serious leisure' (Rosenberg 2011b, p. 184) activities can have a critical impact on the political, social, cultural and economic life (Leadbeater & Miller 2004).

In the context of the thesis, I review two types of experts: technical experts- those who carry technical knowledge in order to design, construct and manage technologies (Brand & Karvonen 2007) and issues relevant to buildings- and lifestyle experts: those 'whose knowledge is tied to the ordinary and the everyday' (Lewis 2010, p. 580), a category that includes celebrities and other figures in popular media, who have been characterised as 'living brands' (ibid). This section discusses technical experts. Lifestyle experts are then presented in the next chapter (5.5.2). These two types of experts are encountered in the renovation process, the former (technical) through the traditional building practice and the latter (lifestyle) primarily through popular lifestyle media on home improvement and renovation.

4.6.1 Ecosystem of expertise

Brand and Karvonen (2007, p.29) have identified an 'ecosystem' of (technical) experts relating to the need to address sustainable development in cities. Within the context of diverse and interdisciplinary issues such as sustainability, defining expertise is challenging. They, however, determine some types of experts that can assist in the

purpose. First, they identify the *outreach expert*, who reaches out to the public to educate them about technical knowledge. This model supports the technical expert as the recognised form of knowledge, not considering the impact of the public, non-expert perspectives. Then, they describe the *interdisciplinary expert*, who 'blurs the boundaries' between disciplines to broaden the discourses between them. Similar to the previous category, the interdisciplinary expert doesn't challenge the expert-non-expert divide. Following this, they present the *meta-expert*, who is able to understand and critically refer to a variety of technical knowledge from different disciplines, able to 'pick cherries' in order to address an issue. Meta-experts do not have in-depth knowledge of all subjects involved (in sustainability related issues) but able to critically understand what is required to handle it. And finally, they address the importance of the *civic expert*, whose role is to engage and involve citizens in order to enlighten professional, technical knowledge and development. This is a participatory model of expertise (Brand & Karvonen 2007, p. 26–28).

Reflecting on this classification, it is clear that in complex, multi-dimensional challenges such as low carbon building practice, it is beneficial to accommodate knowledge and experience that does not solely represent one perspective, but includes and integrates a diversified view of what expert knowledge can be. Involving the perspective and tacit knowledge of householders and their networks for example, along with other sources of amateur expertise, can enhance the integration of relevant and appropriate know-how and meaning into the practice of renovation. The following section identifies the contribution of professionals that often involve public contribution to the dissemination of knowledge in the home renovation domain.

4.6.2 Renovation intermediaries

The term intermediaries denotes individuals or organisations which act as mediators between actor groups; however, there are various interpretations of their function depending on the disciplines involved (Moss et al. 2009). When considering recent literature on home renovation and energy upgrades, intermediaries are defined as technical experts, such as architects, engineers, planners, installers, builders and other building professionals with specialised experience on home design, construction and maintenance, as well as project managers, infrastructure and policy agencies (Brand &

Karvonen 2007; Karvonen 2013; Owen & Mitchell 2015; Horne, Maller & Dalton 2014). These individuals or groups of experts frequently team up in order to provide their clients with 'shared expertise', often in 'non-competitive' settings, such as small sub-contract firms working with each other sharing skills on site (Owen, Mitchell & Gouldson 2014, p. 172). This practice usually involves small firms of technicians, which sometimes work together to confront current building practices and develop alternative ways of working. Intermediaries in the field of energy efficient building practices, provide a 'bottom-up' agency, which supports the transition to a lower carbon future with the potential to contribute to an improved policy support (Backhaus 2010, p. 92).

Furthermore, architects and designers are important renovation intermediaries, because when engaged in projects, they perform a double role: that of the technical expert as well as that of the cultural intermediary (Chu 2017; Callaghan 2017). Architects as the primary designers of buildings, in the process of their training and professional development, gradually develop a new perspective of the world, and often disconnect themselves from the general public (Siva & London 2011). Using Bourdieu's concept of habitus, as explained in chapter 3, the architect can be situated in the 'architectural habitus', the 'underlying social system within which architects are embedded' (Siva & London 2011, p. 178). In this habitus, architecture practice as a skilled activity, is cultivated and sustained by individuals (architects) which hold specialised 'unique' knowledge (ibid). This exclusivity that frequently develops with design professionals has been observed to hinder the professional-client relationship as well as the contribution that clients, in this case householders, bring to the design process (Siva & London 2011). When householders engage with architects, they often encounter uncertain and unfamiliar settings, which can result in 'habitus shock', by theirs and architect's habitus conflicting (Siva & London 2011, p. 179).

Furthermore, designers usually employ 'tacit as well as explicit ideas about actual and potential users', without always critically engaging in unpacking householders' practices and processes of consumption (Ingram, Shove & Watson 2007, p. 4). Tacit knowledge, explained as knowledge that cannot be articulated verbally (Sanders 2002, p. 3; Polanyi 1966) is characteristic of design practice and designers, who 'are usually unable […] to put their special skills and understanding into words' or when they are able to do so their interpretations are limited and fuzzy (Schön 1988, p. 181). One

consequence of this 'habitus shock' is that in some home renovations, particularly those that require policy to be adopted, householders (who employ professionals such as architects, builders and other experts) frequently leave the decision-making to them and are not actively engaged in developing a vision for their households' performance and form. As a consequence, professionals tend to choose options based primarily on economic viability rather consider any other personal choice and practice that householders would otherwise make (Willand & Horne 2013). Returning to the concept of the ecosystem of expertise, discussed in the previous section, it seems critical to involve householders, their networks and practices, in the technical expertise of intermediaries. Following the civic expert model, householders' know-how, of the lived experience of their home, would inform the technical and specialised knowledge and potentially support its better integration through the renovation practice, to a more collaborative model of intermediation practice.

Additionally, Podkalicka et al (2016) have highlighted several key intermediaries in the renovation process, such as media celebrities, websites, TV programmes and non-profit organisations in addition to industry organisations, government and building professionals (Podkalicka et al. 2016). They suggest that reinforcing the network of intermediaries through public communication in the media can assist in the successful engagement of householders in low carbon renovation (ibid). My thesis add to this literature and to the concept of renovation intermediation by identifying the diverse actors that comprise them, ranging from professionals to amateur networks, media (in their triple articulation) and material objects, as discussed in chapter 6, 7 and 8.

4.7 Chapter conclusion

This chapter presented the home renovation practice and process, unpacking some of the elements that comprise its complexity. Initially the reasons for renovation were explored, and a complex interaction of emotional and practical components were revealed, demonstrating the entanglement of people with their homes. Furthermore, in the transition to low carbon renovation practices, several challenges come in the way of householders implementing changes. While literature presents some of these as barriers, it is important to consider them as issues integrated in the everyday life of

households, considering for example the meaning and socio-cultural interpretation of available information and the context in which decisions are taken.

The consideration of renovation as a social practice, suggested that despite the occurrence of one-off, and more extensive projects, renovation can be considered a continuous engagement of households as it takes place alongside their everyday life, often in small, continuous tasks. As practices co-evolve, it is important to consider the ways that renovation is associated with other everyday household practices, such as homemaking in order to get insights into how these are performed, their meanings and materials. Furthermore, the examination of the renovation as process revealed that there are two ways of performing it: as a project and as an ongoing process. The identification of renovation as an ongoing process is significant for the embedment of low carbon practices, as these usually occur in the process of other maintenance activities. Furthermore, renovation as process over time supports the better integration of intermediaries through a longer period of adjustment to the needs of each household. My thesis targets this needs for a better understanding of renovation as a process over time and its implication in the adoption of low carbon practices.

Renovation involves a broad range of intermediaries and can be conducted through DIY, professional practice or a hybrid of the two. Architects, designers and other technical experts are the professional intermediaries of renovation. However, architects' involvement in mainstream renovation seems to be less prominent and the leading professional roles have been passed to building professionals. This, in combination with the fragmented nature of the business that services the renovation process, makes the co-ordination and successful embedment of low carbon practices in the mainstream challenging. Furthermore, the partial disconnection of architecture and design practice with the housebuilding industry, in combination with the misalignment of domestic and commercial building technologies which can accelerate domestic construction, challenges the evolution of future homes. House building technologies need to co-evolve with emerging aspirations and visions of home and embraced by householders and the intermediaries of renovation.

Finally, the renovation intermediation process includes a diversity of perspectives and involves the transmission and interpretation of information that goes beyond technical

expertise and concerns the cultural transaction and meaning making of households, frequently occurring through media and communication technologies. It is critical to reinforce the connection of intermediaries with householders through media communication as a way to assist the successful engagement of households in low carbon renovation. The next chapter discusses the involvement of media in the home environment, as well as the concepts of lifestyle and cultural intermediation.

Chapter 5: The mediatised home

This chapter concludes the examination of literature with a review of cultural and media studies perspectives on the symbiosis of householders with media at home, which can be termed *mediatised home*. The chapter's rationale is to explain the relevance and at times indispensability of media in the everyday life of households and relate their relevance to the practice of renovation. Beginning with the suggestion that our society is permeated by media, and adopting a non-media-centric perspective, meaning that media is studied 'as part of other phenomena' (Pink & Mackley 2013, p. 681) and as everyday practices (Couldry 2010, 2012) rather than media per se, the household is investigated as a mediatised environment and homemaking and renovation practices are contextualised within this environment.

Having investigated the household as a unit in the meso level of society (chapter 3), media in this chapter is considered at both the micro level and meso level (through the domestication of media and technology), as well as the macro level of society (through the mediatisation approach). It is important to understand the dynamic relationship between society, culture and media in order to reflect on the theoretical and practical concerns regarding social change upon the current threat of climate change and its implications on homemaking and renovation.

Finally, the concept of lifestyle and cultural intermediation are presented and discussed in order to set the background for homemaking and renovation practices which take place within a mediatised home environment and articulated through online lifestyle media platforms.

5.1 Dwelling with media

Media and communication technologies are interwoven into the household environment and have adjusted themselves to its daily practices (Nansen et al. 2009; Chambers 2016). Furthermore, these technologies and the devices through which they manifest

126

themselves are in turn shaping the domestic practices and routines, making homes into 'nodes' of connectivity (Nansen et al. 2009, p. 185). This extensive use of communication technologies (ICTs) in the household are building a 'new normality in everyday life' (Christensen & Røpke 2010, p. 233), while they are in some cases so embedded in it, that they are imperceptible to their users (Pink & Mackley 2013). In this sense, the focus becomes media as a 'set of practices relating to, or oriented around, media' (Couldry 2010, p. 36), rather than media as texts or objects. Exploring media as practice allows the understanding of media as an element of the household and its renovation practices. I will present the role and association of media with homemaking and renovation, through a discussion of media consumption at home, focusing on the key theories of double and triple articulation (media as text, object and context). I will then move into domestication of media (Morley 2006; Silverstone 2006) and mediatisation, the latter implying the wider media-driven transformation of 'everyday life, culture and society' (Krotz 2017, p. 105).

As discussed previously, households are diverse, in composition and size. This diversity has an impact on the way that householders select and 'appropriate' the media technologies in their homes (Chambers, 2016a p.5). Having children and young people living at home for example is one of the main factors that increases the establishment and maintenance of a media-rich household, especially of digital, internet-based media (Christensen & Røpke 2010; Chambers 2016). The combination of the variety of media devices available to children, such as tablets, personal computers, TVs and mobile phones, with the limited ability they have outside their homes, has brought about the need for dedicated space for indoor and more private media use (Chambers 2016). This need for a special space in the house where digital media are accommodated and used has created a screen-based bedroom culture (Livingstone & Das 2010, p. 30). The ability to use rooms in the house for multiple functions, such as bedrooms in this case, as well as the larger and more flexible (e.g open plan) layout of homes, allows a greater degree of privacy between household members and give parents private time away from children, while it often provides a reason to extend a home (Dowling et al. 2012).

Furthermore, this 'repertoire of media' (Haddon 2016, p. 17), which describes this diverse variety of media available to households, occurs alongside everyday household

routines. However, media consumption depends on the specific social context or else on the home's habitat. Traditional domestic media, television in particular, have been accredited to have 'transformed the material and social space of the home' (McElroy 2008, p. 47). Television's fixed place as the heart of the house (Chambers 2016; Spigel 1992), came to represent a gateway to the world; it became a symbol of domesticity (Chambers 2016; Spigel 1992; Silverstone 1994). However, there has been a transition from the static, television focused home, with communal watching, to a fragmented network of personalised mobile devices. The habitat of the household has changed from a static arrangement to a dynamic, distributed spatial and social arrangement (Nansen et al. 2011). The 'new and novel ways' (Nansen et al. 2011, p. 703) for viewing and consuming media around the house, interactively affect the ways in which home is designed and lived in. Building on this, the demands that material objects (including technologies) and practices bring to a household, are reflected in the householders' motivation to alter their home in order to accommodate them: 'people extend their homes in order to accommodate additional appliances and […] to accommodate practices inscribed in technologies' (Hand, Shove & Southerton 2007, p. 679). However, it is important to note that Hand et al (2007) don't specifically refer to media technologies in their study. While some scholars have considered technologies as keeping the elements of a practice together (Gram-Hanssen 2011), this thesis contributes to understandings of media as a meaning, material and competence within the practice theoretical framework (Shove, Pantzar & Watson 2012), specifically in relation to home renovation.

Furthermore, while 'home is located, it is not necessarily fixed in space-rather, home starts by bringing space under control' (Douglas 1991, p. 289). The symbiosis of people, materials and technologies with the physical space of the home shape the householders' living practices (Hand, Shove & Southerton 2007; Nansen et al. 2011). Householders' 'expectations and interpretations of need' grow simultaneously with the materials, objects and technologies that they acquire (Hand, Shove & Southerton 2007, p. 677). With the introduction of mobile media and communication devices, the rhythms and routines of domestic life have adapted, and in many cases disrupted the privacy and sheltering that the home originally provided, to a non-stop networked reality, where public life is constantly interlaced with family life (Nansen et al. 2009). As technologies and media devices co-evolve, they bring along a dynamic rearrangement of the

domestic environment, which in turn shapes the householders' practices and rhythms. Despite the various socio-technical and material studies about this interaction of people with the materiality of their homes, there is less literature attention on the interactive relationship between the architecture of the house (the structure itself) with this constantly changing, emerging culture of 'dwelling by people, technologies and objects' (Nansen et al. 2011, p. 695). The thesis fills this gap, by exploring to what extent media contribute to the reconfiguration of space, or its aspiration, within households.

5.1.1 Double and triple articulation of media

The concepts of double and triple articulation of media help to break down the symbolic meaning of media, as texts, as objects and as context, paving the way for exploring the connection and association between people, media and the architecture of home within the mediatised home. The concept of double articulation of media signifies the binary of meaning that they hold: media as object and media as text. Early domestication studies introduced the concept developed by Roger Silverstone in 1994, when he discussed television both as an object 'the machine itself' and as a medium (Silverstone, 1994 p.83). The design of a media technology and its promotion as a domestic consumable, carries the status of it as an object, while at the same time, through its content as a communication medium it determines the second layer of articulation. According to Silverstone it is the utilisation of both of these articulations that determines the importance of the media technology as 'an object of consumption' (Silverstone, 1994 p.123). Technology as 'object' needs to first be articulated, as it assists the connections between householders and the rest of the world, while the second articulation, as more complex, determines the 'use of media in everyday life' (Hartmann 2006, p. 87). Australian renovators have been found to use both the symbolic and material dimension of media, particularly through property TV shows, in order to inform renovation practices, such as budgeting, planning and getting inspiration. (Podkalicka & Milne 2017). It is therefore important to pay attention to this binary meaning when exploring renovation practice across its different stages.

The concept of double articulation of media has been claimed to be particularly useful when analysing media consumption as well as a way of helping re-align the theories of domestication (discussed in the section below) in regard to digital media which are

more mobile, such as mobile phones (Hartmann 2006). Hartmann (2006) suggests that the second articulation of media captures the private and personal connection with the public sphere and is critical to people's everyday functions, not only as individuals and families, but as citizens and consumers. This capacity and potential of changing culture and society differentiates media from any other form of technology (ibid). This is an important observation for the study of renovation, as a practice which sits between the private domain of home and the public world of physical and virtual communities in which households belong to.

Meaning of media consumption
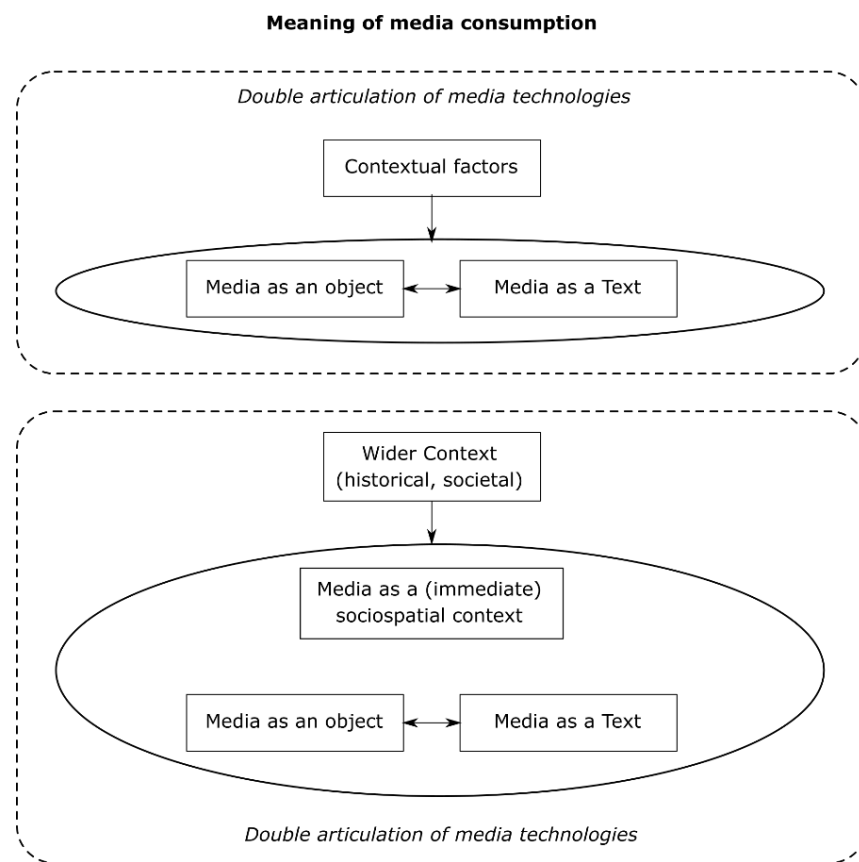
Fig 5.1 Double and triple articulation of media diagram, Re-drawn by author from Courtois and Verdegem, 2012

Further to the double articulation, and as early as 2006, the concept of triple articulation (Hartmann 2006) came into discussion, as way to introduce the context in which media are articulated as another contributing component (see Fig 5.1 above). While controversies exist amongst scholars on how to determine or differentiate the complexity between the content and context (Hartmann 2006; Livingstone 2007), it is

important to investigate this complexity (Courtois et al. 2012; Courtois & Verdegem 2012), as all three factors 'require equal attention' (Courtois & Verdegem 2012, p. 437). The definition and clear boundaries of what consists content and what context are hard to outline (Hartmann 2006; Corner 1998).

The context of media consumption, as seen in Fig 5.1, has a range, between the immediate socio-spatial one (meso), to the wider social context (macro). While media are consumed within the immediate context, their embedment in the wider socio-spatial context add to the complexity of their understanding. Furthermore, the heightened attention to the context can obscure our understanding of media as texts and objects (Courtois & Verdegem 2012; Hartmann 2006). The contextual factor in media articulation, can be very useful for studying the association of household practices to home renovation, with the material structure and background of each specific home typology (refer to chapter 8). The existence of multiple media devices at home, and their detachment from a fixed place of consumption suggests that the immediate context of media is changing alongside our emerging routines of everyday life at home (Courtois & Verdegem 2012). This is significant for the study of renovation, as it diversifies the meaning of context at home, as I elaborate in Chapters 6, 7 and 8. My findings demonstrate an expansion beyond the physical locality of the home and its immediate environment, to that of a symbolic and virtual dimension in media worlds.

5.1.2 Domestication of media in the household

The ongoing engagement of households with media points to the fact that home is a dynamic, continuously changing environment (Morley 2006; Pink 2014a). Home is no longer a refuge or 'retreat from technological change' but a devoted space for this change (Chambers 2016, p. 44). The endorsement (or rejection) of media technologies, within the complexities of everyday life, have been examined by the theoretical approach of domestication in media studies (Berker et al. 2006; Morley 2006; Haddon 2007). Domestication challenged the previously linear and mono-dimensional studies of media which disregarded the complex everyday contexts in which media was practised (Chambers 2016; Berker et al. 2006). The concept of domestication (Haddon 2007), introduced by David Morley in the 1980s (Morley 1980, 1986) and advanced by Roger Silverstone and his colleagues in 1992 (Haddon 2007),

and by a group of Norwegian researchers at Trondheim in the 1990s (Haddon 2007; Lie & K. 1996) used a metaphor of the taming of media and communication technologies in the home (Silverstone & Hirsch 1992). Recent interpretations include the 'domestication of public space' (Mandich & Cuzzocrea 2016, p. 226; Kumar & Makarova 2008, p. 324), which describes the shifting of the private matters of home into the public sphere (Kumar & Makarova 2008; Mandich & Cuzzocrea 2016), blurring of boundaries between private and public (Mandich & Cuzzocrea 2016) and highlighted the role of households in this transition.

The process of domestication involves different stages through which people bring or integrate media technologies into the home, essentially moving them from 'public into private space' (Courtois & Verdegem 2012, p. 423). This penetration of media characterises the appropriation stage, in which the new 'object' is given a place within the home. However, at this stage no meaning is yet attached to it. Then, the 'object' is given a new identity and use, including its aesthetic function within the home. This stage, the objectification, may also include the realisation of the embedded possibilities of that technology in the home. Following on, in the stage of incorporation, the 'object' is absorbed into the household routines and everyday rhythms. Finally, in the conversion stage, people attach symbolic meanings into the 'object', leading to the familiarisation of it by its users (Chambers 2016; Silverstone, Hirsch & Morley 1992). This stage involves a 'constant renegotiation' (Silverstone 2006, p. 266), while the 'object' also 're-enters the public domain' (Courtois & Verdegem 2012, p. 423). The concept of domestication came into being as a way to engage households with processes of 'socio-technical change', as it is the space where it matters most (Silverstone 2006, p. 231). Gram-Hanssen (2011, p. 67) suggests that processes of domestication are processes of transformation of rules and knowledge into 'routinised behaviours and tacit know-how', which essentially shape practices.

Households, conceived as 'moral economies' (Silverstone 2006, p. 236; Silverstone, Hirsch & Morley 1992, p. 16; Hartmann 2006, p. 84), find ways to negotiate the integration of technologies by operating under a set of values and 'moral judgements', through which they manage their wellbeing (Chambers 2016, p. 9). The moral economy of the household became a core concept within domestication studies, contributing to what Giddens describes as 'ontological security' of the household in their everyday

practices (Giddens 1991, p. 82; Hartmann 2006, p. 84). However, homes have become multi-purpose spaces; working from home for example has become common, which often makes 'physical and symbolic' boundaries difficult to define, especially regarding technologies that can also be used for leisure purposes from other members of the household (Ward 2006, p. 145).

The multi-tasking of using different media, including devices- such as mobile phones, computers and tablets for work and communication, makes this blurring of home-work or public-private increasingly intense. This phenomenon of domestic (media) consumption convergence (Müller & Röser 2017, p. 58), implies the ongoing interchange of traditional and digital media at home, which gradually gravitates towards more frequent use of digital media. This brings along a diversity in the way media is used and controlled within the homes, and turns home into a 'hub for new modes and situations of media use' (Müller & Röser 2017, p. 58). Household members have to negotiate management, access and use of devices (similar to managing energy consumption, food and water)(Chetty et al. 2010), while negotiating distribution of domestic labour, ownership or location of device (Kennedy et al. 2015; Silverstone 2006). This 'digital housekeeping' (Kennedy et al. 2015, p. 408) describes the work and expertise exercised by householders in order to maintain and operate the 'media ecology' of their home (Kennedy et al. 2015, p. 409). Yet, digital housekeeping, as an invisible form of house labour is not always evenly spread between household members or even amongst genders (Kennedy et al. 2015).

At the same time that new digital media are 'naturalized' (Morley 2006, p. 31) in the home, the reverse phenomenon of 'dislocation of domesticity' occurs (Morley 2006, p. 33). Many of the devices are now not only domesticated but have become 'body parts', such as, for example, the mobile phone (Morley 2009, p. 29). Morley suggests that this bond in not only the direct physical connection with the object but the fact that it becomes people's 'virtual address, the new embodiment of their sense of home' (Morley 2009, p. 7). Research on domestication has assisted in the appreciation of the integration of technologies by users, and their gradual transformation into indispensable matters (Hartmann 2014). Indispensability can be perceived as the ways in which people naturalise media in their everyday life in order to live a 'comfortable

and socially integrated life' (Jansson 2014, p. 278). Media are therefore a means to achieve a comfortable and socially embedded and accepted lifestyle.

In addition, the concept of personalisation, as introduced by Rasmussen (2014), broadens the concept of domestication through the 'reorganisation of technology according to the expectations of persons' (Rasmussen, 2014 p.5). Rasmussen distinguishes between two areas of personalisation: the first one refers to personalisation of information-the choices of media services through the relevant sources which can become more particular for each individual- and the second refers to the personalisation of the media -or the 'history and sociology of mediated interactions in private life, from the private letter to the telephone, the personal homepage, email , instant messaging, photo-blogs, the mobile and social networking sites' (Rasmussen, 2014 p.6). Rasmussen suggests that personal media (media that has been personalised, as explained above), do not contribute to 'mass communication' but to the establishment of strands of personal systems of connections (Rasmussen, 2014 p.7). Personal media therefore contribute to the 'co-production of media content', allowing users to become producers or prosumers (Rasmussen 2014; Toffler 1980). The co-production of media content is particularly relevant for the study of renovation, especially through social media content related to DIY construction and homemaking.

Finally, the concept of media 'imaginaries', as discussed by Deborah Chambers, encompasses the idea of 'popular discourses and public meanings associated with media technologies' (Chambers, 2016a p.13). Meanings of (ideal) home are not generated just by householders but by the wider social and cultural context, as well as by 'multiple, competing and complementary media discourses' (ibid, p.13). Media imaginaries, developed before the early adoption of media technologies, assist in their pre-domestication in the home, by creating common visions, values and roles for each medium; 'media imaginaries facilitate the possibilities of opening up the home to global flows' (Chambers, 2016a p.14). Media imaginaries draw in the whole network of policies, design, marketing and popular culture ideals, in order to relieve the possible anxieties in the process of 'accepting' and normalising a new media technology (ibid, p.14). My findings suggest that media imaginaries are important meaning and competence makers at different stages of renovation, as elaborated in chapter 6.

5.2 The mediatisation of home

I have so far presented media as texts, objects and contexts which are concerned with household matters, shaping and transforming everyday communication and enabling a comfortable and socially embedded living. Home, as a connectivity hub, is experiencing a continuous technological transformation with media (Chambers, 2016a p.8), linking the private space of the household to the wider and public macro-level of society, and shaping and being shaped by the prevailing culture (Silverstone 2005). Despite claims for the 'dislocation of domesticity' (Morley 2006, p. 33) home still 'a special place' and a 'significant context for media use' (Peil & Roser 2014, p. 238). It is 'a microcosm of mediatisation that is closely connected to the macrocosm of society' (ibid, p.238).

In a society that 'everything is mediated' (Livingstone, 2009, p. 2), across all domains of life (such as politics, environment, family, social institutions), the significance of digital media is of great importance (Lunt & Livingstone 2016, p. 463). Mediatisation (or mediatization) is a term that emerged in the 2000s, in order to express the 'wider transformation of social and cultural life' through media (Couldry 2008, p. 376). The concept of mediatisation articulates that these transformations of the social are made in complex ways, rather as consequences of media's agency or innovation (Hjarvard 2008a). Mediatisation is perceived and analysed as a meta-process, a term that implies that it is a long-lasting, multi-dimensional and conceptual process of cultural and social change (Hepp, 2013 p.47), similar to processes of globalisation, individualisation and commercialisation.

The relevance and significance of the concept of mediatisation for this thesis is in the transformative role of media in the everyday life at home, within the existing culture and society (Krotz 2017, p. 105). Alongside the ongoing transformation of media itself, we need to observe a wider transformation of 'everyday life, culture and society' (ibid, p.105). It is therefore important to understand the effect of media processes on and alongside everyday life, and to observe how they link with renovation practices, which are in turn mediatised practices.

The mediatisation approach is not yet a uniform concept or theory, with several criticisms and debates still ongoing (Krotz 2017)- such as the disparity or similarity of

the concepts of mediation and mediatisation (Couldry 2008; Livingstone 2009; Lunt & Livingstone 2016). Mediatisation is not a media-centric approach, which means that it does not examine media per se, but rather a framework to help recreate the interaction of individuals with other 'social actors' through media communication (Krotz 2017, p. 109). Furthermore, it is not a new concept and it doesn't always have to be linked with the technology of the medium. Traces of its existence can be found as early as the invention of the book as a communication medium in monasteries (Krotz 2014) or later on in the 1950s home for example, where the television triggered a 'realignment' of the domestic routines with the wider social transformations and lifestyle and a re-negotiation of private-public boundaries (Peil & Roser 2014, p. 233). Furthermore, mediatisation, as a transformation of socio-cultural life through media, can be presented in two forms: strong and weak. Strong mediatisation happens when a social or cultural activity acquires a 'media form', such as for example a banking interaction moving from a physical to an online environment (Hjarvard 2004, p. 49). Weak mediatisation on the other hand, describes the influence of the 'symbolic content and structure' of a social or cultural activity by media (ibid). Strong and weak mediatisation are relevant concept for the thesis, as presented in chapters 6, 7 and 8, helping explain issues such as the movement of certain social interactions relating to renovation practice, such as neighbours' conversations, to their emerging online versions and the complementary support of media texts or objects in the dispersed practices of renovation.

Additionally, Morley (2006, p.32) suggests that as digital infrastructures for new media technologies are integral to the building fabric, rather than just superimposed, these 'technologies are no longer merely supplementary to but constitutive of, what the home itself now is' (Morley 2006, p. 32). In addition to the increased online participation (Peil & Roser 2014), the ongoing commercialisation of private media services and products indicates that the home environment is continuously penetrated by commercial benefits, at such level that householders 'are locked into a commercial organisation of their daily habits and routines' (Chambers 2016, p. 176). The theories of mediatisation of home can help us observe and evaluate the production of cultural change that takes place in the household and how this in turn contributes to wider social norms (Clark, 2013 p.211), which frame households' homemaking and renovation practices.

5.3 Lifestyle

Media, although often imperceptible, is exercising a powerful role in everyday life. Media as institutions continuously reproduce a depiction of our society while they allow almost complete open access to people (Hjarvard 2013). And although most of us 'live closer' (Hjarvard 2013, p. 147) to the world, media are now less driven by 'social interests or common cultural values' (Hjarvard 2013, p. 148) but rather guided by an eagerness to provide content that satisfies the individualised lifestyles of the audience. Within the context of mediatised home, everyday household practices are a subject of public discussions, allowing previously inaccessible private and intimate matters to open up for wider audiences, making the boundaries between public and private disappear (Kumar & Makarova 2008). Media is inseparable from society (Hjarvard 2008b, p. 105), contributing to common understandings and 'interpretations of how the world works' (Christensen 2016, p. 207), and are therefore interwoven in current discourses about taste, everyday life and lifestyle (Hulse et al. 2015; Lewis 2008c). This is evident through various media texts on DIY, property and self-development in social media, TV and other traditional media (Hulse et al. 2015). This section explores the concept of lifestyle and its implication on the renovation practice.

The term *lifestyle* encompasses a variety of interpretations depending on the context and discipline of study. In popular discourses, lifestyle is used to loosely define ways of living and individuals' choices and patterns of consumption (Smith 2014). In social research, it can be interpreted as a cultural concept, associated with the prevalent individually-targeted consumer culture of neoliberal societies and the construction of identity (Bell & Hollows 2007; Giddens 1991).

> 'A lifestyle can be defined as a […] set of practices […], not only
> because such practices fulfil utilitarian needs, but because they give
> material form to a particular narrative of self-identity' (Giddens 1991,
> p. 81)

A common theme across various definitions of lifestyle is that it connects personal values to consumer behaviour (Sanquist et al. 2012). Several descriptions can be fixed with the term lifestyle: healthy, risky, sustainable, alternative etc, while it can also be attached as a characteristic of a place, for example lifestyle destinations or suburbs

that are associated with a certain lifestyle (Smith 2014). The lifestyle concept is encountered in several academic disciplines, such as in literature of consumption, class and taste (Bourdieu 1984; Gram-Hanssen & Bech-Danielsen 2004; Allon 2013; Bonner 2005), citizenship (Lewis 2010, 2008d, 2015), energy research (Gram-Hanssen 2010b; Eon, Morrison & Byrne 2017), sustainability (Barr & Gilg 2006; Partidario, Vicente & Belchior 2010), home improvement and renovation (Gabriel & Watson 2012; Rosenberg 2011a; Ryan 2014; Smith 2014; Stieß & Dunkelberg 2013) and popular media (Bonner 2005; Lewis 2011a; Rosenberg 2008; Bott 2008; Mcelroy 2017; Smith 2010).

Lifestyle often signifies individuals' free choice, in order to follow or adopt certain lifestyles (Bell & Hollows 2007). However, according to Giddens, in 'conditions of high modernity', not only we follow certain lifestyles but we are forced to choose (Giddens, 1991 p.82). Lifestyle anxieties indicate that the consumption of the material goods and experience of everyday life are no longer based on 'rational calculation' (Featherstone 1987, p. 59). The growth of recent 'lifestyle cultures' particularly propagated through popular media texts, has contributed to the reinforcement the symbolic, socio-economic and environmental importance of home (Allon 2013, p. 203).

Lifestyle is a central concept in studies of consumption and consumer culture. Giddens (1991, p. 81) suggests that lifestyles provide the 'material form' to individuals' narratives in the process of constructing their identity. As discussed in chapter 3, the individual consumer is perceived as the dominant actor within a commercial market, which makes rational choices (of products and services), in order to construct their lifestyle (Southerton 2013). The link of consumption and lifestyles often points to 'individualistic and hedonistic acts uncritical of their performance' (Wahlen & Laamanen 2015, p. 398). However, it is important to understand how these narratives of individual lifestyles contribute to shared visions of social change and the development of dominant social norms which contribute to households' homemaking and renovation practices.

Even though lifestyles are targeted towards individualistic 'self-expressions and stylistic self-consciousness' (Featherstone 1987, p. 55), the emergence of specific alternative lifestyles, such as veganism, ethical consumption and green living, embody the paradox of individual actions aiming to bring about social change (Wahlen & Laamanen 2015; Haenfler 2019). Lifestyles, belonging to individuals, have their self-narratives embedded in them and are therefore integrated in social practices (Spaargaren & Van Vliet 2000). This integration of individuals in a wider social context (the intersection of micro and macro levels of society), is based on Giddens theory of structuration, which removes focus of agency from both the individual and what he calls the 'societal totality', by putting in the spotlight the social practices 'ordered across space and time' (Giddens, 1984 p.2). By focusing on practices, Giddens suggests that lifestyle- as a cluster of social practices- expresses the self-narrative or the storytelling that these embody (Giddens, 1991 p.81; Spaargaren, 2003).

The study of people's consumption and lifestyle provides good insights into the relationship between the private world (of home) and the wider public, and the actions of individuals in parallel with the collective (Wahlen & Laamanen 2015). Because of their private nature, lifestyles can have low visibility, however they are characterised by a continuous practice that aims to 'change cultural and economic practices rather than targeting the state' (Wahlen & Laamanen 2015, p. 398; Haenfler, Johnson & Jones 2012, p. 6). Lifestyles can be utilised as the link between individual and collective change. Haenfler et al (2012) discuss the concept of 'lifestyle movements', as the intersection between individual lifestyles and social movements. While social movements are organised (usually outside conventional political institutions), 'change-oriented collective action' (Haenfler, Johnson & Jones 2012, p. 1) groups, lifestyle movements 'consciously and actively promote a lifestyle, or way of life' in order to bring about social change (Haenfler, Johnson & Jones 2012, p. 2). Lifestyle movements might blend or emerge from political/activist movements; however their target is to achieve social and cultural change, shifting social norms for example, through lifestyle change (Haenfler 2019).

Haenfler et al (2012) identify examples of lifestyle movements, according to their orientation and general goals, such as social responsibility movements and green living movements, embedded in everyday 'mundane' activities and consumption practices. DIY practices, as part of voluntary simplicity groups for example, can signify individuals' action of preserving and mending damaged items in order to do good to the environment (Haenfler, Johnson & Jones 2012). In this way, lifestyle movements can bridge individual to more collective political actions and movements (Haenfler, Johnson & Jones 2012; Fuist, Mogford & Das 2018). Individuals get associated with like-minded people in order to draw their own boundaries, achieve and sustain a lifestyle (Fuist, Mogford & Das 2018). Finally, social networks are constructed by association of individuals, hence lifestyle movements create the necessary links and shared identities to motivate people to action their choices in their everyday life (ibid). As discussed in chapter 3, social networks and social learning is a necessarily aspect for a niche (such as low carbon homes) to maintain itself. Therefore, lifestyle movements could assist in the transition to wider engagement of individuals and households to issues such as energy efficiency and low carbon living.

5.3.2 Lifestyle in architecture and design practice

Following the concept of lifestyle movements and considering lifestyle to break the invisible wall between individuals and collective movements, architecture could utilise a thorough understanding of lifestyles to provide a service for the common good. Smith (2014) in her thesis about lifestyle, design process and DIY in domestic settings, identifies that lifestyle is encountered in two different ways: as a dream space (the good life, ideal home visions) and as a pragmatic real experience (home life and comfort, a well-designed home), which is inseparable from design, especially architecture, by means of the material space, the householders' visions and the individual and collective (DIY) practices of the users. She also suggests that architects interpret lifestyle (in their designs) not only through their personal perception but also influenced by popular culture, expressed through the media, which their clients are then able to modify in order to suit their visions (Smith 2014). Finally, Smith's findings reveal that the most influential way to manage lifestyle in home renovation projects is by applying a collaborative and hybrid way of working, embracing both the designing

and the making of space, while also 'living with change' as opposed to 'passively accepting change' (Smith 2014, p. 410).

5.3.3 Lifestyle media

> 'We remain passionately interested […] even obsessed, with the appearance of our homes. Renovating has become almost a national sport. If we're not doing it ourselves we're watching […] it in the latest television lifestyle program' (Wakely 2005, p. 59)

Having examined lifestyle, I move to lifestyle media and in particular the makeover takeover (Moseley 2000) of popular television programmes, which 'focus on dramatic aesthetic transformations' (Rosenberg 2012, p. 184) of people's homes and wellbeing (Rosenberg 2011a). Australians are infatuated with home maintenance and renovation (Allon 2008), therefore, their emotional attachment with their homes and with the process of renovation is high too (Hulse & Milne 2019). Media texts, particularly through lifestyle programmes and platforms, capitalise on the economical and emotional aspirations of households, by joining prevailing cultural values with entertaining property makeover shows, such as The Block, to transform this cultural setting (ibid). Lifestyle media are important for the thesis, as they are concerned with issues further than the individual lifestyles towards wider considerations of 'selfhood and citizenship' (Lewis 2008c, p. 11). My exploration of households' media consumption exemplifies this in chapters 6, 7 and 8. Property related media programmes, which can involve selling, buying or re-making homes (White 2014) have seen an 'explosion' in the last 20 years (Rosenberg 2008). These usually aim to guide and reassure the 'anxious consumer-citizen' (Lewis 2008c, p. 12), aside from issues of taste and style, about the 'investment opportunities' of their homes (Hay 2010, p. 382). This is a significant point of reference for home renovation, as the balance between style and investment value can create tensions (Mackay & Perkins 2017). These tensions can be made worse by the consideration of low carbon or environmental lifestyles, and by media narratives on how homes can be adapted to achieve this.

Lifestyle (advice) media, is a term referring to commercial mass media products, such as radio and TV shows, online media, print media and live performances (Bell & Hollows 2005), coaching middle classes and 'mass audiences' about taste, lifestyle

and consumption (Martin, Lewis & Sinclair 2013, p. 52). Lifestyle media can be determined as forms of contemporary 'etiquette manuals' (Martin, Lewis & Sinclair 2013, p. 52; Podkalicka & Milne 2017, p. 5), representing ordinary people and their lifestyle choices, often amplifying and melodramatising aspects of their mundane lives (Rainborough 2011, p. 3). In the following sections I primarily review internet and television lifestyle media, although these are closely associated with traditional media including magazines, complementing each other (Lewis 2008c, p. 16–17).

Lifestyle media (re)produce notions of lifestyle and taste, in other words intermediate between consumers, products (through programming) and consumption practices, essentially producing a pedagogy of distinction of class and taste (Bell & Hollows 2005; Lewis 2011a). And while there are arguments of detachment of the 'consumer-citizen' from divisions such as class and gender, most lifestyle programmes are constructed on such class-regulated choices and lifestyles (Lewis 2011a, p. 24). Likewise, cultural intermediaries (see section 5.4), who facilitate lifestyle programmes, as representatives of primarily middle-classes and new middle-classes in western societies, advocate guidance for the development of such (middle-class) tastes. Despite this, lifestyle media are also highly infused with popular (and often populist) culture, therefore their impact is 'democratising' and interpreting the taste of distinction to a wider audience (Bell & Hollows 2005). Lifestyle media are positioned firmly in contemporary neoliberal contexts and despite claims of free choice and independent agency of the individual, narratives are still guided and underpinned by social markers such as gender, class and race (Rainborough 2011). Essentially lifestyle media are not about who we are, but who 'we should become and how we should manage our lives' (Rainborough, 2011 p.5).

5.3.4 Property and makeover shows

Makeover shows continue to dominate lifestyle media, set within a global consumerist society, and promoting advice and lifestyle choices for the transformation of home, self and property amongst others (Rosenberg 2008). In particular, property TV makeover programmes, along with their related internet-based content – such as blogs and websites- and their affiliated printed lifestyle magazines have absorbed public attention since the early 1990s. Property TV reveals and transports mundane homemaking

practices in the public domain and turning the transformation of house into home in a 'televisual spectacle' (McElroy 2008, p. 44–46). In this context, the home is advocated at the same time as 'a shelter, sanctuary and a place for identity production and taste presentation, as well as a commodity' (Rosenberg 2008, p. 505). Once dedicated to daytime programmes, makeover shows are universal and part of prime-time broadcasting, claiming to transform and renovate the viewers' homes, health and family upbringing (Lewis 2008b).

The concurrent rise of the DIY home improvement and lifestyle has been promoted by several programmes and applications in the media (Rosenberg 2011b), such as TV makeover shows (The Block etc), internet applications (YouTube), blogs and other social media. Such makeover shows often link the marketing of products that come along with the relevant lifestyle that the programmes promote (Aggeli & Melles 2015). Furthermore, lifestyle media platforms and makeover shows in particular, introduce consumers to the concept of 'aspirational disposability' (Ryan 2014, p. 68), which describes domestic space as 'reflective, uplifting, functional, and above all, mutable so as to allow for upcycling of fashions, tastes and identities change with time' (Ryan 2014, p. 69). Some platforms or programmes go even further to suggest or associate the improvement of the home with the improvement of the one's self through this participation in (the suggested) consumer culture (ibid). The aspiration that this creates to consumers is continuous and doesn't end with the completion of a project but rather extends to an ongoing 'lifestylization' of private everyday life (Ryan 2014, p. 78).

An interesting aspect of the televised and mass-produced property programmes is their effect on the property market. It is estimated that the increasing interest in home renovation in Australia, may also be attributed to reality TV series such as Grand Designs and The Block (Johanson 2011), as well as numerous lifestyle magazines (Judson 2013b). In specific, The Block has contributed to the boost of home renovations across Australia. According to Harvey, HIA economist, 'an airing of The Block in any particular quarter causes a statistically significant boost to renovations six months later' (Johanson 2011, p. 2). Therefore, understanding the relationship between makeover shows and renovation practice could generate valuable insights into the association of renovation with national and international cultural values and norms represented in lifestyle media and their mutually shaping capacity in wealthy western

economies such as Australia. Furthermore, it is important to understand lifestyle media's contribution in current low carbon and environmental discourses relating to household practices.

For example, television has recently turned on a sustainable face, aiming to transform ordinary people towards a greener and ethical lifestyle (Lewis 2012). This turn is set within broader community concerns and anxieties about our modern lifestyles, such as how our homes respond to environmental challenges (ibid). Within the genre of the lifestyle makeover show, a new format has been introduced: the eco-makeover, which aims to guide people to more environmentally sustainable choices in their everyday consumption practices (Craig 2010). Eco-makeover shows are contradictory, as despite offering a platform for debate on ethical or 'conscience consumption' and responsible citizenship they still promote highly branded products and services (Lewis 2008d; Craig 2010). Furthermore, mainstream property shows, such as The Block, despite claims of sustainability considerations in some of their series, they primarily relate sustainability with market value or 'profitability' (Aggeli & Melles 2015, p. 7–8).

However, a rise of a new model of active citizens-consumers (Lewis 2008c, p. 13), who might not be environmental activists but rather individuals who want to break free from the mainstream model of disposable income and meaningless spending and understand the social impact of consumption can bring closer the meaning of responsible citizen and consumer (Soper 2004). As the interest in pro-environmental products and services is rising globally (Maller, Horne & Dalton 2012), there is a potential in the promotion of low carbon practices through lifestyle programmes and applications in media, particularly in the area of home renovation.

Finally, the significance of property and makeover shows lies on their symbolic and material contributions to householders' imagination and dreaming processes relating to the remaking of their homes (West 2008; Podkalicka, Milne & Kennedy 2018; Mcelroy 2017), whether they are engaged in a home renovation project or not. Even though most shows target individual aspirations, McElroy (2017, p. 532) suggests that this can become 'a marker for social mobility and the promise for a better life'. Property shows, even through unachievable prospects for the majority of their audiences, normalise

notions of home ownership and upwards moving 'middle class citizenship' (Mcelroy 2017, p. 532).

In sum, makeover shows represent the wider process of lifestylisation and consumerism in primarily western societies, reinforcing the emotional, financial and civic importance of home ownership and renovation (Rosenberg 2008). Aside from the cultural significance of home ownership, the financial value is accentuated, increasing people's concern and attention to property market values and profit (ibid).Through the TV makeover or property shows, several themes emerge, such as the promotion of commercial products, which in turn brings questions of overconsumption and waste, sustainability and liveability issues, as well as the promotion of expertise, as especially promoted by lifestyle experts, which will be discussed in the next section.

5.4 Cultural intermediation and amateur expertise

Having examined lifestyle and lifestyle media content, I turn to the issue of expertise in the media, characterised by a diverse range of professional and amateur experts and advisers. This section presents another type of intermediation relevant to the thesis, the cultural intermediaries. I expand the original definition of the term, which related to certain professions to an interpretation that includes emerging types of amateur experts, which are taking fundamental roles in media networks and in communities of renovation practice online.

Cultural intermediaries and amateur experts, such as influencers and micro-celebrities, are the contemporary taste-makers of our globalised society, operating at the crossroads of culture and economy (Smith Maguire & Matthews 2014). While cultural intermediaries primarily make use of their professional expertise in order to guide consumers' choices, amateur experts have emerged as popular culture icons, 'interwoven with the experience of everyday capitalist life' (Fridell & Konings 2013, p. 11), amplifying the 'freedom to consume' (Fridell & Konings 2013, p. 13) and advocating an ability to help improve people's lives. The sections below discuss their relevance to the study.

The concept of intermediation, regardless of its kind, could in some way be considered contradictory to theories of practice. That is primarily because the agency of intermediaries, as external actors of influence to people's practices, opposes the view that social practices emerge and get sustained in line with the context they are embedded in rather than by the external influence of different factors. Furthermore, intermediaries can be implicated in concepts of governmentality (Foucault 1991; Dean 2010) and power. Governmentality was initially developed by Foucault, who used the term to imply the different ways in which individuals form their personal 'conduct 'as well as shape the conduct of others (Ouellette & Hay 2008b, p. 33; Mitchell 2009, p. 18). It was an extension of the concept of government as an attempt to shape to an extent the 'conduct of others', a process implicating dominant social norms and 'conducted in the plural' (Mitchell 2009, p. 18). Everyday governmentality 'techniques', which can be interpreted as the ways in which individuals and groups perform their daily practices 'and organise their lives', are disseminated and spread through various forms of intermediaries, such as cultural intermediaries and the institutions in which they belong to (Ouellette & Hay 2008b, p. 33). Intermediaries in this instance work as actors who contribute to the shifting of people's aspirations and desires, while simultaneously diffuse power to citizens, who are expected to become self-governing (Ouellette & Hay 2008b, p. 33).

Therefore, by considering intermediaries, and the broader intermediation practices of individuals, groups or other material actors that get involved in a renovation, there is an opportunity to bring closer the individual 'conduct' with that of broader- and in some cases- institutional 'conducts' and perspectives, bridging the micro level of the household with wider macro levels. Furthermore, by considering the activity of intermediaries as a practice, complementary to renovation, or as a dispersed practice of renovation, we could gain useful insights into how this connects common elements between practices and enables the emergence and reproduction of renovation or the interpretation of meanings, materials and competences.

5.4.1 Cultural intermediaries

The term cultural intermediaries originates from Bourdieu (1984, pp. 323-324) (new cultural intermediaries), who used it to define specific professions in the 'new petite

bourgeoisie', which he lists as: 'producers of cultural programmes on TV and radio, or the critics of 'quality newspapers and magazines and all the writer-journalists (who) have invented a whole new series of genres half-way between legitimate culture and mass production'. Bourdieu (1984, pp. 8, 309, 324) assigned cultural intermediaries the agency of 'taste-makers' of the 'middle-brow' culture, which sits between legitimate and popular culture. Bourdieu's identification and classification, based on an empirical study of French culture in the 1960s and early 1970s, is profession-based, and advocates that 'new cultural intermediaries' (Bourdieu 1984, p. 366) are those that instil consumerist habits into the middle classes, while their position and status bring them in conflict with the 'legitimate producers and 'traditional intellectuals' (Nixon & Gay 2002). His category (of cultural intermediaries) is quite broad; he also fits in the list other professionals such as designers, public relations, sales, marketing and advertising professionals (Nixon & Gay 2002; Bourdieu 1984) Since communication is a determining factor of intermediation, using Bourdieu's profession-based definition might produce a restricted understanding of how taste-making processes are generated and circulated (Molloy & Larner 2010). This initial examination of the concept suggests that several of these professions can be intermediaries in the practice of renovation. Podkalicka et al (2016) have indeed identified that the intermediaries of renovation are diverse and include, aside from design and building professionals, media organisations, celebrities, retailers and online sources all of which act as interpreters between householders and the performance (production) of renovation.

Therefore, contemporary analysis on the concept of cultural intermediaries suggests that it needs to move away from its embodiment in specific professions, towards a study of the more complex and diverse array of activities and relationships around specific economic spaces of consumption (Molloy & Larner 2010). Following this, the term has taken on different meanings, or more specifically broader interpretations, such as for example the conflux of intermediaries as producers rather than mediators of cultural products (Hesmondhalgh 2006) and their position in between production and consumption, continuously occupied with creating a connection between what is produced and why or how we need to consume it (Negus 2002). Essentially, cultural intermediaries are the agents that enable the legitimisation of otherwise 'restricted' culture, through mass media to a wider public (Smith Maguire & Matthews 2010, p. 407). This spread of cultural values and practices has an effect not only in the public

but in the private (domestic) domain too (Smith Maguire & Matthews 2010). Therefore, cultural intermediaries could be critical agents in the interpretation of meanings of home and homemaking, particularly through media.

Furthermore, another strand of research recognises cultural intermediaries as 'market actors' (Smith Maguire & Matthews 2014, p. 2) involved not only in the dissemination of 'symbolic goods' (Southerton 2011, p. 390) and services but bridging culture with the economy (Maguire & Matthews 2012). They are characterised by their 'claims to professionals' expertise and taste' and sense of direction in the context of the relevant market, in order to influence others, using a diversity of 'devices and resources' to do so (Smith Maguire & Matthews 2014, p. 2). Taste, according to Bourdieu, is the link between people and things, a 'practical operator of the transmutation of things into district and distinctive signs... [..]…a systematic expression of a particular class of conditions of existence' (Bourdieu, 1984 p.170). Taste can be the 'ideal weapon' in creating a distinction between individuals with the 'right taste' and those without (Rainborough 2011, p. 60). Cultural intermediaries exemplify their professional skill and cultural capital in order to be credible, while they are also confirming their guidance by their own consumption of appropriate goods and services (Bourdieu 1984; Zukin & Kosta 2004; Molloy & Larner 2010).

Cultural intermediaries construct both use and exchange value, while they continuously pursue to make things desirable and connect people's lives with the products or services they advocate for (Negus 2002, p. 504). Initially, through the use of marketing and advertising, they establish the link between a consumption practice or product to people's (aspired) identities-determining the use value, and following on, when use is established they revalidate their worth to 'contemporary capitalism' (ibid). This mediation connects and blurs the boundaries between culture and economy, two previously distinct areas of social life (Smith Maguire & Matthews 2010). Therefore, cultural intermediation can be significant in both the construction of emotional and financial value of homes, as well as in the symbolic interpretation of what consists a good home and life. And in turn this can be an important contributor to the remaking of home, through the practice of renovation, as a result of the mediated ongoing dreaming-making and value creation of ideal homes.

Designers and architects have been identified as cultural intermediaries, for their role of connecting processes of production to consumption by associating 'goods and services with particular meanings' (Callaghan 2017, p. 231). Designers, in the process of creation, integrate meanings and culture in their conceptions, therefore instilling symbolic value in them (Du Gay et al. 2013). Design artifacts can therefore be placed within cultural circuits, a concept developed by du Gay(du Gay 1997), presenting production as part of a 'circuit' which consists of five processes: 'representation, identity production, consumption and regulation' (Callaghan 2017, p. 226). This process is similar to 'scripting' (Hand, Shove & Southerton 2007, p. 679; Gabriel & Watson 2013, p. 222), discussed in chapter 3, through which designers can embed usually technological meanings (scripts) into products or spaces, in order to influence their use. The concept of cultural intermediation further adds to this capacity of architects and designers involved in the design and construction of homes, which are therefore not reduced to their technical expertise, but to a wider authority as mediators of cultural meaning instilled in their professional and personal status as 'translators of trends' (Pellow 2014, p. 57), which can include interpretations of low carbon and sustainable living. However, my exploration of cultural intermediation in regard to renovation, doesn't only involve architects and designers as representatives, but several other actors, such as media (texts and objects) and social networks, physical and online, which act as cultural intermediaries, as discussed in chapters 7 and 8.

5.4.2 Lifestyle experts

In the previous section, I presented cultural intermediaries as shapers (rather than creators) of taste and lifestyles, primarily embodied by middle-class professionals, who interpret forms of legitimate culture to wider audiences-mainly through the media-using their professional expertise and own lifestyle and disposition. However, expertise within the cultural intermediaries' group- which is quite wide- is varied and so is the context in which they operate (Maguire & Matthews 2012). Because of this, the integrity of intermediaries is also built on aspects such as their 'feel for the game' (Bourdieu 1990, p. 63; Maguire & Matthews 2012, p. 557) or their habitus, which is broadly interpreted as their ability to appreciate the potential of products and practices in a given market, based on their own lifelong exposure and immersion to relevant ideas, skills and dispositions of their social environment.

As presented in chapter 4 (4.6), experts are carriers of domain-specific knowledge who through their critical understanding of issues, and the context in which they exist, make informed decisions, and provide professional guidance. And while cultural intermediaries' base is their professional skill and expertise, a new kind of expert has emerged, that of the lifestyle expert, primarily generated through lifestyle TV programming. The phenomenon of lifestyle experts is now new; they have been guiding and advising people, primarily through print media, for a long time, however, in the past two decades their presence in prime-time lifestyle programming on television have amplified their public status and visibility (Lewis 2014). These 'experts of the ordinary' (Lewis 2014, p. 403) are concerned with everyday living advice and lifestyle choices and are primarily linked to 'soft' entertainment-oriented' media programming (Lewis, 2008b p.2). Lifestyle experts are usually popular personalities connected with domestic and lifestyle advising (ibid. p.2).

Often referred to by their first names, lifestyle experts have been characterised as 'living brands' (Lewis 2010, p. 580; Lury 2004, p. 77). Such personalities are major figures of property and renovation programmes in particular (Aggeli & Melles 2015), such as The Block, House Rules and Better Homes and Gardens (in Australia). Their consumer-led lifestyle advice is reinforced by the role of branding, through sponsors, products, services and advertising through frequent commercial breaks during programmes and becoming the most dominant element of renovation series (Aggeli & Melles 2015). Celebrities are becoming 'synonymous' with certain brands, comprising the living example for their audiences, providing both mass exposure to the products/services represented and gaining personal fame and profits (Khamis, Ang & Welling 2017, p. 193).

In several ways, today's lifestyle experts are the successors of Bourdieu's cultural intermediaries, operating in a highly commercialised context of lifestyle-led consumption (Lewis 2014). By representing the ordinary but at the same time having access and appreciation to 'elite culture', lifestyle experts continuously shape the new model of citizen-consumer (Lewis 2010, p. 592). This citizen-consumer sits within neoliberal societies that prioritise self-improvement and self-governance which not only get through the everyday, but flourish and prosper by the quiet support of lifestyle experts (Rosenberg 2012; Ouellette & Hay 2008a).

Further to the lifestyle experts, the emergence of amateur experts, such as 'ordinary celebrities' (Grindstaff 2014, p. 324), 'micro-celebrities' (Senft 2008, p. 25) and 'social media influencers' (Khamis, Ang & Welling 2017, p. 202) in reality television and online lifestyle media platforms are progressively dominating the media. Ordinary celebrities are people who are neither professionally trained experts or celebrities, but amateurs who participate in the media (Grindstaff, 2012). And while television and online media are fertile for the promotion of traditional celebrities, this new kind of ordinary or 'micro-celebrity' (Senft 2008, p. 13) has become popular. Micro-celebrity suggests 'a new style of online performance that involves people 'amping up' their popularity over the Web by using technologies like video, blogs and social networking sites' (Senft 2008, p. 25). Micro-celebrities practise a kind of 'self-branding', which involves the construction of a 'distinctive public image for commercial gain and/or cultural capital' (Khamis, Ang & Welling 2017, p. 191). Similarly, social media influencers, which are online micro-celebrities, have been progressively used by companies in order to build brands online, generating an 'authentic personal brand' (Khamis, Ang & Welling 2017, p. 202). Influencers have grown in popularity partly through their ability to connect with ordinary people, utilising narratives that are 'accessible and intimate' (ibid).

In the context of property makeover and renovation, the phenomenon of micro-celebrity signifies the blurring of boundaries between professional and amateur expertise and is linked to neoliberal logic about citizenship and welfare and prosperity (Ouellette & Hay 2008b). This is particularly important for my study, which has examined cases of the challenging of building professionals or the elevation of amateur expertise as more appropriate for the needs of householders. It also represents the global rising community of makers and DIYers, amateur experts and 'pro-Ams' (Leadbeater & Miller 2004, p. 9). Micro-celebrities and influencers are another kind of intermediaries, who target online popularity in order to disseminate (commercial) ideas and desires to their followers, constructing a consumable identity (Marwick & Boyd 2011). Social media platforms enable and support the development of micro-celebrities and self-branding, as they pledge fame for ordinary users (Khamis, Ang & Welling 2017). An element of attraction that micro-celebrities or influencers use is that of 'compelling narratives' (Khamis, Ang & Welling 2017, p. 202), through which they can promote inspirational

lifestyles (and the products that go with it). Room makeover photos for example, showing visual details of the space before and after the transformation, are a popular device that influencers use in order to attract attention and popularity (Vashisht 2016). However, we have limited in depth research to understand the significance or contribution that media have (and the contribution of amateur expertise), in the process of home renovation (Podkalicka & Milne 2017), in which my thesis partly contributes.

The involvement of ordinary people in the promotion and instructive guidance on home renovation, through personal blogs and social media platforms (e.g see Fig 5.2), provides an 'electronic word of mouth' (Lin, Bruning & Swarna 2018, p. 431) which provides insights to consumers through reviews, recommendations and peer-to-peer content (Dinesh 2017). Furthermore, influencers' reviews and endorsements are more likely to appear authentic than those of celebrities and advertisers, as they tend to be closer to their targeted audience, simulating similar everyday experiences (Hub 2018). This 'informal peer-to-peer' interaction online enables relevant and appropriate sharing of knowledge and experience during the renovation process, and it 'reconstructs the everyday material, social and cultural reality of renovation' (Podkalicka & Milne 2017, p. 9). Furthermore, this conversion of the conventional conversation or word of mouth to an online environment, is an example of strong mediatisation, as discussed in section 5.2. It is important to observe to what extent physical interactions have become mediatised and whether they display equal trust from householders during renovation.

Following on, the rise of social media platforms such as YouTube, Pinterest and Instagram are acting as new forms of network communities, connecting communities of makers, crafters and other amateur practitioners enabling the sharing of their artefacts (Orton-johnson 2014). Furthermore, these networks perform as the meso level of communication and connectivity between individual citizens and the macro level of society (ibid). While the highly visual content on popular home improvement and renovation platforms, such as Houzz, assists in the appreciation of aesthetic transformation and material changes, there is little focus on issues of sustainability regarding (Hulse et al. 2015, p. 19). However, there is an increasing number of blogs and other social media sources which engage with sustainable lifestyles (Haider 2016). While blogs, as platforms have had some scholarly interest for their influence on sustainability ((Joosse & Brydges 2018; Graf 2012; Haider 2016), as did influencers or

micro-celebrities (Chwialkowska 2019), there is little research yet on the contribution of social media influencers or other amateur experts in the adoption of low carbon practices of households, during renovations.

5.4.4 Renovators' media world

The prevalence of online search engines-e.g Google- and social media-e.g Facebook and Instagram-is transforming our everyday media landscape (Kleis Nielsen & Ganter 2018). These digital platforms act as intermediaries between users, extending 'local and face-to-face opportunities' for peer advice and information sharing (Podkalicka et al. 2016, p. 43). The vast volume of information brought up by researches on online search engines, such as Google, can be confusing or difficult for renovators to navigate, however, it provides a starting point to get accustomed to relevant terminology and language used within the renovation industry and amongst communities of practice (Hulse et al. 2015; Hulse & Milne 2019). Householders use a significant amount of time browsing through online media, or rely on their services for things as basic as open web searches (Plantin et al. 2018); however, little is known about how home renovators make use of such digital tools (Podkalicka et al. 2016; Hulse et al. 2015). While my thesis is not focused on online media texts and objects per se, their involvement in the meaning-making and competence building of householders, as well as their agency as materials in the process are guiding my investigation.

Furthermore, renovators are animated by the highly visual content of online platforms such as Pinterest, Instagram and Houzz, and they regularly use them as aspirational tools (Hulse et al. 2015). People want to 'see how houses can be renovated and what this looked like in some detail' (Hulse *et al.*, 2015 p.19). Visual material in social media is a helpful tool in the early stages of a renovation, mostly serving as inspiration and ideas creation (Hulse & Milne 2019). However, elements such as efficiency of materials and systems are not as easily communicated visually, so it becomes more challenging for renovators to navigate through invisible aspects that can potentially encourage them to incorporate energy efficiency or low carbon elements into their project (Hulse et al. 2015; Hulse & Milne 2019). Even though trust of information online is still a challenge, online digital media complement existing social networks and are major

intermediaries between renovators, trade professionals and products (Hulse et al. 2015; Podkalicka & Milne 2017).

Another digital intermediary frequently implicated in renovation is online peer forums. In online survey of 156 participants, ran by the CRC for Low Carbon Living (LCL), renovators identified online discussion forums-such as peer-to-peer Whirlpool forum-as the second most frequent online source of information used during renovations (Hulse et al. 2015; Podkalicka et al. 2016). In the varied and diverse postings about home renovation, including building trade questions/recommendations, kitchen and bathroom remodelling, demolition and extension and DIY work, the discussions involve an extended, virtual form of word of mouth, with renovators looking to validate their trust in products, services and professionals through opinion from others (Podkalicka et al. 2016, 2019).

Further to the involvement in online forums, social media platforms Twitter and Facebook offer unique functions; Twitter is being used extensively to promote and bring the attention to certain issues using hashtags, while Facebook offers an extended platform for conversation building on existing communities of practice (Podkalicka et al. 2016). Such platforms reinforce the cultivation of online communities, as I exemplify in chapter 6 and 7, either by extending already existing -physical- ones or by introducing and connecting individuals and networks according to interests and experience. While looking for general renovation information online is widely practised, focused searches on sustainable renovation practices are less prominent. Renovators usually search for specific issues, such as wall and roof insulation, while it has been found that it is difficult for renovators to be able to critically evaluate materials' energy performance or application or their installation (Hulse et al. 2015).

Finally, the everyday media consumption of renovators involves the sharing of experiences and stories of transformation through platforms, such as Pinterest and Instagram, and the sharing of skills through videos (primarily YouTube) or personal blogs, which is an important process of 'making sense of their renovations' (Podkalicka et al. 2016, p. 21).

5.5 Chapter conclusion

The chapter examined the role and prevalence of media in the everyday life of households. My review highlighted the value of media as practice perspective, i.e that people do things *with media* and *in response* to media, as a key to understanding home renovation. I have traced a set of theoretical traditions in media and communication studies, which suggest that media is no longer supplementary to, but constitutive of what home is. The idea of 'mediatised home' captures the extent to which media have permeated everyday living practices, shaping them and been shaped. Furthermore, the chapter unpacked the association of media and lifestyle as significant in the renovation process and examined the concept of cultural intermediaries and amateur experts, discussing how the symbolic significance of media influences material practices in the home.

The chapter pointed to the ubiquitous and change-inducing presence of media in the household, as well as in our everyday social life-often undetectable- and analysed how amateur experts have a role in the process of home maintenance and renovation. By turning the attention to the interactive consumption of media texts, objects, and contexts, I have recognised the need to understand this articulation in the consumption practices relating to renovation alongside other everyday household routines, which will guide my investigation.

PART 2: Empirical findings and conclusion

Part 1 introduced the conceptual background that frames the complexity of renovation and presented the theoretical and methodological positions of the thesis. My interdisciplinary review revealed that renovation co-evolves with other household practices, such as homemaking, which involves the material transformation of house into a home to respond to desired atmospheres and the remaking of household identity. It is therefore important to investigate its association with renovation as a way to understand its implication in the adoption of low carbon practices. Furthermore, Part 1 identified that renovation can be performed in two ways: as a project and as an ongoing process. The identification of renovation as an ongoing process is significant for the embedment of low carbon practices, which this thesis contribute to. Finally, Part 1 highlighted the ever-present, change-inducing agency of media in the household, concluding that dwelling with media encompasses renovating with media.

Part 2 answers the 2nd and 3rd research questions of:

2. How do renovation practices emerge and reproduce themselves in Australian households?

3. How do media and intermediaries configure the process of home renovation?

In chapters 6, 7 and 8, I present my empirical findings and outline renovation through five identified stages: Dreaming, Thinking, Planning, Performing and Finalising/Sharing. The renovation stages are linked with formal and informal intermediaries, which characterise the length of exposure to households and their contribution to the ongoing process of renovation, alongside everyday homemaking. Part 2 discusses the emergence and reproduction of renovation practices in households, including the consideration of low carbon renovation practices. Through the identification of four household typologies (Households with no children, Households with children, Emtpy-nester and Intergenerational households), I analyse four opportunities for low carbon adoption, using the stages framework and the two kinds of empirically-identified intermediation.

Chapter 6: Renovation and homemaking: emergence and reproduction

6.0 Chapter overview

Chapter 6 begins to unfold the practice of renovation as a process that takes place alongside other associated practices of everyday life in the household. Furthermore, it argues that renovation is triggered and sustained by the multiple homemaking practices that go on in households as part of everyday life and reinforced by routines or events that take place in the different life-stages of households. The chapter addresses in part my second research question of:

> *2. How do home renovation practices emerge, reproduce and sustain themselves in Australian households?*

Initially, I present the ways in which meanings of home co-relate with homemaking and renovation practices. Following a practice theory perspective-perceiving renovation as a routinised practice- I begin by identifying the elements that hold these practices together and therefore removing the focus from individuals towards practices (Shove, Pantzar & Watson 2012, p. 22). Furthermore, it is important to recognise to what extent these interdependent, associated practices interact, by focusing on how shared elements can influence their continuity or change. By going through meanings of home through the householders' stories, I start to identify the elements that relate and hold together homemaking. By reviewing these different elements, I identify the ones that trigger and hold renovation practices together-such as media technologies, emotions-including productive nostalgia- and tacit knowledge. By referring to literature reviewed in chapters 3,4 and 5, I conclude that elements co-evolve but often unequally and disproportionately.

This finding suggests that for renovation practices to convert to less carbon intensive ones, attention should be paid in the way that these elements are addressed, in all the associated practices simultaneously. Amongst discussion and analysis of the co-evolving practices, the chapter also presents the invisible weaving of media into the

everyday homemaking of households and starts to illustrate the role of media, as object, text and context, in the re-making and renovation of home.

6.1 Emergence: common elements of homemaking and renovation practices

> 'Homemaking is the often unstated, yet underlying goal of all housing
> processes' (Dayaratne & Kellett 2008, p. 55)

This section discusses and connects the practices of homemaking and renovation as experienced in the households visited. In doing so, home is encountered as a dynamic process, rather than a static experience (Rapoport 1995; Dayaratne & Kellett 2008) and continuously re-generated through the everyday homemaking practices (Bate 2017).

> *'Firstly, I couldn't even think what it's like to do a renovation because*
> *it's just been our life…it's just what you do'* Rox

Practices co-evolve and are associated, through intersections of their elements (Shove, Pantzar & Watson 2012, p. 21). As suggested by Rox's quote, renovation has been a part of their everyday living practices. This suggests that sometimes the common elements are so closely associated that practices can merge. New practices contain unique combinations of existing or new elements (Shove, Pantzar & Watson 2012, p. 32), while common elements between different, but associated practices, enable the connection between practices and hold them together (Shove, Pantzar & Watson 2012, p. 36). In the next section, I discuss the common elements of homemaking, some of which are linked to meanings of home, and their connecting links to the practice of renovation. Meanings of home and homemaking can be entangled with home renovation in complex, often undetectable ways. My aim is to understand in what ways homemaking intersects with the renovation in order to then appreciate how renovation practices emerge and reproduce in the households visited.

My engagement with the participants has revealed the centrality of the house, as a strong element of focus; the same was obvious for the role of family (in its diverse form: nuclear, extended, separated or remote). The storytelling was assisted by the presence of the Renovation Storybook (cultural probe), which I used to record each visit.

Householders adopted different ways of engaging with the probe, some choosing to make their version a 'drama' (lots of disruptive life events happening during the renovation), others adopting a humorous way to discuss their experiences, and others providing a whole-life story in order to contextualise renovation. It gradually becomes evident that renovation is so interwoven with people's lives that it's impossible to discuss it without explaining their life story first.

The ways people make home are diverse and depend on the socio-cultural context in which it occurs. When householders were asked what home means to them, they approached it in disparate ways, sometimes responding with a quick emotional statement, such as: *'Home is work! […] I enjoy it, but home is a working project'* (*Jody*), but then supplemented by additional comments of home as a place of comfort, safety and security. The four distinct themes of the meanings of home are:

1) home as a safe place of comfort, memory, and personal freedom,

2) home as a connecting and connected place for family and social networks,

 3) home as work and

4) home as an ongoing creative project.

These four distinct categories reveal the overlapping meanings of home and align with recent literature-as reviewed in chapters 3 and 5- which suggests that home is the setting in which social relations are the primary considerations, a place in which families bond and establish relationships (Head et al. 2013) and that home is a dynamic, continuously changing environment (Morley 2006; Pink 2014b).

Homemaking is the practice which accumulates all the meanings of home that households hold, obvious and tacit. In the following sections I associate identified meanings of home with relevant homemaking practices and renovation triggers or practices. Table 6.1 summarises the findings of this section, linking the four meanings of home with homemaking practices and renovation.

Meanings	Homemaking practices	Renovation practices
Home as a safe place of comfort	Comfort pursuit, 'homeyness', creating space for family Escaping 'reality' or the 'outside world' Maintaining home organising daily routines Caring for others (accommodating needs of children and other dependents) Large household consumption through the acquisition of goods (including media devices) and products and large consumption of energy for heating and cooling Aspiration for larger spaces	Improvement of comfort, improvement of functionality, enlargement of space Designing and transforming a home that reflects and accommodates the households' identity and status Maintaining a safe and private space for retreat, and relaxation Maintaining and upgrading the home's investment value Less motivated to adopt low carbon amendments to the home Consumption and installation of brand-new appliances, fittings and other building components during renovation
Home as a connecting and connected unit	Accommodating guests Accommodating extended family Connecting with community-physical and digital Maintaining connections to cultural heritage- through home's decoration, media use, food consumption Connecting past and present Aspiration for larger spaces Consumption influenced by local networks and communities of practice	Generating or enlarging space for guests and family Incorporating/maintaining past living experiences and routines in current home Maintaining or generating space for culturally appropriate spaces for everyday living Keen to experiment and try low carbon amendments to their homes, following example or support from communities of practice
Home as a workplace	Staying at home for prolonged periods of time Multi-tasking, working while attending to other homemaking practices- Informal working from home Maintaining designated spaces for work- formal working from home Acquiring and attending to media devices and infrastructure- consumption of media and other technological appliances Acquiring and maintaining appropriate material objects (tools, fittings, fixings)	Generating media-stations, improving home's technological infrastructure Generating flexible, multi-purpose spaces Generating space and competences for multi-tasking at home Keen to incorporate efficiency, but not on expense of comfort

Home as a creative project	Engaging with DIY (of various kinds, home-related or other)	Creating or enlarging space for practising a hobby or other creative DIY
	Collecting, storing and maintaining material objects for performing creative projects	Learning with and from others- competences co-evolve with co-makers and available materials
	Connecting with communities of practice	Adding storage space for the materials objects of creative projects
	Experimenting with new technologies, tools and materials	Substitution of mainstream energy provision systems more likely to take place for low-carbon practices -or appropriate infrastructure-to existing home
	Consumption influenced by local networks and communities of practice dreaming of ideal home	
	Continuously re-making home	Design used as a way to achieve efficiency in the home's layout
		Planning and realisation of ideal home

Table 6.1 Meanings of home, homemaking and renovation practice of participating households

6.1.1 Home and homemaking of safety, comfort, and personal freedom

Initially home, as a primary setting for people's lives, is expressed as a feeling of safety and protection from the 'outside' world.

> *'I'd like to come in and close the door…and it's mine. Everybody else can just go away and the world can be forgotten about'* Sharon

> *'Home is a place to create a happy and secure environment for our children'* Sophie

Households express their emotions about home as a protective and nurturing environment for them and their close social networks.

> *'Home is a safe place, it represents your personality, it creates a sense of security, a place where everything is ok. Home is a place of memories'* Tracey

> *'Home is a nest, a refuge'* Serena

There is a strong indication for the need for privacy and security, both from the outside community as well as from other household members. Home in this first instance is

presented as an escape from social life, inwards looking and personalised to fit the homemakers. It expresses their vision of 'homeyness', while it also points to the characteristics of the unconscious emotions of 'ontological security' (Giddens 1984, p. 50, 1991, p. 84) of everyday life. Following Giddens, this ontological security, is expressed by the production of 'feelings of trust in others', which usually happens through the recurring everyday routines and the familiarity that these bring to their practitioners (Giddens 1984, p. 50). However, it is interesting to observe that these manifestations of home as a safe refuge, initially do not contain actual acknowledgements or mentions of the materiality of the home, the house, but are conceptual and emotional accounts that express people's visions. Householders' sense of security is expressed through the feeling of stability that their own home brings to them, and the ownership of the home is contributing to this feeling. Therefore, householders' 'ontological security' (Giddens 1991, p. 84, 1984, p. 50) is not directly linked with the materiality of the house, it does however contain the intangible elements of homemaking.

However, while there is a strong sense that the house provides a safe haven as a family space, away from the everyday pressures and demands, comfort and the need to create 'homeyness' (Dowling & Power 2011, p. 76). As discussed in chapter 3, the need to create homey atmospheres connects the immaterial feelings of privacy with the desired, material functionality of space:

> '*Because of the two kids, you just want a nice home…and have the kids' friends over, and our friends over'* Sharon

> *Ben: 'We're not necessarily that keen on projects. We like to be either relaxed or with our family'*
> *Komala: 'We spend a lot of time at home'*

The mundane and essential practicalities of everyday family life, trigger and sustain households' ongoing need for adjustment. Furthermore, signs of deterioration of the house structure require almost immediate attention in this case, to respond to the everyday pressing demands of life. Four households, these of Sophie and Paul, Sharon and Graeme, Cheryl and Aaron, and Komala and Ben, have young, growing families and the need to follow life's everyday demands. These include space for

adequate and good quality accommodation, space for entertainment and socialising, home office areas and an 'adult space', dedicated to the -limited- personal time away from the children. The renovation in this case is framed and triggered by more down-to-earth reasons, such as the improvement of comfort of their aspired lifestyle and sense of intimacy along with the fulfilment of space consumption desires. Renovation practices are therefore triggered and sustained by the ongoing homemaking practices of families and their daily needs, as well as by the householders' emotional needs for familiar comfort and privacy.
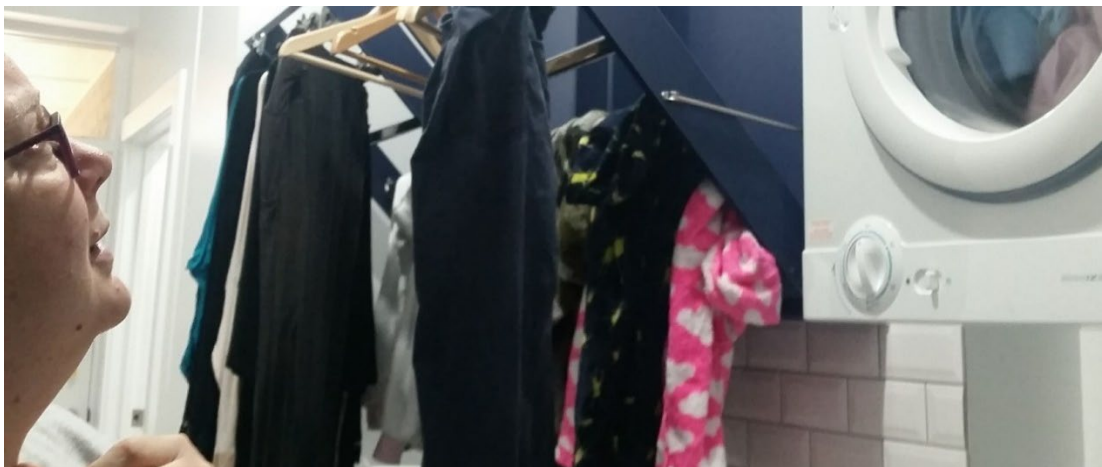
Fig.6.1 Komala in her laundry room, discussing functional requirements of their everyday practices

Families with children undertake the most substantial renovation works, as most of the houses are extended and enlarged in size. Also, they are the ones that have been performed as a large, one-off project. The result (product) of renovation is more important and exciting than the process particularly when it satisfies their functional desires. Komala and Ben suggest that:

'The process was as not as exciting as the end result […]. The need to see it completed kept us going'

The process might sometimes signify challenges and decisions that are not welcomed by families, who are already busy and involved in many diverse activities-such as child-upbringing and work- as Cheryl and Aaron discuss:

163

Aggeliki: 'What is the most exciting part of the process?'

Cheryl: 'I don't enjoy the process […] I find (it) stressful, a lot of decisions, it's a lot of money that you're spending […] we had family involved as well. All the decisions had to go through family members'

Cheryl and Aaron are guardians of the heritage of the inherited family home. Home represents a long-term commitment rather than a short-term asset. Its material transformation brings along transformations or evolutions of meaning, especially to extended families who have lived in the home for years. These meanings need to be preserved, rather than become extinct, through the new material changes. As Cheryl and Aaron have decided to extend, the identity of the existing house becomes even more important to preserve. Shortage or lack of time is therefore a crucial ingredient for both the emergence and the continuation of the renovation practice as well as for the priorities and decisions they take.

Furthermore, homes need to appeal to households' lifestyle routines, taste and socio-economic status. This is achieved through the ongoing dreaming and imagining of the possibilities that a renovation can bring. The householders' stories are often mixed with projections about the future, including 'what if' scenarios, and present ways to solidify their memories and experiences. The nuclear family imaginary is prevalent in these cases of comforting homemaking. It is remarkable that even in the case of Anna, an investor-renovator, the driving aspect of her renovation and the continuous imaginary is a family with two children. During the home tour and while she is describing the enlargement of the living space, she suggests that:

'If you are the mama, you can see into there and you can see into here (the open-plan living)'

Her narrative keeps returning to that family's desires, such as the need to overlook where the children are, and how the house would enable their smooth everyday living. At the same time, lack of comfort or insecure conditions of tenure, shape homemaking practices and influence the way householders consider changes and renovation. For example, past living experiences and ownership conditions, such as a living in rented homes long-term, seem to be dominant in households' perception of how home is made, shaping and informing their practices. Henry is a first-time owner, having only

lived in rented accommodation previously. His past living experiences in rentals, are of poorly maintained houses by landlords, which led to a lack of comfort of living conditions. Since he perceives home as a place of personal expression, he feels that the lack of maintenance affected his homemaking practices and an inability to invite others and accommodate them to his expectations. His story keeps coming back to these past experiences of past living, as standards for comparing the work that he is currently doing to his new home, while the materiality of the home and how things are made are central to his descriptions of practice. Memory, according to Schatzki, is an essential characteristic that can keep the practitioners' understandings and know-how stable, allowing a practice to be sustained (Schatzki 2013). Knowing how and what to do, or in Henry's case, knowing how to avoid the experience of under-maintained home conditions, generates renovation practices and maintains homemaking practices.

Cheryl and Aaron, also comment on their past living experience and limited ability to make amendments to a rented home:

> *'Being able to adjust your own environment, how you wanted it to be.*
> *When you live in rental properties for a long time, you don't have the*
> *freedom to change anything within'* Aaron

Dreaming of the ideal home environment is an emotion that householders carry long-term through their homemaking. Along the statements of a customised, personal space, issues of ownership are also implicated:

> *'We were in a rental and the lease was out …so looking around. We*
> *liked the idea that we had our own place, we wouldn't have to get*
> *kicked out again…things like stability'* Cheryl

Emotions of stability, security and freedom, are linked to expressions of home in its conceptual meaning, rather directly to its materiality. However, the flow of continuous emotions and meaning-making *sayings*, contribute to the material configuration of home, or in other words to the *doings*. Furthermore, householders' stories at this stage are located in the past, rather than in the present, lived experience. For example, past experiences of living in other areas of the world inform the way that households form their aspirations and expectations of home. Serena and Jody, (originating from Italy

and the UK) bought a house in Glenelg, Adelaide, after a brief stay in Sydney. Their move to Adelaide was driven by their longing of making their own home, which they found more feasible in Adelaide. Their story of finding and renovating their home is an emotional collage of experiences, which has also been documented in a photo-album, on a step-by-step process, from the moment of the first viewing, to the signing of the contracts and the stripping of the home interiors. Their renovation has been treated as a birth of a new life, providing them with a nest and a safe place to accommodate their life stories. Serena, when describing the moment that their offer was accepted, suggests that the owner preferred them as they really seem to have fallen in love with the house and because of their common cultural backgrounds. Common cultural meanings and understandings of home, therefore, enabled the transaction of ownership. In a later discussion, as seen in Fig.6.2 below, Serena suggests that:

'I fell for this house, the previous owner did not love the house, so I
felt that we rescued the house and put it back to its original state'
Serena
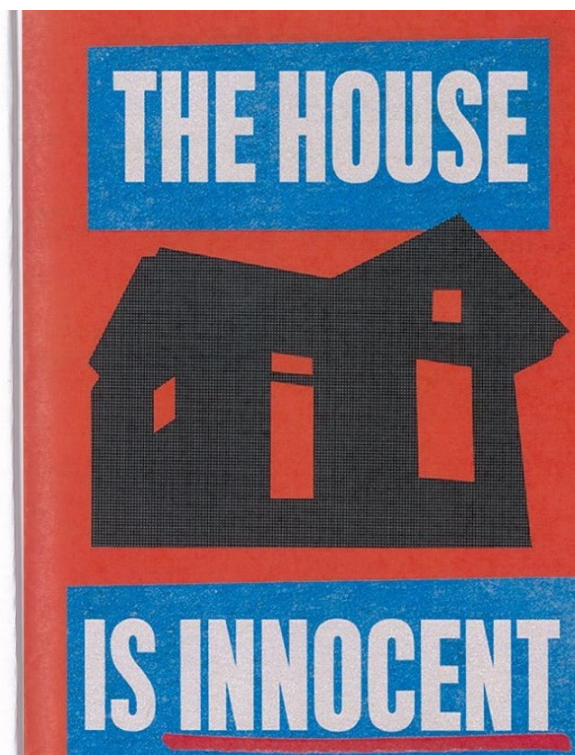
Fig.6.2 Serena's story about finding and changing their home
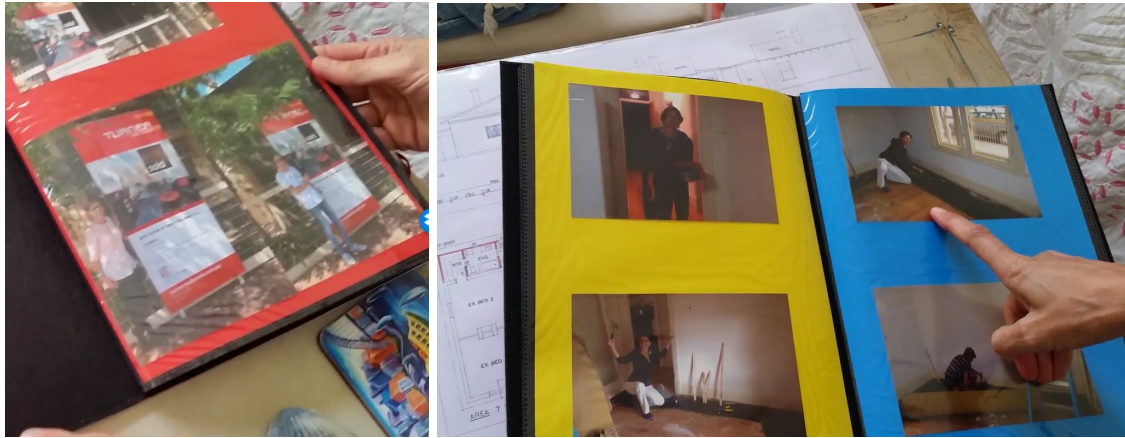
Fig.6.3 Serena and Jody's photo album, showcasing the story of their first home

Homemaking revolves around highly emotional connections between householders and their home environment, which is often materially re-configured to interpret, simulate but at the same time improve past living experiences.

> *'Home is a safe place that you can live your life how you see it, […]*
> *no one should be controlling how you live, and be able to do the*
> *things that you most interested in doing'* Mark

Householders' competences in this instance, which are not explicitly said but implied, are presented as tacit knowledge of how home should be made, as exemplified by Mark's quote above. Households, collectively, know what they need in order to build their identities at home and live a happy life. The renovation practice in these cases preserves the continuity of the households' living and homemaking practices and enables the maintenance of their collective identity. Furthermore, homemaking in line with meanings of home that relate to security, privacy and comfort, are less likely to be associated with low carbon practices both in the everyday routines, as well as during renovation. This happens for a couple of reasons. Initially, the inward-looking perspective of these households, which are trying to satisfy their family's lifestyle desires, seems to act as a barrier to the adoption of more efficient or less carbon intensive practices, particularly when it comes to everyday household consumption. In order to achieve atmospheres of privacy and comfort, more objects, especially technological and media devices need to be purchased, and more material objects to be incorporated in the household's everyday life. Then, the restricted time that households have, does not allow enough response for low carbon or sustainable

changes to happen, as household focus on the quickest and most efficient way to fix the necessary and usually highly visible signs of dis-repair. The homes that ended up with less low carbon considerations, suggest that the building professionals involved as intermediaries of the process, haven't provided enough support, information or willingness in order to direct the building aspect of renovation towards low carbon changes. Intermediation is further analysed in chapters 7 and 8.

6.1.2 Home and homemaking of connecting

'Home is where the family is' Mark

While home as a secure place or personal refuge enables a comforting environment for the development of identity, its role as a unit that connects with its immediate community and the rest of the world is validating its capacity to do so. The active presence of physical and digital connections with neighbouring communities or communities of renovation practice enable and maintain households' sense of being at home in the community, while they inspire and shape renovation practices through the shared meanings and competences of home and homemaking that they circulate. My findings point to meanings of home as 'an embryonic community' (Douglas 1991, p. 288).

> *'For us, because we've had some background in moving […] home is very much about longevity, […] so it has to be long enough to get that sense of being embedded […] and we've had experience with really strong neighbourhoods and so building a neighbourhood…there is no point in having this perfect-for me- without been part of a neighbourhood, that represents home[…]. I realised that this house is about bringing community in, because I need people, I'm not at work'*
> Melissa

Melissa, above, describes the importance of their home's connectivity, by explaining that their primary concern when settling in Adelaide was to create a tight connection with the local community, in order to attempt to reproduce their past experience of living in tightly-knit communities abroad. Furthermore, on a personal level, since Melissa occasionally works at home, its connectivity with local community, becomes

crucial for her daily practices and her identity. Feelings of belonging or being at home in a neighbourhood, extends the physical boundaries of home and reinforces the feeling of permanence or long-term tenure (Fincher & Gooder 2007), which is important for participating households. Staying in place, and therefore keeping their connection with the local community, brings convenience and the feeling of being at home in the community. Renovation practices enable this stability, by allowing the householders to adapt their vision of ideal home with the familiar context of their existing community. I further expand on location and renovation in relation to the different household typologies in chapter 8.

Furthermore, Melissa's and John's homemaking practices present another way of connectivity-based on shared meanings and competences- which relates to their ongoing engagement with local communities of practice engaging in sustainable living, for the making of a low carbon, energy efficient home. Both households participated in Sustainable House Day (in 2016), organised by Renew Australia, becoming showcases for local people to experience and visualise how an existing house can be transformed in a low-carbon home. Despite the long journey of household transformation in each household, Melissa suggests that the Sustainable House Day event was a big boost of confidence and pride about their home and that they were excited to share their experience with others. In John's case, the connectivity of the home is established not just through communities of practice, by also through the technologies through which he monitors his home's energy performance. John is currently in the process of transforming his house into a smart home, aiming to closely monitor its efficiency and try to improve it. The house, in both cases, becomes the link between the household, a community of practice (sustainable homes network) and the wider community. Renovation is triggered and performed as a way to share and validate households' ongoing concerns about living responsibly, through the sharing of know-how and materials for achieving their desired results.

Similarly, Rox and Ben are part of a strong neighbourhood community, which contributes and enables their ongoing, creative engagement with home. For them, local sharing of resources- such as their community van-is important, and the expression of the materiality of the house itself is perceived as part of the community. They are passionate about the preservation of homes, as '*they are not just building structures*'

(Ben) and seek to create, long-standing '*and non-disposable things*' (Ben). While their experiences are mostly positive, they have had incidents, during the long process of renovation, when association with the local community has been tricky:

> *'Our house has been looking so crap for so long, that people just*
> *came and dumped rubbish in front […] they thought…oh I'll just add*
> *to this! […] anyway, one of the things they dumped is this door, and it*
> *has this really great glass in it […] the builders now are going to make*
> *our en-suite bathroom window out of […] that door'* Rox

The local perception of Ben and Rox's home left them puzzled and disrupted their feeling of being at home; it also signposted the blurring boundary between private and public space. Suburban homes in Adelaide are kept firmly private and separate from the street and neighbouring properties, with large fences and gates that indicate a clear boundary between street and private home. However, in Ben and Rox's case, there is currently no fixed, physical barrier, between the street and the house, which leads to confusion or inaccurate assumptions about ownership and habitation.
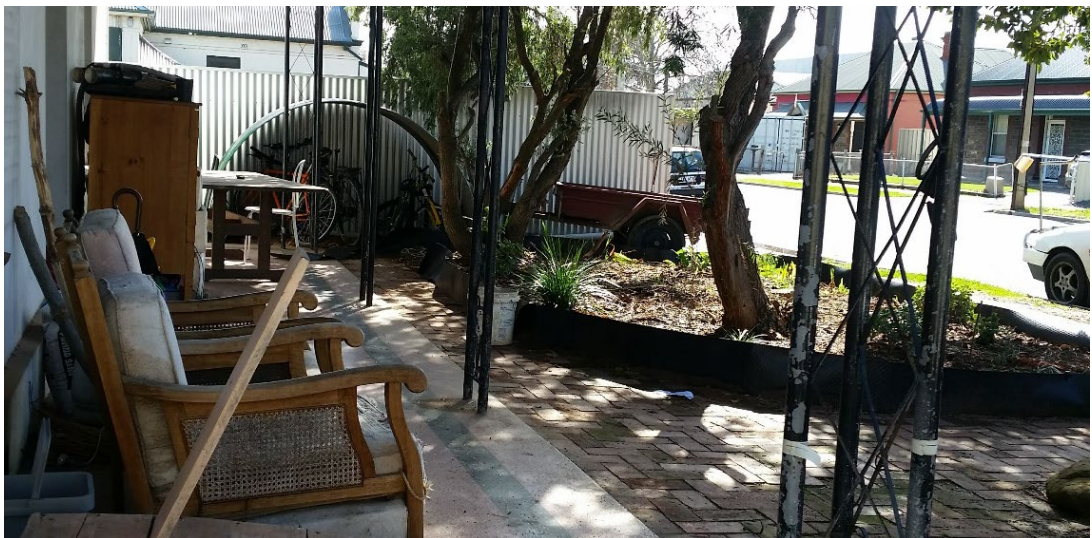
Fig.6.4 Ben and Rox's front of house, where the incident with the door happened

Despite that, the event triggered positive low-carbon practices, such as that of reusing and repurposing of materials. Rox and Ben are keen on being as self-sufficient as possible, by growing food in their garden and keeping small animals. The sustainment

and reuse of local resources, particularly old materials that they find, are important particularly during the renovation process. Being close to similar-minded people, in the local community, enables and supports these practices. Rox's sister lives next door and a network of friends in the local area regularly share tools, advice and time together. As I discussed in chapter 5, lifestyles can have low visibility when practised in the private realm, however, been part of a like-minded community make Rox and Ben's home the connecting unit between local 'lifestyle movements' of like-minded people.

Another case where renovation, alongside other homemaking practices, becomes the connective link with local community is that of Serena, as she describes:

> *'This house is a public house […] it's always open and we've got a*
> *very good relationship with neighbours, everybody comes in,*
> *because when we were doing the renovation we opened up, so now*
> *it's remained like that.[…] everybody comes in the kitchen, it's a very*
> *inviting space'*

In this case, the practice of renovation became the initiation of connection with the neighbourhood. The opening up of the house, is a symbolic way for Serena and Jody, who are both new in the neighbourhood, to get integrated and, in some way, accepted, by the local residents. The feeling of being at home is reinforced by the confirmation of community.

On the other hand, Paul and Tracey, have been carrying their homemaking practices, along with their visions of ideal home with them, since they moved to Australia from the UK ten years ago. Their story centres around the openness of the house to close friends and family:

> *'Our house was the house that everybody came to'* Tracey

 Their living and homemaking practices carried on in a very similar manner since their move. For example, Tracey describes the house as the place of collective memories:

> *'Just looking at our four children, reflecting on […] our house in*
> *England […] they never talk about it as just a house. They talk about*

> *it as this […] place where they think about memories, what they did,*
> *and as we've been living here (in Adelaide) for ten years….it's*
> *become their second home, in the sense of things that they*
> *remember'* Tracey

In Paul and Tracey's story the home becomes the connection and continuity link between the family's past and present, and the setting for building their future. It also connects the two cultures: the one they left behind and the one they embraced by their move. Each amendment to the existing fabric of their home, whether through material transformations or in organisational ways and everyday living, has to connect and enhance the past and current family practices, as well as reinforce the family's identity:

> *'In the same way, in England […] adventures that we've been on*
> *holiday and we would buy something and that would become part of*
> *what we had…that's continued […] in the same way here, hasn't it?*
> *When we go away we think…what can we bring back home to*
> *represent in our house, a memory of where we've been together'*
> Tracey

Renovation, therefore, takes place in line with the households' familiar and culturally appropriate experiences, skills and motivations. It also fuels the continuity of the practice, by the continuous and nostalgic re-making of home. Nostalgia is an emotion that expresses the longing of past experiences and the longing for home. Nostalgia is experienced as 'productive' or 'embodied and enacted in practice', through the material remaking of home, rather as just a distant memory and longing of home (Blunt 2003, p. 722). Nostalgia is usually experienced as a temporal element that marks the detachment of people not only from the physical place of home but the actual time or stage of life when they were living there (Rubenstein, 2001,p. 4; Blunt, 2003, pp. 720–721). Householders seek to re-create this 'return' to the time and space of past experiences, using however, their improved and renewed competences and experiences by living in the new cultural environment. The materiality of their home is important, as it becomes the embodied reproduction of the past living experiences for householders. Productive nostalgia therefore shapes or 'scripts' renovation practices.

Fig.6.5 Tracey discussing their family's move and meaning of home

On the other hand, connectivity and continuity are expressed through the coming together of different generations under the same roof. Mark talks about his long journey into extending and (soon) sub-dividing his home to create, what he refers to as, intergenerational living conditions which will re-unite his family, after a recent divorce. His 95-year old mother recently moved in with him, while her granny flat is being built in the back of the house. Mark's story is deeply linked with his family and their living practices and is a visible journey into the transformation of a single, detached, one-storey home to a dwelling which will become two semi-detached homes, and will accommodate three generations. The renovation, according to Mark is generating new and exciting living conditions as well as a profit for the family.

Mark explains that the decision to renovate the house, emerged from the changed circumstances of his family. These involved his divorce and his children no longer living permanently in the house, which led to the realisation that there was an opportunity to look after his mother from home by extending and providing a granny flat for her. At the same time, he recognised that there are existing skills, expertise and appropriate budget in the family to renovate and improve the family's living conditions. Mark's renovation presents a uniting practice for the family, not only through the product of renovation but through its process. Mark's brother is the architect of the project, while both brothers together are undertaking a lot of DIY construction work. The materials and competences of the family in this case, enable the emergence and continuity of the practice. I expand on renovation practices of intergenerational households in chapter 8.

On the other hand, perceptions of escape and private family life are contradicted by the fact that householders add the concept of working from home. Homeworking and homemaking are important associated practices which are directly linked with the practice of renovation.

> *'Home is a personal sanctuary…but also a place for entertainment because we have to entertain. It's also our workspace, we both work from home'* Sharon

Household stories gradually reveal that home is not only a 'safe haven' but a place where work continues, in diverse ways. In some cases, working from home, in more formal settings such as a home office, entails their everyday reality and shapes the way that the house is organised. Through this suggestion, home starts to demonstrate its materiality; householders begin to attach a description of space and its use, such as space for work or home office. The home is therefore a shared living and working zone. John, who lives with his partner and son in a townhouse in Adelaide CBD, suggests that he often uses it as his work base. His work engagement at home is more casual and takes place informally within the existing domestic practices and spaces. But while participants such as John and Sophie, work from home occasionally, Anna, experiences home or the house, as a full-time, continuous working project, since she has decided to renovate for a living. Anna quit her permanent job a few months ago and took an online renovation course to pursue a career as an investor-renovator. As she suggests:

> *'Home is a project…Home is where I am. I am not attached to the building or the property'* Anna

Home in this case is a place of work, which is not only experienced through the physical labour of doing, but through the ongoing devising and imagining of it as what Anna describes as, the making of '*a beautiful home'*. Home becomes a place of combined production and consumption, while it starts to open up, from a private, protected place to a more public, or semi-public terrain, similarly to the case of home as a connecting unit, in the previous section. Duyvendank (2011, p. 62) suggests that

the blurring of the boundaries between private and public, also imply that people feel 'at home' in the public domain too. Increasingly people are getting more comfortable enacting, what used to be considered, more private practices, such as 'eating, talking intimately, expressing emotions' in the public domain (Kumar & Makarova 2008, p. 325), especially through and in combination with online media. Also, as I have discussed in chapter 5, the home is now a devoted space for technological change, through the ongoing entanglement with media. In Anna's case this is demonstrated by her media-led renovation practice:

> *'Since I've become a renovator I have become obsessed, because I have Facebook to project-manage my renovation…so now, it just doesn't leave me and my Facebook feed, I have tailored it to be like a newsfeed for renovation. I am a bit like a 20 year old, because 20 year olds do that'*

Through her engagement with social media, Anna also 'carries' home into the public, thus 'domesticating the public sphere' (Kumar & Makarova 2008, p. 332). Furthermore, Anna's ongoing online presence in combination with her mobility between different properties (temporarily living in the property she renovates), points to Bauman's argument that people can be 'at home in many places but not one place in particular' (Bauman 2005, p. 3). As quoted above, home is a project that Anna takes with her, as she moves between properties, getting her satisfaction by her freedom to move and the success of her product: the renovated home.

This connectivity of the home to the public domain, has enabled the ongoing engagement with work that previously took place mostly outside. For Melissa, like Anna, home is also a place for work. Melissa, a yoga instructor, expresses her concerns about this private-public boundary by suggesting it felt initially bizarre to invite strangers in a yoga class at home. Furthermore, the simultaneous performance of domestic space as a workspace, required the transformation and consumption of material objects- in Melissa's case yoga props and media for supporting the atmosphere of the experience- which complete the setting and assist the performance of yoga teaching. While Melissa is not exclusively using their basement as a yoga space, the design of it had to incorporate the multi-functionality for work and home purposes.

Therefore, making home a place of work, as well as a personal space, includes the appropriate technologies and materials in order to achieve it. Householders who engage in computer-based work at home, such as Sharon and Graeme, and Jon, determine not only the use of appropriate devices but suitable and convenient spaces to work. While some householders prefer the concentration that a dedicated home-office space offers, mobile digital devices allow the flexible working in open-plan, multi-purpose living rooms. Having a busy life and a household with children, makes this arrangement more convenient. However, as I didn't specifically address this question, it is still unclear how and if householders switch from work to home 'mode', or whether there is a continuous flow of working throughout, simultaneously with other everyday practices.

Furthermore, working from home, as it also happens for Sharon and Graeme, entails the gendering of the home and its maintenance. While gender roles were not fully investigated, in many cases, the staying-at-home through working from home, presented an illustration of the current move towards the un-gendering of homemaking. When enquired, the decision-making was allocated equally between the female and male participants, however, as male participants, such as Graeme, John and Mark stay at home, routine homemaking duties, such as shopping, cooking and tidying, could be negotiated and performed in diverse ways compared to households with more stereotypical female-heavy responsibility for house labour. This, in turn, contributes to the transformation of everyday routines, which shape the renovation practices of households.

Therefore, home is a mediatised environment, which mediates the private and public domain, particularly through the ongoing engagement with work activities, both as formal working from home activities and through renovation work performed as investment. The experience of home as a workplace contributes to the development of new meanings and materials in households, which includes the ongoing use of media technologies and a fast pace of moving through the spheres of public and private domain. Having the material objects to keep up with this fast flow of movement and switching between working and living is challenging and requires an ongoing negotiation of practices that go on in the household. However, it is not clear if and how the competences of participating householders are also transformed to allow this multi-

tasking of their homes. There is still resistance to fully incorporate work as a formal space requirement, with a clear temporal and physical boundary. One reason for this could be the disruption of comfort or de-association of everyday living at such as 'interacting with pets, making hot drinks or even getting back into bed' (Hampton 2017, p. 6) with the familiarity of home. Home as a workplace is an important consideration for home renovation practice, either through the configuration of dedicated spaces or through the allowance of multi-tasking spaces which can accommodate emerging work needs of households.

6.1.4 Ongoing creative homemaking

'Home […] it's been a project […] for a while. We lived in one place, and, it was a project for years, to get it liveable […] we had to renovate […] As soon as we renovated it, we sold it, […] then we lived in a shed in the back of our neighbour's place, while we renovated this […] and then we moved to this place and it's been constant building […] to make it liveable. So yeah it's been a project!'

Ben

Stories of experimentation and ongoing creative productivity within homes were told in the households of Rox and Ben, Kate and James, John and Henry. These households exemplify the concept of home as an ongoing, creative project, during which, renovation takes places over time, and often includes DIY and personalisation of space. This category also includes niche renovations that present characteristics which rest out of the usual range of practices. For example, John's household have been transforming their house into a more energy efficient home, while monitoring its performance and making plans for its integration into the wider community and energy provision network. Their house is treated as an evolving living organism and the everyday practices- such as the timing for showers and doing laundry for example- are being transformed according to its monitored performance.

Rox and Ben on the other hand, are engaged in a collaborative renovation project between professionals and their own DIY input. They have been learning or improving their existing skills while their house is been renovated, encouraged and supported by

the professionals they have hired in order to achieve their desired customised and personalised space. Home for them is a creative project:

Ben: *'This is the weird thing: we love being on building sites, we love digging, we love making things, we love being physically active. We actually quite enjoy it'*

Rox: '*We probably had two little moments, one in each house, of just living a house…and during those times, our home for us, was a creative space and a relationship space […] we used to have gay nights, and make stuff'*

Ben: '*We used to host a lot of stuff, have a lot of people round, building things, making stuff, it is a pretty active place, it's not like a quiet refuge where we sit and do nothing'*

Fig.6.6 Rox and Ben in their back yard between the old house and the new extension

For Rox and Ben, design, creativity and experimentation are important elements of their identity. The alignment of shared interests, skills and common vision of the future, leads them to develop and sustain their homemaking and renovation practices. There is also a very strong link between the practices of homemaking, (design) work and renovation, which all connect through the materiality of the home. The boundaries between these practices are blurry; they overlap, as meanings -of the home as a place for creativity and experimentation and work practices-as the creative means for expressing their visions- intersect. It is important that the aspirations and visions of householders co-evolve with the house building practices and technologies (of professionals). Therefore, the merging of Rox and Ben's professional skills with their ongoing-practical-engagement with renovation, also assists in the strengthening of the

understanding and advancement of their professional experiences. Furthermore, the ongoing engagement with making, communicates the household's identity to their community and showcases their creative engagement and responsibility of improving their home (Aune 2007), and in extension the neighbourhood.

In a similar manner, Kate and James, both architects, have found that their common visions, skills and interests have led to their experimentation with their first home:

James: *'We always wanted something to customise'*

Kate: *'to make it our own'*

James: *'We're still in transition, realising what homes is'*

Kate: *'I guess home for us is […] a testing ground'*

Their household, a unit, is initially described as not their ideal type of home, however, they both suggest that it was a great beginning in their common homemaking journey and a great asset they could customise. Being architects, they both contributed to the novel ideas for change, such as having a white concrete floor, but also salvaging as much of the existing shell of the house as possible. In this case, meanings and competences co-evolve, as the couple co-construct meaning of home, through the active making of their house. While their professional identities contain the skills and competences that they need for planning and performing the renovation, their skills are continuously adjusted to respond to the shared visions of home they develop as they go along and the constraints and opportunities of the given structure. For them, renovation is experienced as an exploration and a journey. Further details on their practice are given in chapter 8.

Fig.6.7 Kate and James in the living room

Henry also experiences renovation as an ongoing project, which embodies his response to his past living experiences (of un-homeyness and low maintenance), and his keen interest in DIY design and construction. In his case, renovation presents the purpose of buying the home; he was purposefully looking for an older property, which he could preserve the character of and remake as his desired home.

These homes are mostly an 'unfinished project', an ongoing engagement which grows and evolves into people's minds, long before and after the materially-engaged performance of building takes place (dreaming of the next stage or reimagining an improvement on the work done). Time is an important aspect of the ongoing practices of homemaking and renovation in these cases. The long-term change of the house as a structure presents itself by signs of deterioration or dysfunction and requires attention and repair by households. However, creative households often perceive signs of ageing positively, as an indication of maturity of the home, and a trigger to maintain its character and identity. Response to these changes doesn't need to happen fast, it does however, require particular care and planning. People are very self-critical to what they have achieved (or not) but also very proud to share the results with their networks, usually using media, such as physical and digital phot-albums, Facebook posts and blogs. Details of media sharing are further discussed in chapters 7 and 8.

In summary, home renovation can be triggered by the accumulated experiences of past living conditions or nostalgia, the pressures, needs and life-changes of households, by the increasing need for multi-purpose spaces, such as working from home, and by their

ongoing desire for experimentation and the continuous re-making of home. The time devoted to renovation practice is shared with everyday homemaking practices and supports diverse consumption patterns depending on the meanings of home that households carry. Time-pressed, inward-looking households seek to improve their comfort and lifestyle quickly, seeking the efficiency of professional work in their renovation. On the other hand, households who perceive home as an ongoing creative project and who value the connection with communities outside the home, prefer to devote more time in the renovation practice, allowing for DIY or combination of professional work with DIY as a way to experience the changes slower and contextualise them in their daily routines. Households are looking to secure their identity through the material and socially embedded environment of their home, which often includes the attempt to improve previous living environments. Furthermore, the emerging meanings of home confirm the argument that the household, as a societal unit, is a network of connections rather than an isolated social unit that performs only at the 'domestic level' (Head et al. 2013, p. 352). The connectivity of homes takes place not just through the physical communities and context, but through the digital networks that these belong to, such as social media groups and communities. This is particularly significant for households as multi-functional units, where living and work takes places interchangeably. The following section analyses the involvement of media in homemaking and its inter-related involvement to the associated practice of renovation.

6.2 Media homemaking

> '*Liquid life'* is a kind of life that needs to be lived in a liquid modern
> society. 'Liquid modern' is a society in which the conditions under
> which its members act change faster than it takes the ways of acting
> to consolidate into habits and routines' (Bauman 2005, p. 1)

Households are media rich environments (Christensen & Røpke 2010; Chambers 2016), in which the symbiosis of people with technologies shape the everyday living practices of the householders (Hand, Shove & Southerton 2007; Nansen et al. 2011). Having analysed media in its triple articulation, as text, object and context (chapter 5) within the mediatised home, I now present my findings on the interactive role of media in the shaping of domestic space and vice versa, and analyse the ways in which households engage in everyday mediatised routines. By highlighting the relevance of

media technologies in homemaking I reflect how these in turn relate to the emergence and sustainment of renovation practices, which responds to my second research question.

As my findings suggest, media are experienced in diverse ways, demonstrating characteristics of triple articulation, discussed in chapter 5. The context of the household is presented as a flexible and adaptable space which accommodates the changing needs of householders and their multi-tasking. First of all, internet is a point of connection with the world, the wider infrastructure and systems of provision. It is almost impossible to perceive a home without internet connection; it is a taken-for-granted social norm of western societies such as Australia, in which the internet penetration rate is 88% of the population (Social 2020). However, there is variation in how this connectivity is fitted and adapted to each household. Several households expressed their preference for Ethernet, rather than just wireless internet. While this preference has been influenced by the speed and quality of the connection, it is also directly linked with the (media) practices associated with it-such as online streaming of content, and can therefore affect the way that the physical layout of the house is made.

> '*I don't want wireless […] I'm not a fan, but I think things have started to go back to being wired […] we've (still) got wireless through different points'* Melissa

> '*Zhane for example […] he's into gaming […] Ben has put Ethernet in every single bedroom […] so that's (Ethernet) providing that functionality'* Rox

Home is experienced as a 'field of action which constitutes one out of several overlapping 'mediatized worlds' (Peil & Roser 2014, p. 234). Householders operate in flexibly designed spaces, which allow multi-tasking and not fixed functions of rooms, and media devices are catalysts of the process:

> Rox: '*We really don't like design around TV locations, we'd rather move a chair to watch TV, […] with our new layout, […] you have to go to that space and what you do is you watch […] but it's not the main thing you do, we don't design our main spaces around that'*

Aggeliki: '*So, there's a dedicated media space and then the rest of the house is […] less fixed?*'

Rox: '*Well it's the functions of the devices, there's gonna be fixed computers here […] ipads and laptops […] things like that*'

Ben: '*Even though […] there's a dedicated media room, we have an Ethernet connection in every single room*'

Rox: '*Even though wireless exists, we much prefer to use Ethernet*'

The above presents an example of the deep-rooted existence and complexity of media as objects in household environments. While people might design and use media-dedicated spaces, such as home-offices and rumpus rooms, internet-based, mobile media devices have penetrated the whole house, in ways that they invisibly and discretely interact with other simultaneous practices and demand space and time for their reproduction. Melissa explains the importance of their household's need for flexibility to media technologies:

'*I guess it's a tricky changing space […] we've heard that technology changes so quickly that if you make a really rigid decision the technology will change so. You can't knock down a wall because people are using technology in a different way*'

She continues to discuss how their teenage children use digital media devices interchangeably around the home:

'*So, they use their laptops for school here […] or in their rooms…everywhere, but mostly here (their open-plan kitchen) or at their desks. They use music here all the time- it drives me crazy.*'

Similarly, Kate and James, both architects without children, explain that:

'*We don't have a TV […] we don't want a TV, but we still watch stuff through the internet […] our phones travel everywhere with us (at home)*' Kate

And Anna, who currently lives alone while renovating for profit, suggests that:

'(I use) Anything, anywhere, anytime…I move into the bathroom with
my phone or whatever… my tablet...I use it (phone or tablet)
everywhere'

While media devices are present and used around the home, households allocate the more public or formal areas of their home to media consumption. When asked to draw a diagram or conceptual map of their home's zoning according to everyday use, householders, in their majority, equated living rooms (open-plan or not), kitchens and rumpus or study rooms with daily media use. The diagrams below present some examples:
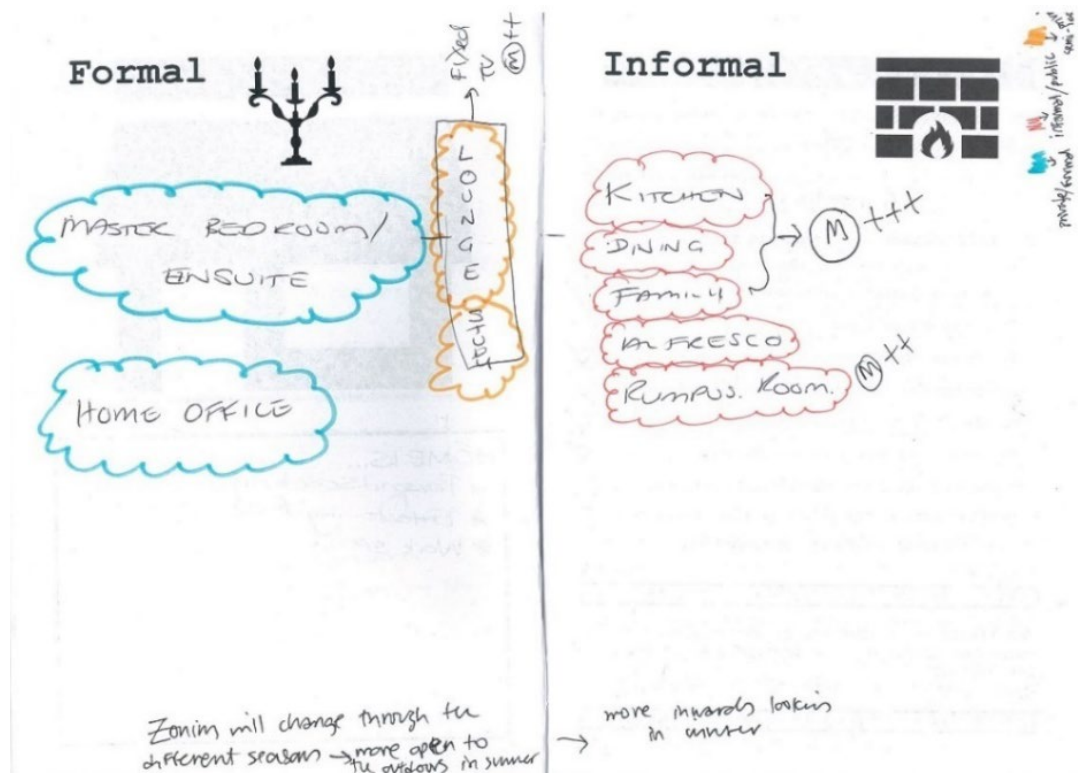
Fig.6.8 Sharon's zoning of spaces, shows a distinct allocation of media in the public spaces of the house, where they receive guests and spend most of their time at home
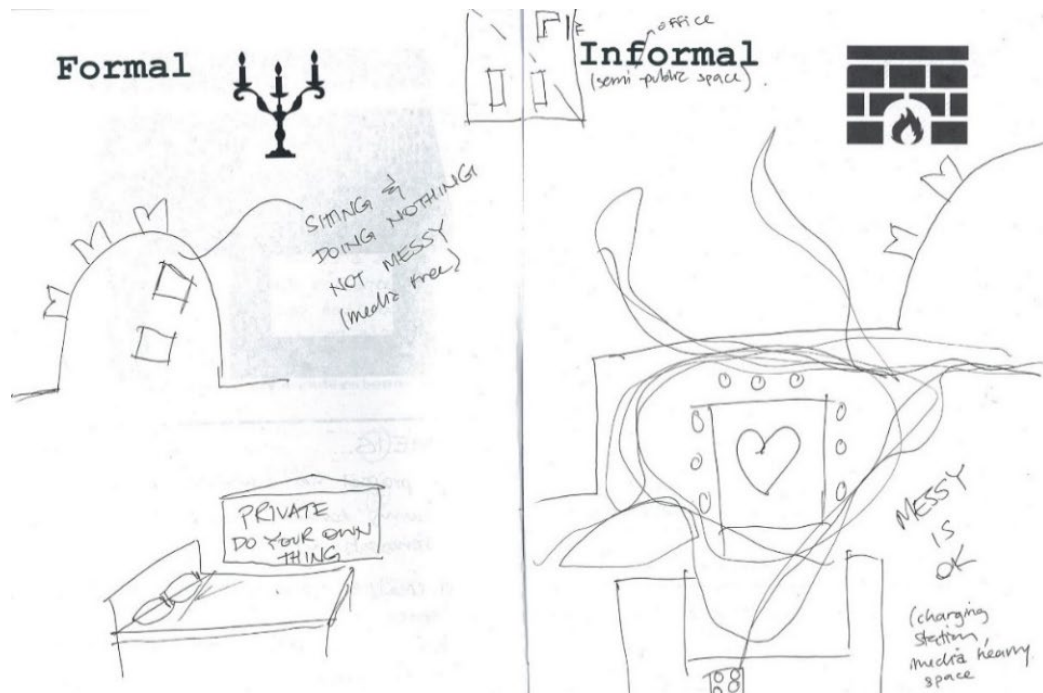
Fig.6.9 Ben and Rox's zoning

Media act as orchestrating, space-shaping, and homemaking agents. Serena and Jody's case is an example of this:

> 'The bedroom is my cave […] and the lounge […] is the place that we
> stay together […] me and Jody have a funny way of living. The two of
> us stay here together […] but we sleep at different times.[…] when
> he's in the playroom, playing PlayStation, I watch news in the lounge
> or I'm in the kitchen cooking and we eat together but we go round a
> lot, we do a lot of things in a different time and then we meet, kiss
> and move along.'

Media devices designate the way that Serena and Jody spend their time, together-in the house-but apart-in different rooms. Furthermore, Serena suggests that these media-allocated rooms, are used interchangeably at different times of the day. It seems as if their living practices are co-evolving with the media devices and their associated temporalities. Serena suggests that the more public side of their home, where they receive guests and is more visible and accessible to the 'outside' world, is the more media-rich, in contrast to the more private side, represented by their bedroom. Her

drawing below, shows their perception of public/private in relation to their media-rich homemaking:
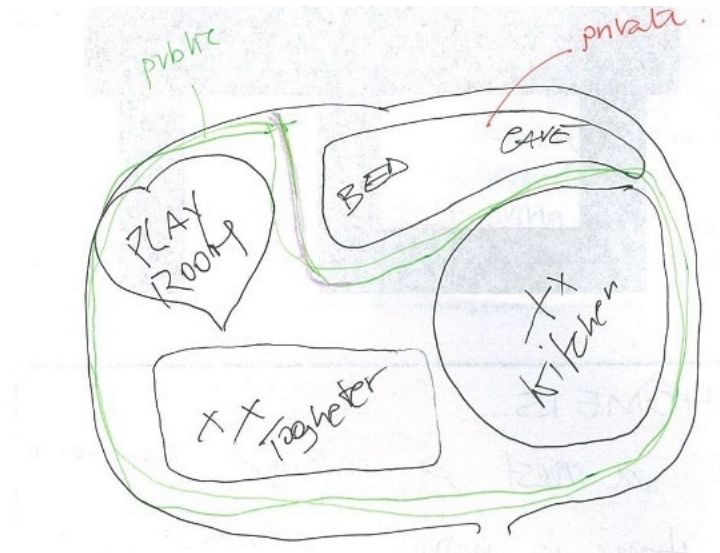
Fig.6.10 Serena's home zoning, allocating public and private space

While drawing, Serena discusses the layout of the house in parallel to their everyday practices and she implies that the choice of their current house was based on their tacit understanding of their media- shaped routines, which are unfolding in parallel but not simultaneously. She suggests that:

> '*I like the layout of this house [...] we saw a lot of cottages, but they are like a train, they have this long corridor and you lose each other. Especially as it's the two of us, I like that this house is more circular, so I don't disappear as in the other house. When he is in the lounge, we can see each other, even if this isn't open-plan but I find it very warm for us*'

Serena expresses emotions of togetherness and homeyness (warmth) through the association of everyday living with routines of media consumption. Their perceived comfort and homeyness is achieved by the smooth interaction between the materiality of the home, the media devices and networks, and their embodied know-how of homemaking, developed through the years of co-habitation. Media is therefore presented here, in its double articulation, as a material and as a meaning-making

186

agent, associated with routine everyday practices reinforcing the familiar setting of homeyness. Additionally, media's space-shaping capacity can be reinforced by issues of online-safety and continuous use, especially in households with children as Komala suggests:

> *'I have a no technology or TVs in bedrooms, […] I don't want that to happen, it's never happened…more for the kids. We are very safety conscious around kids on technology, so the study […] is where I want computers and phones and everything to leave and stay there, rather than take them to bedrooms'*

At the same time, Komala and the children use tablets to watch films and use websites online, in different locations around the home. They suggest that the online content and ability to choose the location of use, prevents conflict between household members-through prioritising the otherwise compromised communal watching. Space is still allocated in their open-plan living room for a fixed TV, for family viewings, or as a background to their other activities, however, there is ongoing use of online media devices across the whole house. This fact contradicts the exclusive purpose of study rooms or home offices, often found in renovated households, as in most cases householders end up using media devices around the home, rather than in a fixed location. This happens either because they also need to attend to other tasks, or simply because of convenience.

Daily tasks are becoming mediatised, as mobile media technologies are fully integrated in people's daily routines. The findings confirm the argument that the ever-presence of media results in the loss of 'their familiar distinctiveness as material devices' (Hepp & Krotz 2014, p. 107), as they are incorporated, in a way hidden in the daily practices At the same time, these practices, which take place simultaneously, require multi-tasking on behalf of householders, specific space layouts (such as open-plan living) to be performed in, and appropriate devices that can support them. Media as objects enable the inter-relation and connection of these everyday practices, supporting Gram-Hanssen's (Gram-Hanssen 2011, p. 69) argument that technology is 'holding practices together', in relation to people's energy systems' use. My findings add to this suggestion, by showcasing that media, in their wider definition or in their triple articulation, as texts, objects and contexts hold practices together.

187

Furthermore, evidence of strong and weak mediatisation can be found in practices such as cooking and doing homework. These practices are gradually moving to media forms, i.e conducted through media devices or supported by online content, such as online recipes and education portals. Householders perform them while, for example, attending to social media, making the online texts indispensable, and generating a sense of community and belonging to the world outside the household, in the security and privacy of home. Mobile media devices such as laptops, smart phones and tablets are domesticated in ways that enable dispersed use which presents common characteristics between participating households.

> Komala: '*Before […] this was the lounge room and the kitchen was in there, it'd float, so the three areas would be a little be separate, you couldn't really see or interact between these three spaces*'

> Ben: '*There were definitely two TVs in those two spaces and there was one in the kitchen as well, so we had three TVs*'

> Komala: '*We often find that the four of us are watching three TVs in three different spaces and we wanted to […] do that if we needed to or wanted to, but we want to…stop some of that … go in your own little box […]. Force the togetherness, but also have a space where we could keep the kids out*'

Fig.6.11 Komala in the renovated open plan kitchen-living room with the TV screen on the wall

Media is found here, similarly to the case of Serena, to enable the *being together alone* sentiment, where families might be co-located in space but individually browse media content. While online media are perceived as an individual activity, fixed media devices such as TVs are linked to communal viewings promoting feelings of togetherness:

> '*My vision of this house, there would be no TV. I completely lost that battle…yes it's massive (the screen). We now have two TVs. We slowly pushed them (the kids) in that room […] definitely separate the media use […], it definitely changed (after renovating). We only had the one lounge room with the TV and so it's nice if we have people over or if I don't want […] the TV on, I can go in there and they can watch whatever it is […] there was this separation of media*' Sophie
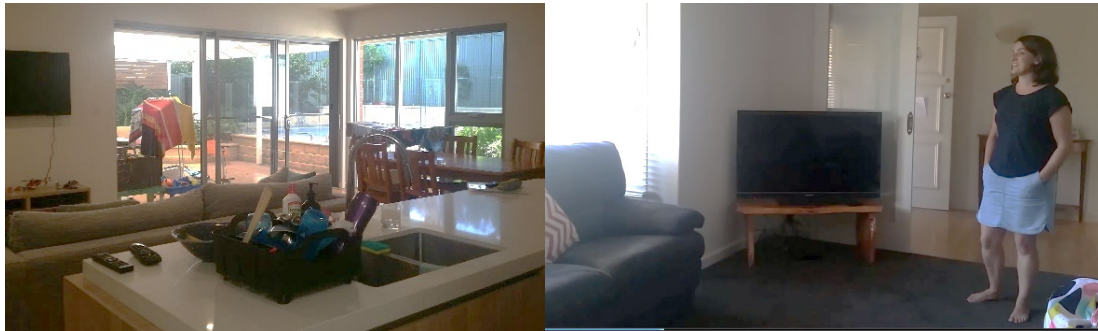
Fig.6.12 Sophie's open plan kitchen-living room and the separate kids' TV room

In Mark's household, there are three distinct media zones: the living room, occupied by Mark's mother who watches TV during the day, the kitchen/dining room, which accommodates Mark's computers and printer, and the children's media room, where a large monitor accommodates video-games for Mark's boys. Media are integrated into their daily routines and are essential for keeping the family routines going, while they also provide the element that marks the ownership or identity of each space. Three desktop computers are installed in the kitchen/dining room, over two desks and a dining table, while an A3 printer has prominent position. Mark explains that this is important and useful to their family practices when they boys are there, as they play on the computers and generally enjoy being in the same space with him but doing their own thing. He finds this arrangement really important, and although he insists that they get up from the desks and turn around to have dinner at the dining table (which is

directly behind) they practically spend most of their time in the house fixed in that position. Once more media facilitate the ability to be together alone.
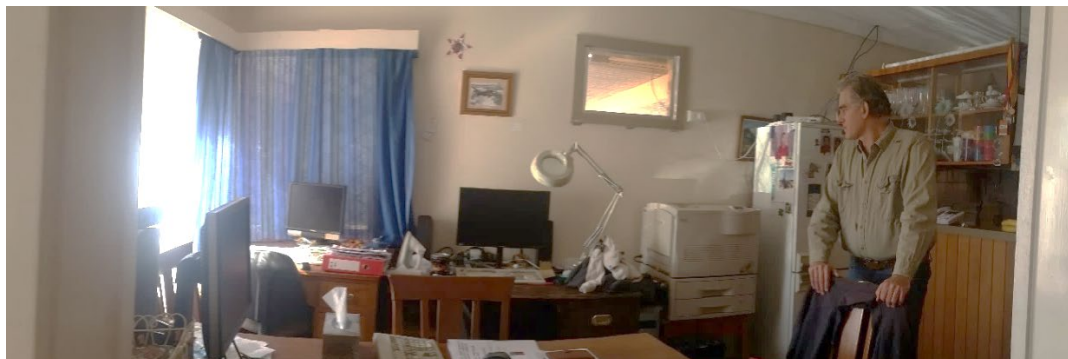
Fig.6.13 Mark's kitchen/dining space, with the media devices which shape their daily practices

Similarly, in Rox and Ben's household, diverse media connectivity is adopted to accommodate a flexible arrangement for use. In the transition to the final layout of the home, household members change bedrooms and workspaces around the house. While the family, contrary to Mark's home, don't have fixed media spaces, media devices are still generators and connectors of daily practices at home. Their daily rhythms are important, as ways to synchronise- or not, the practices that take place at home. Comprising younger members, the household is filled with mobile media devices, such as phones, tablets and laptops, which are used interchangeably around the house. Because of their long exposure to renovation and their continuous multi-functioning and sharing of most available spaces, Rox suggests that the adults anticipate the creation of media-free spaces:

> *'We know our life is gonna change when this house births. What we can do with our time, […] which is crazy to think […] that a house would do that. For example, we […] would be able to sit somewhere where there's not a TV, which is going to be a joy'* Rox

This is a realisation of the permeability of media, as texts, objects and most importantly as contexts of the everyday life at home, suggesting that householders recognise media's inseparable agency in their spaces and practices. Furthermore, in cases such as Mark's, a re-domestication of media devices has occurred. Re-domestication expresses the giving of new meaning to already domesticated media (Haddon 2016).

As a collector and past IT consultant, Mark has gathered several TV and computer monitors at home, which are not connected to a TV service, but are used by him and his children to support other mediums of entertainment. For example, the larger TV is connected to a gaming console, while it occupies a dedicated room in the house, for his children to play when they come to stay.

Fig.6.14 Mark showing me his re-domesticated TV screen

Likewise, a de-domestication of media, or the 'ceasing to find a place for a technology in one's life' (Haddon 2016, p. 22) happens in other households such as Serena's:

> '*We have a TV in the kitchen […], but it's not working, because originally we were thinking it would be nice to watch while we're eating […] but actually we decided […] we like to talk and cook with music, otherwise we're always watching TV*'

Mobile media technologies represent individuality and designate private or personal space, while traditional, fixed media such as TVs, which are still prominent in living rooms and often accommodate the largest screens in the house, symbolise communality and usually point to the largest and mostly used room in the house. While the TV has become de-domesticated, other media types, such as the radio and mobile devices, are accompanying everyday practices. Furthermore, TV as a media object, is gradually becoming redundant, as content can be streamed online through less space demanding devices such as smart phones and tablets.

Despite the swift of domesticity into the public domain, through the continuous connection and online presence, media technologies seem to be strengthening household ties between members. An example of this is the prevention of conflict, as showcased by Komala and Ben's family, where digital devices are used to allow the desire for personalised content, while simultaneously enabling closeness to others. Media also simplify household everyday tasks, such as allowing for multi-tasking in spaces, as in Mark's or Sophie's cases, where everyday living activities such as preparing meals, socialising and doing housework are performed alongside and with media devices and supported by their content. Therefore, media technologies are contributing to a new conceptualisation of home, enhancing the satisfaction of being at home.

Living with others now include sharing everyday life with networks that penetrate the physical boundary of home, not just through physical interaction but through digital connections, while also being 'together alone'. Maintaining privacy within the home and between households is being usually achieved through the physical reconfiguration of space, such as building walls, fences or by re-organising furniture (Dowling et al. 2012). However, my findings point to media, in their triple articulation, as agents that also enable this realisation of 'private space', through the use of personalised media devices and content. This virtual separation or sense of privacy takes place while household members could be co-located, therefore no longer depending exclusively on the architecture or design of home but also on media. While the material reconfiguration of space, for achieving privacy, sometimes leads to excess provision and consumption of space (Klocker, Gibson & Borger 2012), e.g with study rooms, there in an opportunity to enable a more compact and efficient, but still private, experience through the use of personalised media devices and content in multi-tasking spaces around the home. The mediatised home, therefore, enables media as objects, texts, and contexts to co-ordinate everyday routines, to articulate simultaneous notions of privacy and togetherness and to allow the evolution of home layouts into alternative, multi-tasking and less function specific spaces. Most importantly, media in the mediatised home, are integrated into homemaking practices as materials, meanings, and competences of householders.

Based on these insights, the design and renovation of homes would benefit from a further understanding of the physical and conceptual zoning of home into public and private space through the entanglement of 'people, technologies, practices and spaces' (Nansen et al. 2011, p. 694). The implications of media-informed homemaking on renovation practices, placing media as object, text and context, are complex and multi-dimensional. While there is an opportunity to reduce space consumption, by combining functions of rooms and multi-tasking across the house, the increased engagement with media presents an energy-heavy consumption, through energy-thirsty devices and systems installed, particularly in households with children.

Being at home with the media offers the combined benefits of feeling the security of home, while emerged in the global digital community and enables the continuous dreaming, planning and re-making of home. However, the diverse ways in which media technologies are domesticated bring tensions between the existing house layouts in which established homemaking practices occur, with emerging mediatised versions of practices, such as working from home and doing homework. Home is becoming a multi-tasking mediatised environment, in which boundaries such as private and public, home and work, material and immaterial are continuously blurring along with the socio-cultural meanings of being at home.

6.3 Diderot effect and renovation practices

While the familiarity of continuous everyday homemaking practices contributes to the trigger of renovation, change can also be unpredictable. As discussed in chapter 3, the Diderot effect is a process through which one change can trigger a series of other, unplanned changes to happen, and in order to 'maintain the symbolic unity, other objects in that space must be added or existing objects updated' (Hand, Shove & Southerton 2007, p. 670). One such example is discussed by Komala and Ben who suggest that, amongst a series of modernisation needs, their renovation trigger came through one 'unfitting' appliance:

Aggeliki: *'What triggered the renovation?'*

Komala: '*We had a spot in our kitchen for a fridge that did not fit a fridge big enough for our family […] we had to come up with a way of […] fixing that, which we realised was a very temporary option, because we had to buy a bench […] and we bought shelves*'

Ben: '*We relayed our kitchen as best as we could to […] it came to the point that the kitchen wasn't functional […] it wasn't the right thing*'

Komala: '*We had no dining room for a dining table in […] a realistic spot and then we decided we were going to do the deck […], we had enough capital in the loan*'

Ben: '*You are putting that much money in it […] we may as well go a bit further*'

Komala and Ben gradually moved from the fitting of an appliance to a kitchen and deck upgrade, which eventually led to a whole house renovation. They appear to prioritise comfort and overall living experience of the house, over long-term financial returns of the property. During this process, they kept drawing and envisioning their living practices-such as creating their desired dining area- a process that kept feeding their excitement and realisation that they needed a long-term change of rather than a localised and temporary kitchen solution. The materiality of home triggered the underlying meanings of the householders-for a comfortable, functional kitchen-living room-as well as their competences, such as designing, imagining and financing the project. They further discuss how this trigger also made them reconsider the overall layout of their house and the re-organisation of the household. They conclude that there needed to be an adaptation for both the materiality and their living practices.

Similarly, Serena describes their renovation as a series of unplanned steps, which were triggered by a small paint job:

'*Definitely […] needed a proper bathroom. It was a little bit gloomy, […] we had to change the colour, we definitely had to do something […] we never planned to go further […] like, ok we are going to do a renovation*'

194

Additionally, Rox, suggests that unplanned changes take place quite regularly during the renovation process, sometimes in expense of the work, time of budget:

> *'People go Ok, I'm gonna […] do this bathroom thing, I've found this*
> *beautiful […] vanity and it doesn't fit there anymore so*
> *now…plumber! Can you move the shower 40cm that way? I think that*
> *happens all the time'*

Furthermore, Rox suggests that changes are often triggered and inspired by people's continuous engagement with the domestic imaginaries presented in online media and through the overflow of products that exist, and promoted through these media, for home renovation. Rox doesn't specifically elaborate on this, however, product placement and marketing of services takes places through 'branded lifestyles rather than commodities' (Lewis 2011a, p. 23). This could be an opportunity to use the informal everyday media engagement as an alternative to top down strategies for the adoption of low carbon practices, through a 'user-generated or co-created content' (Podkalicka 2018, p. 12). In other cases, such as Sharon's, the Diderot effect emerges as a compromise to unaccomplished lifestyle aspirations, relating to a larger and more comfortable home:

> *'The plan was never to renovate, (but) […] modernise it slightly […]*
> *put in a new bathroom and fix up that horrible extension and put a*
> *new kitchen in, but the realisation for us after a year […] was that*
> *[…], it was gonna cost us a hundred grand and we would still be a*
> *three-bedroom house, one bathroom, and still not in a great order*
> *really. I went out looking for other houses […] the realisation came*
> *that we had this amazing block of land, with a laneway at the back,*
> *dual-facing […], within 5km of town and with a nice house on it and*
> *for under a million dollars. It just wasn't gonna happen'*

The retrofit and modernisation improvements, triggered a major renovation and extension, which enabled the household to hold their position and status within their desired area, maintaining therefore their 'symbolic unity' (Hand, Shove & Southerton 2007, p. 670). Furthermore, Sharon's case is a representation of 'self-governing and self-improving' citizens (Rosenberg 2012, p. 177), which seek to advance their

lifestyles, daily lives and financial investments, looking at the same time to provide a financially secure future for their family.

These examples showcase an escalated renovation consumption, which starts-off as a small, internal job and develops as a major project for households. Usually, the Diderot effect is correlated with unwanted, unplanned or even negative acceleration of a consumption-related event, which leads to the purchase and consumption of more goods (Hand, Shove & Southerton 2007). However, my findings reveal another dimension of Diderot effect; one motivated by a series of rolling low-carbon motivations which lead to an unplanned improvement of the home's efficiency.

In Melissa's household for example, the Diderot effect was triggered almost immediately after the purchase of their house. She suggests that buying their home was a mark for the family and that it all came together at that point:

> '*I am so proud that the house didn't get demolished! Because if we weren't at that auction, it would be demolished! There was us buying it and there was a developer […] we bid 1000 dollars more, so the original structure, we got for a thousand dollars!*'

The process from there on, was characterised by '*pride, not wanting to fail, needing to prove that we can finish the job and provide a steady and sustainable place to live in*'. Before setting off to do any works, the household conducted an energy rating:

> '*We got Sustainability House […] early on, to do an energy assessment and they just laughed! Zero, they said! We were so silly to pay money for it, it was so obvious that it was nothing*'

While they had professional intermediation in order to upgrade the house to a new, low-carbon standard, the family's personal (DIY) engagement with the materiality of the existing house, triggered and inspired more low-carbon practices, such as the upcycling and reuse of bricks, windows, light fittings and floor boards. Practices such as removing and selling their kitchen cabinets on Gumtree, generated money for the family, which inspired them to keep going:

'I've got pictures, of us all in gas masks […] for the first three months
our family pulled down all the ceilings, we demolished the kitchen, the
two bathrooms […] we pulled off the back wall ourselves, […]
anything that a non-professional person could do, we did'

Fig.6.15 Melissa and her husband in protective gear during the demolition, and their   old kitchen units to the right, which were moved and sold on Gumtree

Fig.6.16 Atomic lights, that were upcycled and re-fitted-to the left, and the original steel windows which were reconditioned and reused-to the right

This 'gutting' of the house, made the family connect and understand the house, and triggered their initial ideas about reuse:

'We saw history (of the house). Those battens on the back deck, as
we pulled the ceiling battens down from the roof, we went, Oh, we
have to use those, they are beautiful!

In John's case change was initially triggered by the breaking down of the old hot water system. John, using an incentive by the Adelaide City Council (Adelaide Solar City) then installed a 1KW solar system to the house, which was the first step towards improving the efficiency of the home and becoming aware of its positive contribution to their daily practices. A few years later, there was another incentive to install a battery for the solar system, as a virtual power plant incentive offered by AGL in South Australia:

> *'AGL was sponsoring the trial of a virtual power plant, which meant that they would come and install the battery very cheap […].That's how we started thinking about it but then when I actually spoke to an installer, we worked out that only for a little more, we can have complete ownership of a slightly better battery. So, we had put in better solar panels to make the battery worthwhile, the old solar panels came out, they couldn't be re-used so they were sold'*

While the incentives became an important consideration for the household, the issue of ownership and control of their energy was their motivation for investing more in their solar system. The ongoing energy upgrading of their house, keeps triggering new low-carbon practices, while John's skills and understanding of the energy technologies are improving:

> *'There's still things to do […], we don't have water storage […] that's probably next. If I 'm doing another renovation, that would be an aspect (more low carbon practices)'*

Therefore, the Diderot effect in John's household not only worked for the escalating improvement of their home's efficiency, but also fuelled a future vision of changes. This is another example of the ongoing re-making of home and how the renovation process sustains it.

These examples demonstrate some of the ways in which material elements, such as appliances, technologies and space-related material changes, through council incentives, trigger and influence the renovation practice. However, while the trigger is a material element, the process of change involves all the other elements of the

renovation practice, i.e householders' perceptions of why change is important (meanings), their emotions-such as anticipation- about the result (meanings) and their ability and ongoing learning about how to perform the transformation (competences). Furthermore, the Diderot effect becomes the moment of realisation that renovation should and can come together as a practice. There is therefore a movement, towards a commitment, on behalf of the households, to the performance of the practice. However, emergence of a practice does not necessarily guarantee its survival. The persistence and sustainment of the renovation practice is complex, and relies on the bundles of meanings, emotions, materials and competences of householders, interwoven with elements of home and homemaking as presented in the previous sections.

Additionally, the unique characteristic of the Diderot effect in the practice of renovation, is its direct relationship with media and media-inspired consumption, which enable the ongoing dreaming and imagining of future possibilities. Media texts provide the facilitation for the survival and continuation of renovation practice in households, through engaging and stimulating content. While the Diderot effect can provide one way of emergence for the renovation practice, householders' engagement with online media content 'feeds' their desire to keep performing the transformation. The convergence of media, as an ongoing switch between digital and traditional media at home, enables a continuous engagement with multiple sources and devices, and shapes householders' developing expectations of homemaking and renovation.

6.4 The identified elements of homemaking and renovation: discussion

My findings so far have shown that renovation is triggered and maintained initially by the inter-connected meanings of home, supported by the underlying material disrepairs of homes. These confirm and add to the argument that renovation is 'an adaptive response to perceived misalignments between the physical characteristics [..] and the meanings of a home' (Wilson, Crane & Chryssochoidis 2015, p. 18). The four identified meanings of home, trigger and maintain distinct renovation practices in households, while the ongoing mediatised everyday practices contributes to the tightening of these meanings and their association with the wider world.
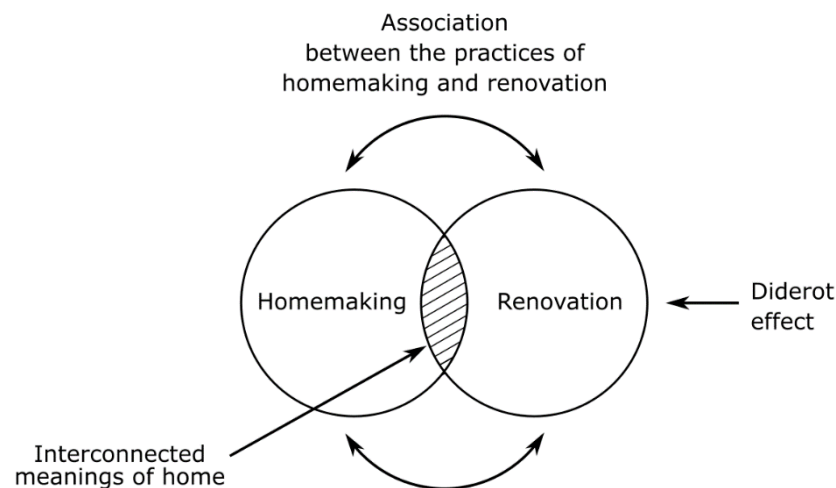
Fig.6.17 Emergence and reproduction of the renovation practice

Following a practice theoretical perspective, I have investigated homemaking and renovation as practices that are composed of 'integrated elements' (Shove, Pantzar & Watson 2012, p. 82) which are 'simultaneously reproduced' through the performance of these practices (Shove, Pantzar & Watson 2012, p. 22). As 'practices are defined by interdependent relations' (Shove, Pantzar & Watson 2012, p. 24) between their elements, the identification and linking of these elements becomes crucial for the emergence and maintenance of these practices. The elements of practice from different theorists are diverse and not commonly agreed. They follow, however, some similar patterns, and their variation depends of the context and whether they have been identified through empirical studies, as discussed in chapter 2. As Shove et al (Shove, Pantzar & Watson 2012, p. 88) suggest: 'Bundles and complexes arise and disappear as a consequence of competition and/or collaboration between practices'. While some tensions and competitions exist between the individual elements of the practices, including the irregular or disproportionate layering of each element, homemaking and renovation are so closely inter-connected that they feed and sustain each other through their ongoing and evolving elements. Furthermore, the co-location of the two in the context of home, embedded in the meso level of society, enables this strong link and allows their co-evolution. The empirically derived, common elements that link homemaking and renovation practices and trigger the practices' emergence and continuity are summarised below:

Identified materials	Specific expressions
Media and technologies	Media devices, media infrastructure (connectivity), computer programmes (drawing, illustrating), social media platforms, television, home appliances, home energy infrastructures
Spaces	Home materiality, home layout, back yards as experimentation grounds
Objects	Creative engagement with making, DIY tools, furniture, home objects, media devices

Table 6.3 Common materials of homemaking and renovation

While meanings and competences are maintained, the materials of homemaking (through the practice of renovation) are renewed to provide change. Media (as technologies and devices) and infrastructure are crucial and inseparable from the home fabric and everyday life practices. Their space-shaping ability is in turn constructing households' everyday practices, while influencing the physical layout of homes. Media and technologies bind homemaking and renovation practices together, adding on to the argument that technologies keep practices together (Gram-Hanssen 2010a).

Home is the connecting space where homemaking and renovation take place. However, the conceptual movement of domesticity in the public domain, through the ongoing connectivity online and households' engagement with social media is also shaping the way that renovation practices are generated and maintained. The 'space' of renovation in now not just in the physical enclosure of the home, but in the various expressions this takes online. Householders are under several spatial, temporal and social-norms pressures (Hand, Shove & Southerton 2007) to consume larger and more technologically informed space, while the exposure of this consumption outside the household is reinforced with their continuous engagement with online media. Therefore, renovation and maintenance of home takes place in parallel physical and virtual domains. The virtual engagement with homemaking practices online, inspires and sustains the physical performance of renovation at home.

Competences

Competences	Specific expressions
Household agency	Collective emotional agency, management of shared expectations, household sociality, carriers of inter-related practices

Tacit knowledge	'Knowing the house', 'understanding the house', tacit homemaking practices, empathy
Home management	Control of everyday consumption processes, financial management of home, negotiation of everyday routines, collective responsibility of everyday routines, renovation management
Technical knowledge	Operating and control of energy systems, digital competency, operating media devices, knowledge of rules and policies
Common sense	Collective household understanding the social norms
Creative making	Craft making, creative home design, creating handmade artifacts and spaces, DIY construction

Table 6.4 Common competences of homemaking and renovation

The householders' competences are important for binding the meanings and materials of both practices. Initially, the agency of households is highlighted as the collective negotiation and understanding of everyday challenges and routines. Households comprise of individuals who have diverse needs, desires and opinions about their living and association with others, which can often create clashes or disagreements. During a renovation, these tensions can deepen, and gender roles seem to be accentuated, becoming more stereotypical. In the majority of households, while the participants state that they mostly shared 'big' decisions, they all admitted to fallen in the stereotypical roles of female tasks (such as decoration and interior finishes) and male tasks (such as technical, technological and DIY work). Shared renovation activities can take time to develop as commonly accepted tasks, and this ongoing negotiation also helps build the householders' relationships through it. In fact, renovation becomes the medium through which householders often build their common identities and social status. As householders are concerned about futureproofing their homes and lives from socio-economic and environmental changes, there is an opportunity to integrate low carbon building practices during renovation, which will not only prolong the materiality of their home but also improve the household's ethical and social responsibility profile.

Tacit ways of homemaking, such as knowing what the house needs, which currently contribute to both the emergence and continuity of renovation, require ways to be visualised and imagined as low carbon alternatives. However, the cultural significance and meanings of homemaking vary, and therefore a base-level of what is understood as a low carbon practice needs to initially be appreciated before a transition happens. Householders often begin with great interest in low carbon building practices, however,

issues such as lack of time, the renovation hassle, particularly for households with children, and lack of support from the intermediaries involved come in the way of incorporating these changes. However, householders spend a considerable amount of time in their day browsing media, which in turn, as carriers of practices, they shape their imaginaries of domestic comfort, class and taste. There is an opportunity, to bridge these lifestyle visions with other, commonly accepted and easily understood, low carbon versions, which will enable households to visualise how a low carbon home looks and feels like, which sometimes are invisible. Normalising this concept, will potentially allow the integration of practices such as double or triple glazing, solar systems installation and others, to be installed and potentially through a positive Diderot effect, one installation can lead to another.

Meanings

Identified meanings	Specific expressions
Emotions	Nostalgia, emotional security, trust, satisfaction
Embodied know-how	Comfort, homeyness, sensory perceptions of home (relaxing and feeling cosy at home)
Cultural understandings	Culturally specific (and often mediatised) homemaking (decoration, food preparation), authenticity, culturally specific and sensory atmospheres and understandings of a beautiful home, receiving and entertaining guests
Flexibility, adaptability	Balancing home with work (homeworking), awareness of blurred boundaries between home and public and private world, everyday multi-tasking
Creativity	Subjective perception of ideal home, perception of originality, desire for experimentation and change, dreaming/imagining home

Table 6.2 Common meanings of homemaking and renovation

Initially, home as a safe place inspires practices of homeyness and comfort which are linked with particular consumption practices that generate, usually, substantial consumption and extension of space in order to sustain lifestyle engagements of households. These practices carry meanings and competences from the accumulated past living experiences of householders, who seek the simultaneous continuity of living practices but also its improvement. Change is therefore embedded in the familiarity of continuity. Media as devices, texts and contexts of everyday life at home contain and

articulate meanings of home, homemaking and sustainable living (Haider 2016) and therefore there is an opportunity for them to contribute to the strengthening of the appropriate meanings that households need in order to start transforming their everyday norms to less carbon intensive practices. Most importantly, media are elements of all the common meanings, as they enable this ongoing dialogue and experience between the household and the social world.

Furthermore, emotions, such as nostalgia, security and stability, comprise an important element that are contained in both practices. In this instance, emotions are considered as characteristics of practices, rather than individuals. These emotions sometimes act as a barrier to low-carbon change in the household, as they are mostly centred around householders' comfort. Comfort is experienced as the materialisation and functionality of space, including incorporation of past experiences-through the transformed space-and feelings of intimacy and homeyness. Households associate comfort with extensive space and product consumption, including the ability to own and frequently-renew, control and combine the use and function of appliances and media devices. However, the finding that home is considered as a long-term emotional investment of households, indicates that houses are not considered as disposable. While lack of maintenance can make them difficult to live in, they don't become obsolescent for households. There is an opportunity, particularly through the daily media practices of households, to normalise low-carbon considerations, which relate to the reconstruction of past, nostalgic images of home with renewed and more efficient versions.

When home is perceived as an integrated part of local economy, environment and society, rather as a detached, isolated unit, then the intersection of public and private, as well as the domains of work and home come together. This integration and blurring of the boundaries allow the contextualising of everyday practices in the local and wider world community and potentially assists the transition of households to less carbon intensive practices. However, commonly accepted meanings of consumption, which currently do not favour common practices of reuse or thrift, need to be de-associated with concepts such as frugality and re-linked to meanings of sustainability and long-term quality.

6.5 Chapter conclusion

This chapter presented and discussed the association and co-evolution of the practices of homemaking and renovation, to respond to my second research question of: *How do renovation practices emerge, reproduce and sustain themselves in Australian households?*

Initially, the meanings of home were presented and associated with meanings of homemaking. The four meanings identified (home as a safe place, home as a connecting unit, home as work and home as a creative project), are closely related and co-evolving and they have been found to trigger relevant renovation practices which are generated and sustained in order to assist the continuity of home. Renovation is found to be an integrative practice which involves several dispersed practices, associated with homemaking in general and held together by elements of technology, emotion, and the tacit, culturally distinct, know-how of householders. The different meanings of home revealed a multi-dimensional and continuous engagement with homemaking and have been linked to relevant characteristics of renovation.

My findings suggest that homemaking practices are highly emotional, as expressed by householders, who in turn shape these practices with their competences. Emotions are characteristics of practices; however, they are seen to be generating practices as well. Emotions of householders assist in the cultivation of both homemaking and renovation practices. For example, the conceptual, tacit ways in which people define and experience home, culturally distinct, directly link to their renovation practices. Nostalgia of past living experiences or emotions of 'un-homeyness' trigger renovation practices, which enable the mending of the past or its smooth continuation to the future. By identifying emotion, the chapter brought attention to the agency of the individuals, as part of a practice theoretical framework and highlighted their involvement in the construction of the collective household identity. By re-diverting attention from the individual to the household unit, I have investigated how everyday negotiations can shape homemaking and renovation practice but also how the performance of the practices enables the development of a collective household identity and social status.

Furthermore, media (as objects, texts and contexts) have been found to be common elements of homemaking and renovation, as they have an interactive, shaping relationship with space-making and renovation. Media hold the associated practices together and strengthen the routines that trigger and sustain renovation practices. Home is becoming a multi-tasking mediatised environment, in which boundaries, such as private-public, home-work, material-immaterial are continuously blurring along with the socio-cultural meanings of being at home. Media allow householders to be together but apart. Accordingly, media are presented as meanings, materials (media devices) and competences (operation of devices and appropriate interpretation of texts) of households. This extends existing literature that suggested that technologies hold practices together (Gram-Hanssen 2010a), by bringing media in the foreground, not just as (technological) materials but in its full dimension as meaning-making agents and competences of people.

Finally, renovation practice has been found to be triggered and reproduced by the Diderot effect in households, which suggests that small un-planned alterations can trigger large renovation works. Despite the escalated consumption process which is associated with it, the Diderot is found to contribute positively to the adoption of low-carbon practices in participating households, which once they incorporate one low carbon change in their homes, they get encouraged and proceed to involve more.

The next chapter introduces the empirical mapping of renovation as process, from the perspective of householders, through five different stages and the contribution of intermediaries through them.

Chapter 7: Renovation stages: media practices and intermediation

7.0 Chapter overview

Having discussed renovation and homemaking, I now concentrate on the process of renovation through five identified stages: The Dreaming stage, Thinking Stage, Planning stage, Performing stage and the Finalising/Sharing stage. These stages compose an important framework for breaking down the complexity of the renovation practice, including the relevant intermediation involved and allowing for a targeted understanding and possible intervention in each one. The stages are not meant to indicate a linear or chronological order in which renovation takes place but rather as a framework on which the patterns of renovation as homemaking practice can be explained in the participating households. The chapter contributes to answering my third research question of:

3. How do media and intermediaries configure the process of home renovation?

To break this down, I use a sub-question:

What are the stages of a home renovation as perceived by householders and what do they involve?

I begin with a presentation of intermediation practices and an empirical classification of the intermediaries of renovation found in the participating households under two broad categories: the formal or professional intermediaries and informal intermediaries. I create this classification to explain my findings, based on the length of interaction and presence of intermediaries in the everyday life of households: formal intermediaries point to short-term interactions and presence and informal intermediaries point to long-term presence and interactions. Both types include elements of the intermediation typologies I reviewed in the literature, such as the transition and cultural intermediaries, however, they are not limited by that. Instead, both types, although of different focus, correspond to the diverse aspects of renovation such as the socio-economic and cultural elements of the process. My findings add a layer to studies of intermediation on

home renovation by integrating these types in each stage of the process, and in the specific context of different households. Media (as practices, texts and objects) are presented in this section as both a mediator, connecting intermediaries, and an intermediary.

In the second part, I present the renovation stages. Initially a diagram outlines them, as empirically determined through the home visits, and I discuss some key observations. I then discuss each stage, presenting their general characteristics and practices and the involvement of media and intermediaries. An important finding of the mapping process is that the stages are not always linear, even when renovation takes places as a one-off project. Overlapping of stages happens frequently, whilst households don't distinctively progress to the next step. The Dreaming stage, the longest and the most saturated in media use, runs throughout the whole process of renovation and is the representation of the continuous imagining of homemaking. This is a key finding as it consolidates the practice of renovation as a continuous engagement, even when the actual (building element of) practice is not performed. The Dreaming stage relates to the imagined and continuously devised model of ideal home, which is the ultimate vision that households seek to materialise. The Dreaming stage is therefore the connector between past experience and imagined future.

7.1 Renovation intermediation

My examination of intermediation, in chapters 3, 4 and 5, presented intermediaries under diverse typologies, such as transition intermediaries, who mediate in socio-technical processes such as green, niche renovations, and cultural intermediaries, who broadly operate as taste-makers between consumers and producers. I have shown that the role and function of intermediaries in the process of renovation are diverse and multifaceted, through the identification of several actors, such as building professionals, governmental and non-governmental organisations and media (Hulse et al. 2015; Podkalicka 2018).

My findings indicate that aside from professional intermediaries, such as architects and building professionals, the input of amateur experts particularly through digital media texts, significantly influences and shapes households' renovation practices. Moreover,

media (texts, devices and contexts) as everyday mediators of householders' lives, have a double role. First, they are connectors of intermediaries and consumers, such as social media sites which act as platforms for exchange of opinion and information between consumers or between professionals and consumers. Then, media (texts) are also found to be cultural intermediaries themselves, through the direct construction of (symbolic) value of the products, services, spaces and meanings they articulate. Overall, media as intermediaries in the households investigated, help construct and reinforce householders' competences and assist in the consolidation of meanings that relate to homemaking and its associated practice of renovation.

My exposure to the households and intermediaries interviewed indicated early on that householders had short, intense interactions with professionals, however, there was an ongoing engagement in the background-that with media and social networks-continuously contributing to their aspirations, visions and decision making. It therefore made sense to classify the intermediaries identified in two broad categories that relate to the exposure and presence in householders' lives: formal and informal. The formal category involves the professional intermediaries that engage in the renovation process, and who are mainly appointed to carry out amendments to the materiality of home, directly, through building construction practices or indirectly through design and consultancy. The informal category involves the householders' social networks, media (as texts, objects and contexts) and material objects (such as tools, furniture, technological objects and products).

My aim is to map and evaluate the interaction of intermediaries and households in order to analyse their roles and significance in the process of home renovation. My cases are not exclusively focused on low carbon renovations so the intention is to understand how the mainstream interactions with intermediaries take place in the process and reflect on how they can be directed towards the embedment of lower carbon practices. By re-directing the focus on practices, I also conceptualise the role and function of intermediaries as mediators between practices, therefore acknowledging them as links between the elements of a practice (meanings, competences and materials).

The intermediation activity of households is diverse, with unique combinations (of formal and informal intermediation) at each stage, depending on whether renovation has been undertaken as a project or a long-term process. Households engage in both types of intermediation, however, there are specific stages in which the dominance of one is obvious over another. For example, the Dreaming stage is almost exclusively controlled by informal intermediaries, as the practice is still in the very early stages of imagination. As the primary focus of the intermediation classification is time of exposure or presence in the household, It would be beneficial for households to engage in both types of intermediation (formal and informal) in order to be able to embed the diverse meanings, materials and competences in the planning and performance of a low carbon renovation practice. Formal intermediation brings short-term and focused technical expertise to the performance of renovation and informal intermediation brings long-term and socio-culturally embedded construction of value and meaning for the ongoing making of home, in its multiple dimensions. The following two sections present a summary of findings in respect to each intermediation type, collected through interviews and through the participatory workshop.

7.1.1 Formal intermediation

Intermediary type	Renovation stage	Role and function	Impact and significance
Architects/ designers (small size local firms)	Thinking, Planning, Performing	Cultural intermediaries Process intermediaries-facilitate the design and planning of renovation Info-mediaries	Domestic imaginaries Process facilitators, including the emotional engagement of householders Connectors of the elements of renovation practice (meanings, materials, competences) Connectors of lifestyle desires to functional and low carbon designs through design expertise Mediators of identity construction
Builders	Planning, Performing	Process intermediaries-facilitate the performance (building) of renovation	Interpreters of regulations and other technical information Process facilitators Niche intermediaries: can support and facilitate customised low carbon practices

Building consultants (such as energy rating professionals, electricians etc)	Planning Performing	Process intermediaries- assist with the domestication of energy systems and other technologies	Niche intermediaries: can encourage and custom-design services for households Enable the domestication of technology and low carbon practices
Estate agents	Thinking, Planning, Finalising	Evaluate the existing or renovated state of the house Estimate and consolidate the financial investment of renovation Confirm the value of work done in current commercial market	Interpreters of the current market and of trends in home ownership and renovation Financial decision-making facilitators
Product suppliers/ manufacturers	Planning, Performing	Info-mediaries- Assist with providing information and advice for products and fittings	Indirect involvement to renovation, often through other forms of intermediation (professionals, social networks or media)

Table 7.1 The empirically identified formal intermediaries of renovation

My findings indicate that formal intermediaries have usually short-term engagement with households, usually consisting of paid, formal interactions during the planning and performance of renovation. Because of this short interaction, they have limited experience of households' everyday practices and their culturally specific ways of life. This is made weaker by the fragmented nature of formal intermediation during renovation, which can consist of many different professionals or small firms, managed by the householders, who don't always communicate between them. There is therefore a limited appreciation not only of the household specific practices, but of the practices and values of other-related- (formal and informal) intermediaries in the process, who could be working side by side or simultaneously through household daily interactions. These (physical and virtual) interactions, could be long-term associations of householders with people and media texts, which are not limited to renovation, but are significant contributors to their daily homemaking practices. This finding confirms Horne's argument (Horne 2018, p. 145), that 'the ways that suburban lives are lived' should be important considerations in the transition to low carbon renovation practices.

Furthermore, time restrictions and professional practice norms and pressures, as in Sharon's and Sophie's cases, often drive formal intermediaries to 'quick-fix' solutions during renovation, often discounting issues such as material re-purposing in order to avoid the 'messy' process of preservation and to achieve a quick delivery of the renovation product. The builders I interviewed suggest that lifestyle and aesthetics sell better than efficiency. On the other hand, the architects suggest that low carbon considerations are naturally integrated in their work, however, the lack of long-term appointments in renovations, usually ending before the construction begins, results in them not getting incorporated in the final work. Even when formal intermediaries have started to engage in low carbon building practices or co-creation with their clients, their professional conduct and interactions with householders confirm Horne's argument (Horne 2018, p. 145) that they remain primarily mainstream and conventional. Therefore, a more continuous or long-term access and presence in households, not just by their physical presence, but through online communities of practice and renovator networks, would assist formal intermediaries' work towards the consideration of low carbon practices. That would allow for a more effective integration of their technical expertise with the mediatised household- specific consumption and homemaking practices.

On the other hand, formal intermediaries possess the technical expertise and deep knowledge of local context, regulations, incentives and building practices in their domain (Horne & Dalton 2014; Owen & Mitchell 2015), and have the capacity to advise and help shape householders' realistic expectations of homemaking and renovation. However, their skills need to be appropriately matched with demand from households, not only in technical amendments but socio-culturally. The way, for example, that renovation is practised in households needs to be sensitive to the stage of life, cultural background and everyday routines, in order to deliver a result that sits comfortably within these. Josh, one of the architects, suggests that he frequently encounters two kinds of renovators: the ones work closely with developers to increase the financial value of their homes, and then sell it, and those who want to live in the house and *'bring more cultural value to their house and create a living environment which aligns with their cultural sensitivities [..] and also make it feel like themselves, so they can identify themselves with the architecture'*. What Josh refers to is the frequent adoption of a universal, 'soft-modern' approach to renovation, which represents 'a popularized

and democratized' version of the 'minimalist […] anti-decorative and functional' aspects of modernism (Rosenberg 2008, p. 509), popular with building contractors that undertake renovations and promoted through media texts. This presents a 'safe' way of delivering a universally accepted home environment; however, it does not reflect the unique, and culturally embedded characteristics of home. It is therefore a weak match between the house, its architecture and the practice of dwelling. Furthermore, my findings show that media texts are implicated in the meaning-making of homemaking norms, through lifestyle guides for self-and-home improvement (Rosenberg 2011a) by promoting a 'universal reference point' (Baban 2013, p. 143) for ideal homes, which might disrupt the cultural-specific homemaking meanings that households carry. Architects can help balance these tensions, by designing in household particular needs along with a commonly accepted form of building.

This mediating role of architects and designers as cultural intermediaries who work directly with householders to re-design their home and living, is gradually been challenged by the ubiquitous presence of media. As Sienna, an interior designer, referring to makeover shows argues, householders are immersed into an emotional media environment which glorifies aesthetics in expense of quality, craftmanship, durability, sustainability and suitability for each project. They then want to appoint professionals who materialise these visions, but as the process goes on they realise that the reality of their home is not matched with the glossy images in media. Media in this context are experienced as mediators between professional and amateur expertise, linking consumers, formal intermediaries and the products and services that householders aspire to through media texts. This creates tensions between professionals and clients, as it is not always easy to negotiate a compromise between a vision, developed through an amateur perception of the process, and a realistic, buildable and financially reasonable result. While this has always been a challenge for design professionals, Sienna and Sam, one of the builders, suggest that media platforms are aggravating it, particularly through makeover shows which are not representative of the real process. Sienna mentions that her practice is reluctant to undertake small renovation works because of these tensions and the time it takes to resolve against a relatively small fee for their services. She suggests that commercial projects are more profitable and rely on professional- and unchallenged- expertise compared to small renovation projects, which are less profitable and require a 'blended'

expertise between designers, amateur experts and media. In any case, professionals seem to underestimate the impact of the emotional connection that householders develop with their homes, and the ways in which this is amplified by the continuous exposure to mediatised everyday networking with others.

Even though the media texts that Sienna and Sam refer to are only one aspect of the large diversity of content that exists relevant to renovation, their concern points to the prominent presence of amateur or lifestyle experts, who construct transformation narratives produced for-commercially-focused- entertainment, rather than as actual building projects. My findings therefore suggest, through these building professionals' concerns about the prominence of media-constructed representations of building and renovation practice, that media (texts) are generating meanings (expectations) of unrealistic or unsustainable building practice, which exaggerates or misrepresents professional practice. They further reinforce the impact of TV, with its complementary online content, as an enduring and 'influential medium' (Craig 2019, p. 111).

Another issue on the challenge of formal intermediation, estate agents in this case, is the tendency to over-emphasize the financial value and performance of home, over its multi-faceted significance for households and communities. This results in the mis-representation of the investment that people put in the making of home, often emotional and invisible to the public eye, particularly during the time of selling or buying. What is perhaps missing is a connection between formal intermediaries that are implicated in the circulation of meanings of home and 'good life', such as architects and estate agents for example, with the direct construction of social norms of the symbolic meaning of home, not only in the private but also in the public realm. This is an example opportunity for collaboration and cultural intermediation which could further enhance meanings and routines of low carbon practices for households, by embedding them in marketing material and value them in line with other investment characteristics.

7.1.2 Informal intermediation

Intermediary type	Renovation stage	Role and function	Impact and significance

Show homes (new builds)	Thinking	Showcasing options and financial plans for property investment	Domestic imaginaries- for ideal homes and lifestyles
Open home events (Sustainable House day etc)	Dreaming, Thinking, Planning, Performing,	Showcasing real homes, with focus on a specific aspect, such as energy efficiency	Domestic imaginaries- for real homes and experiences Connectors of communities of practice or of lifestyle movements
Social networks (friends and family)	All	Advice, ongoing discussion and filtering of ideas, financial, practical, emotional support	Social learning facilitators, Emotional scaffolds during renovation Binders of meanings and competences of renovation
Communities of practice	All	Advice, discussion and filtering of ideas, financial, practical and emotional support	Social learning facilitators Generators of conventions of the renovation practice
Media devices (mobile phones, tablets etc)	All	Enabling communication and technical assistance (mobile and fixed)	Process facilitators, through their technological functions (cameras, recorders, apps) Household connectors/ co-ordinators of everyday practices
Social media platforms	All	Cultural intermediaries	Early niche intermediaries Enablers of network development and connectors of communities of practice Consolidate the collective meanings of the practice in context Mediators between the production and consumption of renovation products Project managers /co-ordinators Social learning facilitators Emotional 'scaffolds' during renovation
Print media	Dreaming, Thinking, Planning, Performing	Cultural intermediaries	Mediators between the production and consumption of renovation products Social leaning facilitators
TV programmes	Dreaming, Thinking , Planning, Performing	Cultural intermediaries	Generators of conventions and social norms Emotional 'scaffolds' during renovation

Material objects/ products/things/ devices	Dreaming, Thinking , Planning, Performing	Facilitators/ orchestrators of practices	Facilitators of the rhythms of practices
			Facilitators of dreaming of ideal home and a good life
			Connectors of meanings and competences
			Domestic atmosphere generators

Table 7.2 The empirically identified informal intermediaries of renovation

The classification of informal intermediaries was made to suggest the exposure and presence they have in households, rather than relate to specific content or process. Informal intermediaries, particularly media, have an ongoing presence in the mediatised households. First, they comprise or enable the generation and sustainment of networks and communities of practice relevant to homemaking and renovation. Friends and family are trusted sources of information, advice and practical help. Local networks of like-minded people exchange visits, tools, stories and emotional support. They share recommendations for building professionals, products, and media content relevant to renovation. Media texts, relevant to renovation practice, are trusted and used more when they have been recommended by friends or family. Similarly, most of the formal intermediaries were hired in households after been recommended through word of mouth.

My findings suggest that householders participate in social media groups and communities, such as Whirlpool forums and Facebook groups, informally and regularly, to research renovation issues. As John and Henry suggest, their engagement is primarily observational, however, their presence in these platforms can be so regular that it saturates their daily routines. Furthermore, platforms such as YouTube have become the first point of reference, especially for DIY renovators such as Anna, Mark and Henry, who rely on the sharing of information and 'how-to' advice from others across the world. In some of these cases this informal intermediation weakens the need for formal intermediation, as householders often find what they (think they) need online. Moreover, with the abundance of reviews for products, services and suppliers online, the competition for formal intermediaries' services becomes more intense. Media (texts and objects) become the materials of the renovation practice, and they help reinforce the meanings and the competences of householders in the process.

Householders spend considerable amount of their day, often undetectably, browsing media content related to renovation, through mobile devices. This is expected when households perform a renovation. However, their immersion in media before they even consider renovation, during Dreaming stage, suggests that their media practices contribute to the construction of meanings of a good home and life, and to the development of unique ways of navigating relevant content. Furthermore, media help reinforce the association of several homemaking practices, such as preparing meals and maintaining home with appropriate renovation practices which could enhance them. For example, Pinterest boards on spaces such as kitchens and bathrooms support the daily dreaming, by sustaining interest and visual reference. However, householders suggest that they don't only 'want to see' how houses could be renovated (Hulse et al. 2015, p. 19), but also to understand how to adopt low carbon practices. Media (texts) facilitate this interest through the association of renovation low carbon practices, such as re-using and re-purposing of materials and resources, which relate to several other homemaking practices. However, as Cheryl suggests, the challenge is that households do not always know what low carbon practices look like, as these are often invisible parts of the presentation of home, particularly on visual social media platforms. Householders claim they collect visual material they think looks sustainable, they need however, the guidance and confirmation of a real person, preferably that of a formal intermediary. These tensions between the usability of online media platforms and the interpretation of the meanings they carry to householders, can become opportunities to bring formal and informal intermediation in closer dialogue through media (texts and objects) and physical interactions.

Media so far, have been seen to act as domestic imaginaries, who continuously support the dreaming and planning of home, as social learning facilitators and as generators of conventions and social norms. Furthermore, online media research is described by householders as a comfortable practice you can perform at home, and one that gives you many more options and diversity compared to other methods, such as visiting showrooms or stores. This is an example of weak mediatisation, through the symbolic meaning-making that media platforms bring to the construction of norms for homemaking and renovation. Furthermore, as Sienna suggests, in a city like Adelaide, where opportunities are limited for experiencing a large variety of products or materials in person, online sites provide an excellent alternative where you can order samples

and choose your options from a variety of suppliers and services. Householders organise and categorise their online content carefully, regardless of whether it is public or not. This finding confirms Miller's argument (Miller 2018, p. 174) that 'online space can be a living space', looked after in similar ways as home interiors. So, while there is a universal point of reference (Baban 2013, p. 143) in the media, namely the 'soft-modernism' style (Rosenberg 2008, p. 509) which carries a market value for homes, the ways in which householders organise their online content creates a diversity unique to each household (Ryan 2014).

Furthermore, my findings indicate that regular engagement with media texts at home reinforces the meanings of consumer culture and helps establish images of ideal homes and lifestyle as achievable prospects, close to home. My participants confirm that media content targeted for ordinary people is not just entertaining but also educating, particularly on taste (Ryan 2014; Podkalicka, Milne & Kennedy 2018) . TV shows are the formats that mostly endorse this, particularly through narratives of makeover or property shows which present aesthetic aspirations along with an 'escalating anticipation of the transformation to come' (Aggeli & Melles 2015, p. 3). While householders understand these are exaggerated scenarios, they feel that these programmes act as emotional scaffolds while they are in the process of renovation as they nearly always end positively. This entertaining value of media in the process of renovation enhances the meanings of the practice, and continuously feeds households' dreaming of their ideal home.

Finally, various material objects, things and technological devices contribute as meaningful materials and competence-enablers of householders in the different stages of the process of renovation. They become the 'orchestration nodes' (Hand & Shove 2007, p. 79) of the renovation practice by maintaining its rhythms (through media devices for example), sustaining communities of practice, (through tool and ideas sharing for example) and co-ordinating the imagined and functional requirements of the renovated home (by object re-arrangement for example). The following section presents an analysis of the renovation stages and their characteristics in more detail as experienced in the households visited.

The following section outlines the empirical stages of renovation. I initially explain about the process of mapping and then present a diagram and synopsis of the characteristics, the media and intermediaries of each stage. I then expand on the unique characteristics of stages as encountered in the households, discussing the implication of intermediation, including that of media in the renovation practice through each stage.

Mapping process

The concept of mapping in this chapter is perceived as (a qualitative) understanding, and as conceptualisation of the experience of households in regard to renovation as a practice associated with their homemaking. By asking householders to map their renovation process, I seek to connect the material space of home with their practice and experience. Mapping took place as an exploratory multi-media and multi-sensory activity. The variety and abstract representation of some cases, as shown in figures 7.1 below, made it challenging to draw conclusions and summarise the findings, while keeping the richness and diversity of every household.

Renovation

1. GEN THOUGHTS – 6 mths

2. INITIALLY PLANS (PHYSICAL)
   – ME. – Drawing floor plans
   – Touch with ideas 3mth.

3. CONSULTATION OF ARCHITECTS.

4. LIAISING WITH BUILDER.

5. FIRM PLANS

6. PRODUCT DECISIONS
   Windows, Kitchen, Tiles, Floor
   etc.

mapping

7. SIGN OFF + FINAL PRICE

8. CONTRACTS. →

* Demo
* Plums
* Footings
* Slabs
* Timber Frame work
* Lock up.
* Finish
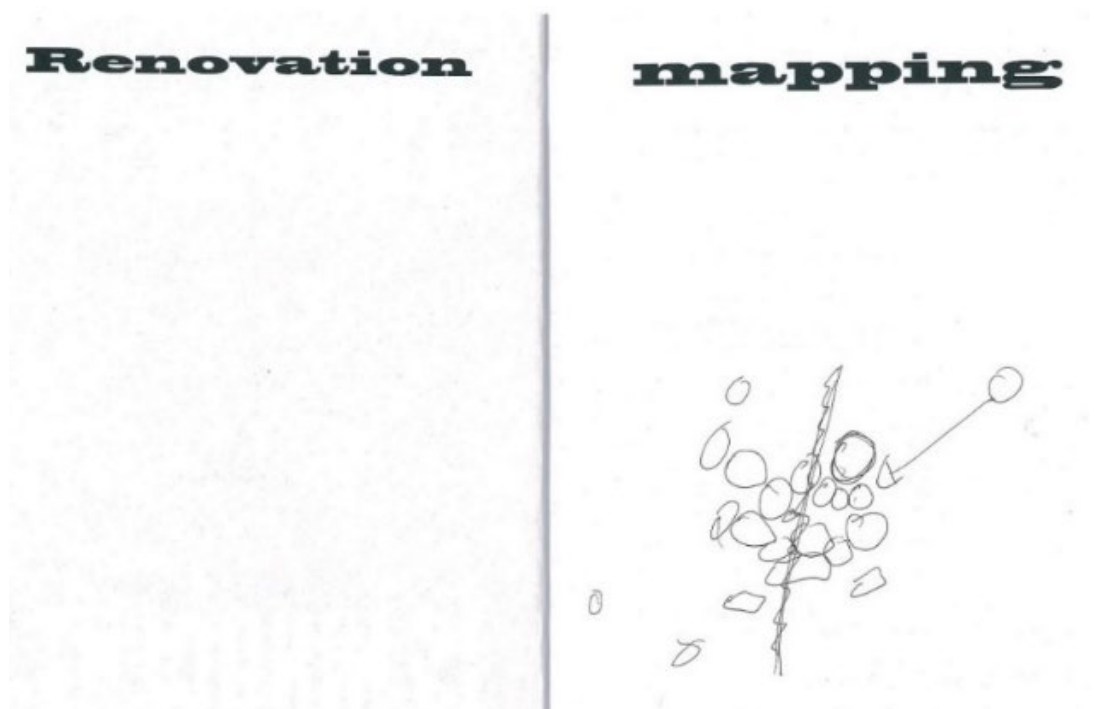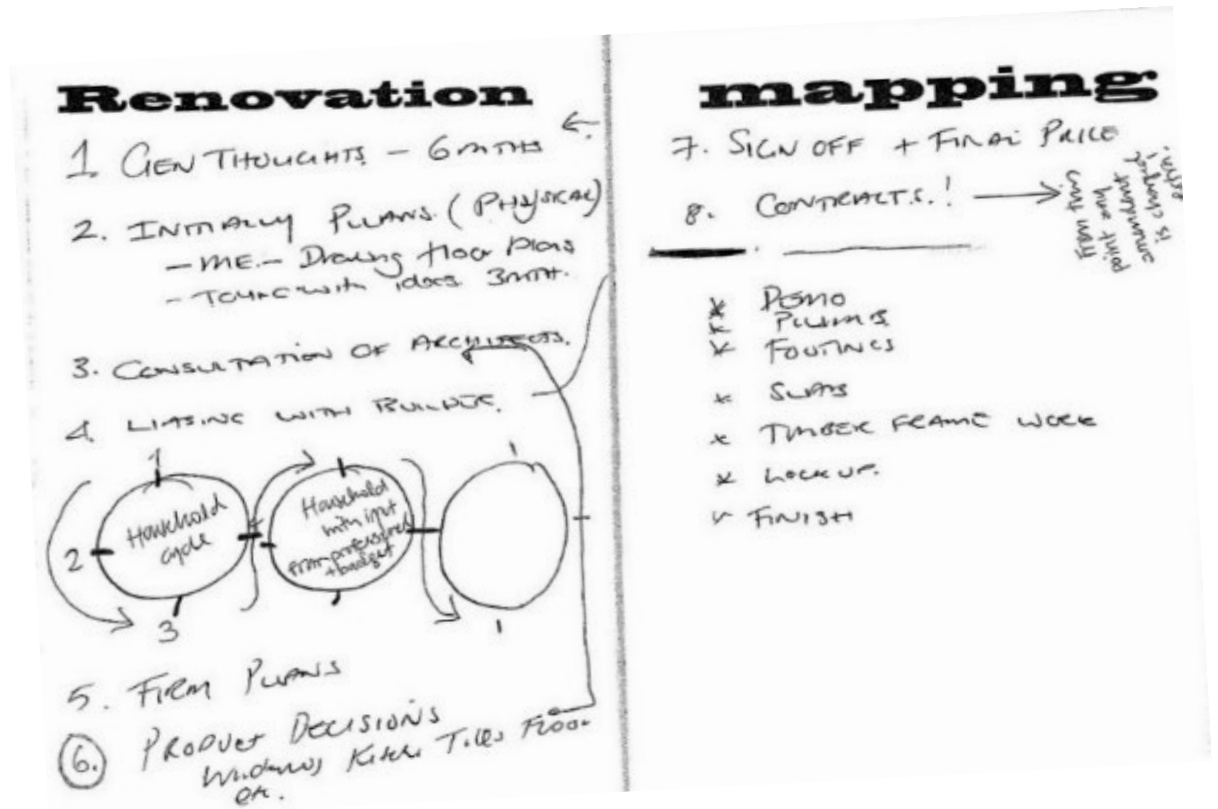
Fig.7.1   Top: Example of a more abstract renovation map. The householders explained the process while drawing; each circle in the sketch represents an element that is added with every step of the process. This represents a case of an ongoing renovation process

Bottom: Example of a more clear-cut stages diagram, which represents a one-off renovation project

Furthermore, participatory mapping has been used as a method to understand and generate a representation of the distinct characteristics of the renovator community, essentially moving from 'data description to map-based representation, through discussion and visual input' (Fang et al. 2016, p. 224). The participatory mapping as a collaborative task between households and intermediaries, during the workshop, enabled the confirmation and consolidation the process. The groups produced two maps, which can be seen in Appendix 4.

The stages

The process of renovation, as empirically mapped, is summarised in the following diagram:
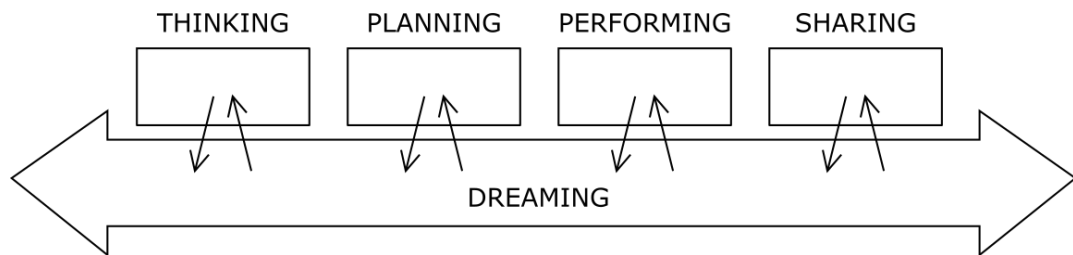
Fig.7.2 Renovation stages outline diagram

The five stages are interdependent and variable in terms of duration. Although stages have distinct patterns and characteristics, households are not moving through them in a linear way. Depending on whether the renovation is undertaken as a one-off project or over time, households tend to jump between stages. Some householders for example described some of the stages as going through different cycles of 'doings', before eventually progressing to the next. This essentially leads to the repetition or re-definition of stages through different cycles of thinking planning and doing, so the stages are then revisited (re-dreaming, re-thinking, re-planning and so on)

One of the common elements in all households is the continuous presence of the dreaming stage, as a backdrop and guide of their journey of transformation. The identification of the stages implies that renovation is an integrative practice which includes several dispersed practices depending on each stage, such as for example dreaming, sketching and managing. The identified dispersed practices are listed in tables 7.1-.7.5 under each stage. While these practices are performed in diverse ways, my findings suggest that there are common characteristics in each household typology, which are linked to distinct competences, meanings and materials of each typology. The significance of the stages also lies in Reckwitz's argument that practices are not only 'bodily performances' but also 'mental activities', which involves the building of collective knowledge and meanings relevant to the practice (Reckwitz 2002b, p. 251).

Another observation is the agency of media as mediators and intermediaries in the process of renovation. As informal mediators between householders and their

practices, they shape the collective meanings of practices, including understandings and considerations of low carbon living. Furthermore, informal intermediation swifts the focus from the professional experts, to that of users and amateurs which are often more relevant and meaningful to households.

In sum, the contribution of the stages to studies of home renovation is through the confirmation that the (renovation) practice should not be considered as a rational, technical and financial one but also one of socio-cultural significance, characterised by diverse emotions and practices and intricately connected to the ongoing re-making of home. The stages unfold this process of re-making and represent home as an evolving organism, removing the focus from the material dimension of the house towards the performance of dwelling.

7.2.1 Dreaming stage
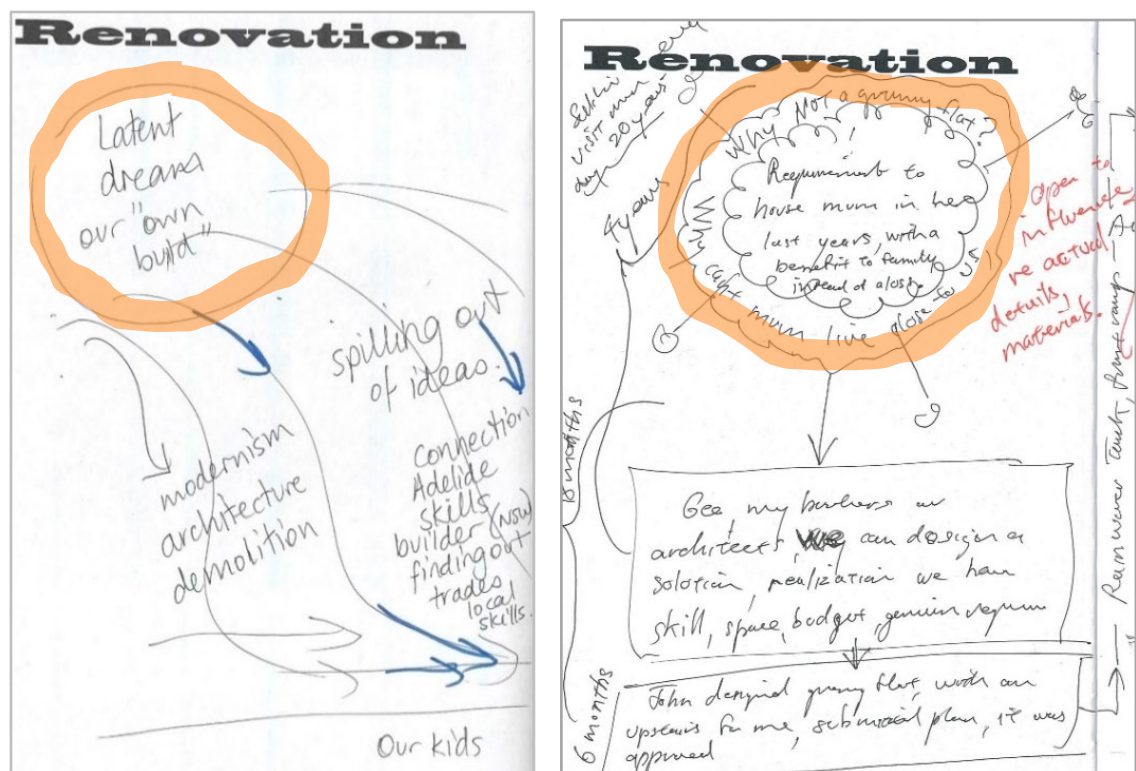
Fig.7.3 Identification of the dreaming stage (highlighted by author) as drawn by householders

Characteristic practices	Media practices & informal intermediation	Formal intermediation
Desire for change Create a vision of future lifestyle Latent dreaming of own build Long-term imagining Identity building Pause Ongoing homemaking	Watching TV programmes for entertainment, and dreaming of ideal home (Grand Designs) Reading Magazines for keeping up with trends & concepts (Renew, Sanctuary, Dwell, Better Homes & Gardens, Home Beautiful, Home Ideas)-mostly online version Using social media for general homemaking advice, composing boards & exchange of ideas (Pinterest, Instagram, Facebook) Doing online searches for general homemaking (Google) Studying Architecture and Design websites and blogs for keeping up with design ideas (The Design Files, Houzz) Visiting Real estate websites for dreaming of ideal home (Domain) Socialising with networks for entertainment and occasional sharing of tips, ideas and advice on homemaking and home maintenance(friends, family, neighbours) Using objects as base elements for design and imagination (photographs, furniture, tools)	Limited indirect interaction of professional views on homemaking and renovation through some media texts

Table 7.3 Dreaming stage overview

Dreaming renovation practices

The Dreaming stage embodies the collective envisioning of households in terms of their ideal life together and enables the construction of the image of their ideal home. Householders dream of what their household should become. The Dreaming is the stage that continuously underpins all other stages, connecting past living experiences with the households' visions of ideal home. Some householders suggest that they have been dreaming of their ideal home for more than twenty years. The Dreaming is the meaning-making stage of households. It represents the time in which householders consolidate their desires, understandings and emotions about their common paths in life, discussing the progression through their different stages of life and co-constructing a common foundation in respect to household practices and routines. This shared vision of home and their life together becomes the glue between the practices of

homemaking and renovation. Furthermore, it is the period during which the individual identity is merged into a collective identity. Households might go through this process of identity adjustment a few times during their lives together, adapting every time there is a specific event in their life-stage, such as the birth of a child. Moreover, the household identity is built upon the locality of the home as well as the habitus that the householders belong or aspire to belong to.

Findings about the Dreaming stage of renovation confirm Shove et al's argument (Shove et al. 2007a, p. 35) that householders dream about the performance of specific practices in their home, rather than individual elements such as 'consumer goods they might one day own'. Householders dream, for example, of the specific experiences that they will have in their home, such as socialising with others, dining together or the ideal activities their children will have in that space, rather than the goods they will consume. Stability and progression of ownership, through different types of homes are prominent components of households' dreaming. The detached home on a large plot remains the primary typology that households dream about across all stages of life, portrayed as the type of home that enables the most desirable and comfortable living practices. Because of this, the adoption of a lower carbon living profile is restricted, as 'living big' predetermines high consumption of space, goods and energy.

Furthermore, renovation provides the medium through which householders can bridge their visions of ideal home with the reality of their current-or soon to purchase-home. Lifestyle scenarios are been generated during the Dreaming stage, which determine the household's perception of what constitutes 'normal' everyday practices, a 'good' life and home. While these scenarios are based on household aspirations, they are deeply embedded in their relevant social context or habitus, which shapes households' taste and lifestyles. Householders discuss low carbon living and household sustainability as an imagined, but undefined future. They lack the visual interpretation of it; they need to see what low carbon housing looks and feels like in order to embed it in their household's everyday narrative and lifestyle:

> *'We wanna live creatively and peacefully and with nature and we*
> *wanna have community and we wanna be green. And we had that*

and so we went, let's just jump in and make that…we didn't have a
clue how' Melissa

Even though the householders' conceptual understandings of home and homemaking might not at this point link to material transformations, they highlight the argument that competences can exist as partly dormant elements, before a trigger activates them (Shove 2014; Spurling, Nicola; Blue 2014). Moreover, the 'dreamscape' of households is not just driven by lifestyle but also *'shaped by practice- levels of competence, skill and experience, and collaboration'* (Smith 2014, p. 374). My findings showcase and confirm this observation, as I explain in detail below.

Finally, the importance of the Dreaming stage is that it binds the rest of the stages together, through the ongoing imagining, which conceptualises renovation into a continuous integrative practice, linked to dispersed practices such as homemaking and to visions of the future. This is an important finding which reinforces the argument that renovation can be an ongoing activity, through its various representations, rather than the one-off project of building material transformation. The Dreaming stage triggers the emergence of the practice and its revival after completion through the imagining of 'home as an ongoing process' (Dowling & Mee 2007, p. 161).

Dreaming with media

Living with media encompasses dreaming with media. That happens in different ways: through the daily mediatised practices of households, through the continuous use of mobile media devices, which allow engagement with texts in and out of home, and through the rich renovation-oriented texts that householders use in order to make sense of their everyday practices. Since the Dreaming stage is often not an active stage of renovation (performance), but an ongoing imagining of improving households' home and lifestyle, its media use involves a mixed repertoire of casual homemaking texts involving renovation, homebuilding and other everyday lifestyle content.

An important finding is that the Dreaming stage involves various examples of strong and weak mediatisation processes, presenting ways in which physical interactions have been replaced, partly or fully, by digital ones. For example, the casual neighbourhood chat, around home renovation is being gradually taken over by mediatised versions, such as online forums and social media groups. Householders,

for a variety of reasons, such as lack of time and increased commitments, are turning to media texts in order to interact and discuss their homemaking. Furthermore, media platforms enable a multi-dimensional dreaming, by complimenting practices such as keeping scrapbooks about renovation, by their online equivalents, such as Pinterest and Instagram boards.

Householders browse content relevant to everyday living practices and ideal homes without a specific focus on the material transformation of home. The Dreaming stage presents itself as the background for setting the households' neoliberal 'empowerment' to construct a self-sufficient identity and status. The interactive everyday relationship between householders and media enable them to be part of the dominant discourses around environmental and social concerns, while supporting and expanding their consumption desires. As I have discussed previously, householders' 'expectations and interpretations of need' develop concurrently with the materials and technologies that they obtain (Hand, Shove & Southerton 2007, p. 677). The future practices that householders dream of, take place in specific spaces of their homes and consist of materials and technologies which householders seek to possess in order to perform them. Lifestyle media texts assist the process of imagination by linking the dreamed spaces with the material objects and technologies.

Visual media texts, such as magazines, and 'narrative-driven' media (Hulse et al. 2015, p. 11) dominate the Dreaming stage. Householders want to visualise for example, what a sustainable home looks like and they often turn to media in order to understand how. Lifestyle media offer the storytelling that households get excited about as a way to enrich their homemaking practices with that of a future potential, balancing entertainment with real-life, and trustworthy experience on homes. The Dreaming stage is the time that householders engage with a variety of visions, inspired by TV shows such as Grand Designs, ranging from eccentric to pragmatic and developing the language in which they can communicate their newly discovered ideas and identities.

Dreaming intermediation
The Dreaming stage is characterised by an inward-looking activity of the household, which relates initially to the identification of individual aspirations and desires and the process of transforming these into collective household ideas. The longer a household

is established the more diverse the Dreaming stage is, as it follows the householders throughout the different stages of their lives, regardless of whether they have bought and renovated a home (or more).

As this stage does not involve an active building element, it does not contain any formal intermediaries, such as professionals which engage directly with the material configuration of the house. However, throughout the Dreaming stage, interactions with formal intermediaries might take place indirectly and infrequently, either through media texts that people use or through word of mouth. On the other hand, it is the stage when householders are immersed into highly visual, digital media platforms, as well as into a variety of websites and TV programmes relevant to homemaking and property development. Therefore, informal intermediaries are dominant, particularly media platforms with a frequent presence of amateur experts. The lack of direct communication with professional experts and the simultaneous exposure to online content tends to generate assumptions about the process and its specific practices, as householders cannot always make accurate assessments of their options. Furthermore, it casts a focus on the lifestyle practices that prevail on popular media, which are often difficult to interpret, particularly when it comes to low carbon building amendments, such as energy efficiency changes, which tend to be invisible to the amateur eye. This misinterpretation or insufficiency of low carbon content through popular media, in combination with the householders' long-term exposure to them, limits the dreamscape of households to aspirations related primarily to aesthetics and lifestyle.

Material objects are important intermediaries during Dreaming, particularly things such as furniture, artefacts, tools, souvenirs and photographs. Their symbolic significance makes them central to the orchestration of dreaming, often becoming the starting point for imagining change. Furthermore, media devices are critical components of Dreaming as they provide the flexibility of everyday imagining at home and on the move, through mobile phones and tablets.

Characteristic practices	Media practices and informal intermediation	Formal intermediation
Seek advice **Develop concepts / ideas** **Draw / sketch** **Consider demolition** **Buy a house** **Visit other people's homes / Show homes** **Think about budget** **Realise resources**	Reading magazines for ideas and possible options for renovation Watching TV programmes for entertainment and renovation inspiration (Grand Designs, The Block, Fixer Upper, Better Home and Gardens) Doing online searches for products, kitchens and bathrooms (Google) Visiting Design websites for space layout ideas Using social media for general space layout ideas (indoor & outdoor) for renovation (Facebook groups, Pinterest, Instagram) Making ideas scrapbooks to test renovation concepts (physical and online, made by householders) Visiting show homes / open home events to experience possible space changes and atmospheres	Talking to Design professionals for understanding the process (architects and interior designers) Visiting product retailers / manufacturers for general information and options (kitchens, bathrooms) Talking to builders / building trade professionals for general availability Consulting estate agents for market value of home

Table 7.4 Thinking stage overview

Thinking renovation practices

During the Thinking stage householders realise the possibilities or potential of their homes and try to match their imagined, dreamed conceptions of their lives within the material backdrop of the house. Householders think of-not only- what their households should become but how. However, it is also the stage during which they start to understand the limitations of their homes.

Therefore, because of challenges that might occur, the thinking stage often contains a period of tenure adjustment and change. Households consider buying or selling their house. The purchase of home is an important moment that embodies the long period of

dreaming with the materiality of their ideal home. Buying a house, as a major investment for the household, often triggers the need for renovation, which then turns the house into a home. On the other hand, households examine the size of their homes, and usually decide to enlarge them. Size matters, particularly for certain household typologies such as the households with children, as it embodies the physical indication of change after a renovation.

Wish lists are common manifestations of the thinking process; households begin to turn their visions into specific material spaces and objects. The wish lists, however, showcase evidence of the practices involved into the transformations imagined, rather than only reference to material things.
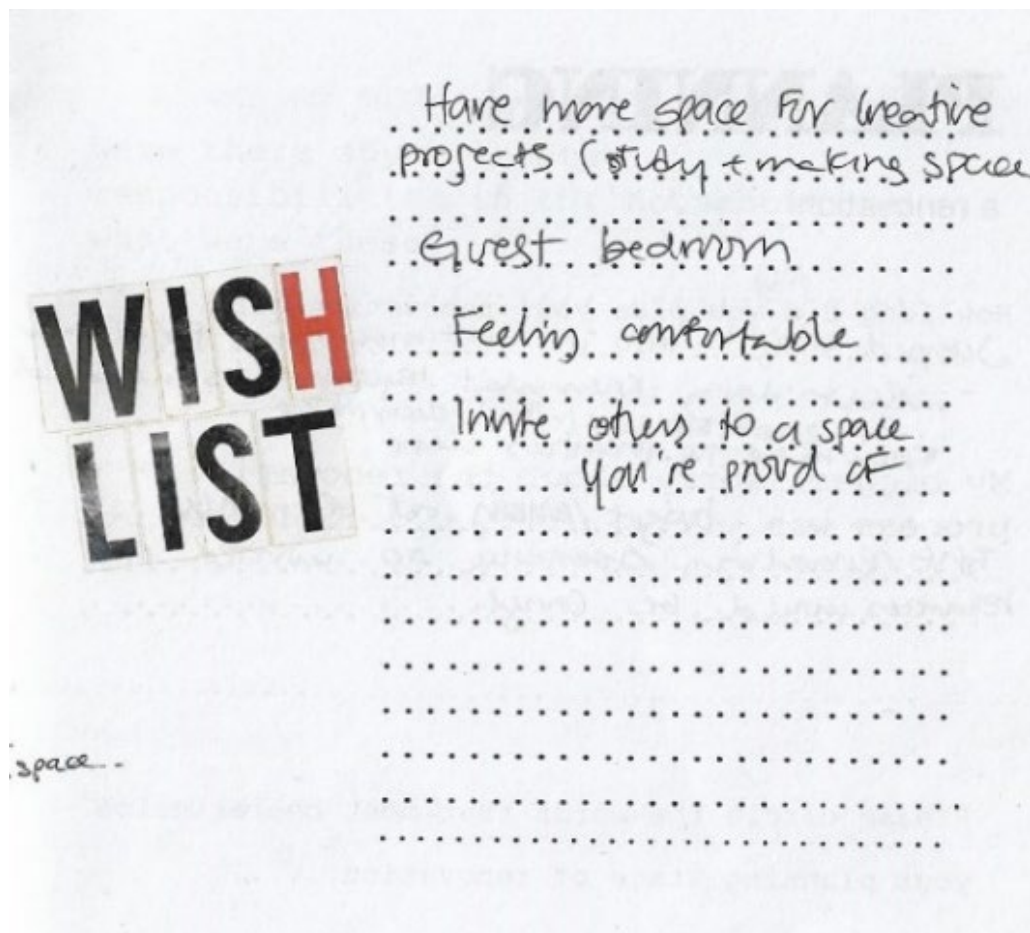
Fig.7.4 Example of Wish list and Thinking stage practices from participant's Storybook

The Thinking stage overall seems to take up a considerable amount of interest and concern for householders, as they indicate with their diagrams during the home visits:
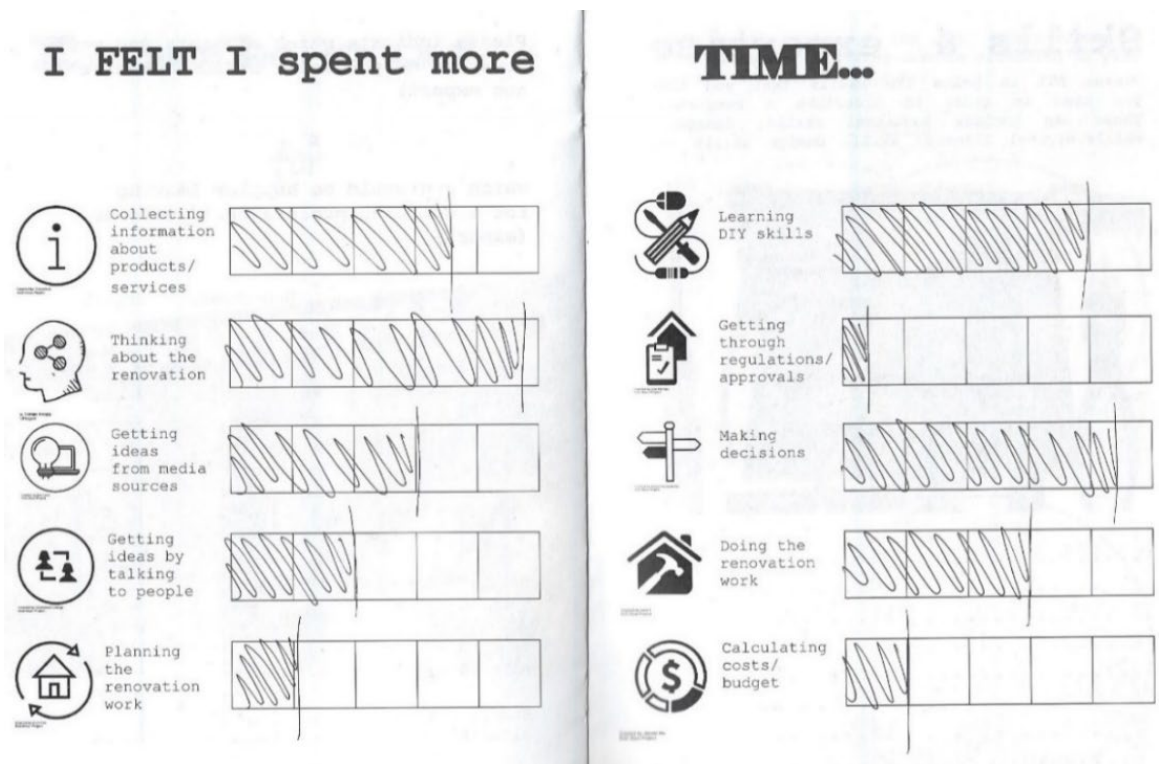
Fig.7.5 Participant's perception of time spent for the different activities of renovation

Thinking with media

Media practices in this stage suggest a specific focus on the materiality of the home, in relevance to the more general exploration that happens in the Dreaming stage. Householders browse media texts and use them to complement physical drafts, lists and ideas books they produce. Internet use is prominent, particularly searches about specific areas of the house, such as kitchens and bathrooms. Because of the familiarity of everyday use, media feels 'right' as the trusted medium for reference and advice when householders start considering their options. Media, in their triple articulation, are used as materials to generate meaning but also as intermediaries which improve householders' competence on renovation-related issues.

Formal intermediaries have a strong presence in Thinking stage; however, they are complemented by the ongoing engagement of householders with their social networks, in person and online.

During this stage, householders activate and intensify the connections with their social networks. They seek information about the property, particularly if they encounter a problem. Householders often require details about the house's state of repair, often comparing it to other, similar properties close by. Estate agents are important formal intermediaries at this stage, and often the first point of contact before deciding on any renovation works. As Serena points out though, existing, older houses are challenging to be interpreted, particularly when it comes to their long history of changes and repairs and estate agents play a role in defining (or not, as in the example below) these complexities:

> *'In my opinion they should create an id for the houses […]. I asked*
> *the estate agent: Is there insulation in the walls? He had no idea!*
> *They should have an id, so you buy a house and you know the age,*
> *the bills, if it there has been a renovation, at least when, what sort of*
> *renovation, because at the end of this, it's the most expensive thing*
> *you will buy in your life and there is more information about buying a*
> *[…] pair of glasses than buying a house!*

During the Thinking stage householders approach friends and family and get recommendations for trusted professionals. They then research information about them and start to think about the kinds of conduct they might adopt during renovation. Choosing and trusting professionals is fundamental for householders in this stage, particularly in one-off renovation cases where one contractor manages the whole process.

Finally, a distinct intermediation in this stage is the agency of Show Homes, which are displays of new build houses, and Open Home events, which are real homes open to the public, supported by events such as the Sustainable House Day by Renew. The latter, organised as a community-centred event, enables direct intermediation between the owners and users of renovated homes and the exchange of not only information

but exchange of informal and social experiences that relate to the process and product of renovation.

7.2.3 Planning stage
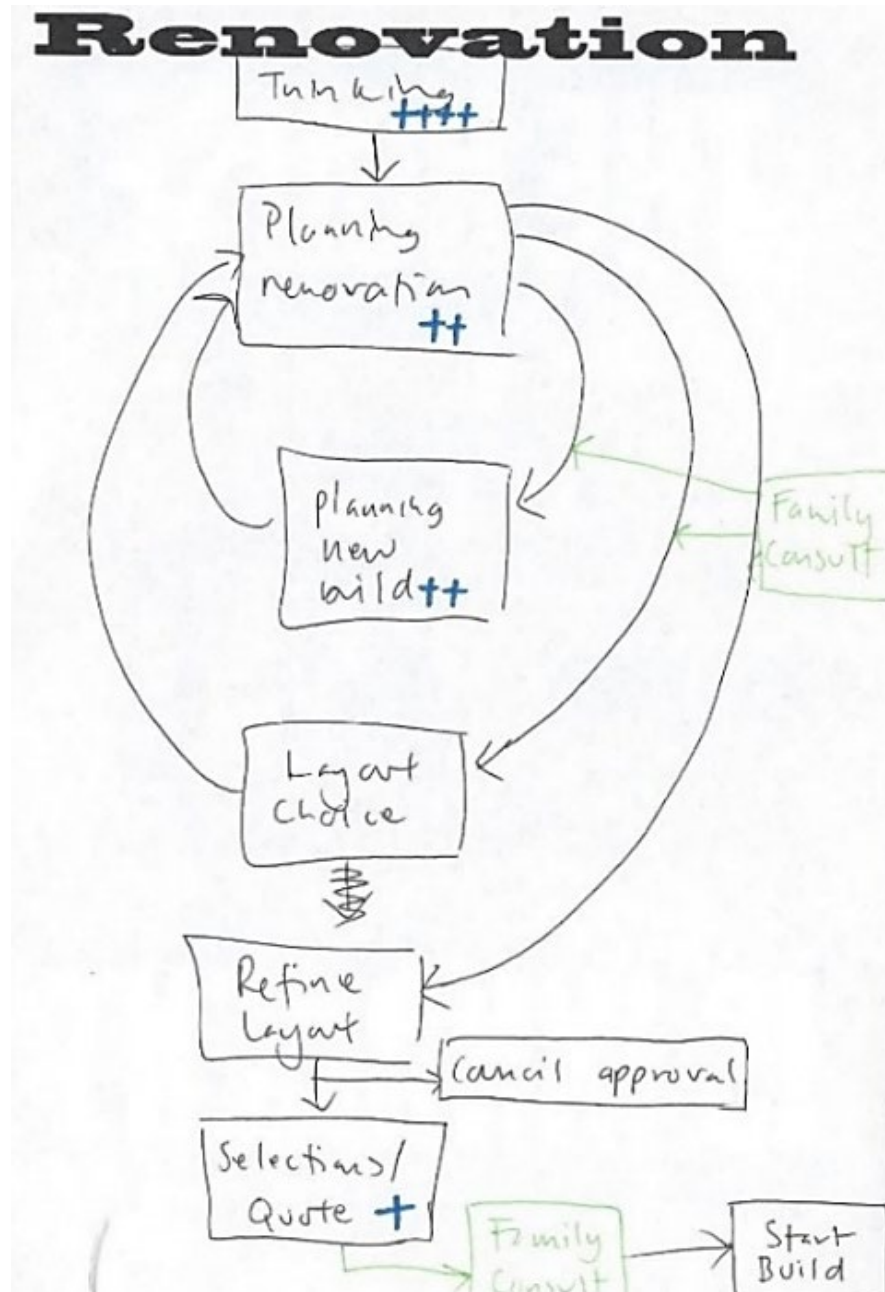
Fig.7.6 Participant's diagram of the stages showing Planning stage in relation to the whole process

Characteristic practices	Media practices & informal intermediation	Formal intermediation
Sign a contract (for renovation works) Calculate budget Consider functionality Consider efficiency Connect with trade Design / get design ideas Seek building trade recommendations	Doing online searches for space specific ideas (kitchens, bathrooms) (Google) Watching TV programmes for entertainment and inspiration (Grand Designs, The Block) Visiting online marketplace for selling excess objects and checking possible products for using on renovation (eBay / Gumtree) Drawing / visualising possible space layouts in computer programmes (SketchUp, CAD, Illustrator) Visiting Your Home website for targeted advice on renovation and energy upgrades Visiting Design websites for space-related ideas and fittings (Dezeen, ArchDaily, Design Files) Social media (Facebook, YouTube) Using mobile phone apps for accessing product information on the go (Dulux app, Cabot's app, Houzz) Consulting social networks about building professionals, space ideas and fittings (friends, family)	Appointing Design professionals for preliminary design and planning or building regulations drawings (architects and interior designers) Appointing builders/ building trade professionals Consulting energy advisors Consulting estate agents for value creation of their specific renovation changes Consulting local authorities for incentives Talking to utility companies for energy incentives (if energy upgrades considered)

Table 7.5 Planning stage overview

Planning renovation practices

Planning is the stage marked by a set-off event, such as the signing of a contract with a professional or the making of the final decision for the renovation actualisation. Householders set their priorities, which initially revolve around aesthetic and lifestyle aspirations and how these will be expressed in space. Amendments to kitchens and bathrooms rate high amongst priorities, particularly in households with children, as shown in Fig.7.7. This stage can have a variable length, ranging between a nearly non-existent timeframe in households with no children and up to three years in households

with children. I explain about the length of each stage in regard to different household typologies in chapter 8.

Priorities

Please select the renovation work areas that you consider a priority using a number: (1=high priority to 12=low priority). You can use the same number for more than one area, ie Kitchen AND Windows= 1.

heating/cooling	1
floors	5
dining room	
kitchen	1
bedroom(s)	3
roof	1
outdoors/garden	4
bathroom(s)	2
windows	1
solar panels/other energy efficiency devices	6
plumbing	7
living room	2

All icons made by Freepik from www.flaticon.com

Fig. 7.7 Examples of priorities for change as conceptualised during Planning stage

Before setting off however, householders appreciate the advice from estate agents, who are asked to evaluate the property before and after the renovation works, as a guidance to their investment. Planning is about decision making. Householders start talking and employing professionals (design and building) and begin to research existing regulations and incentives through their local authorities. Occasionally, households energy rate their homes, in order to appreciate how to improve it. Since householders are heavily focused on budgeting during Planning, low carbon changes are considered only if they perform this double of role of comfort-efficiency or cost effectiveness-efficiency. However, they might appear later in the renovation process.

Design is an important part of the Planning stage. Householders appreciate the value of design in the configuration of their home; however, their interest does not directly

translate in the hiring of design professionals. This varies according to household typology. Empty-nesters and intergenerational households have the highest percentage of both interest in design and employment of design professionals, as I discuss in chapter 8. This is perhaps due to the complexity of these typologies, which require more sophisticated approaches to change, and involve extensive works in terms of size and embedment in the local context.

Finally, Planning relates to the developing and strengthening of householders' skills and competences relevant to renovation. As this is a preparatory phase before starting the building work, householders want to finalise their skills-building though physical and digital resources and associations, as discussed in the media section below.

Planning with media

Media practices during Planning involve active research on renovation intentions, getting other people's opinions and experiences online, and engaging with the pragmatic and logistic matters of their renovation. Furthermore, householders use media texts and devices to educate themselves about practical issues, such as learning new skills, such as sketching and making spreadsheets, and understanding the process further. Such activities include for example learning to draw on computer programs or studying building regulations online. This is more intense and time consuming for householders that undertake DIY work, either exclusively or in combination with professional work.

Social media platforms such as YouTube are frequent companions of householders' everyday research. Householders organise their planning in different ways. A popular method is the keeping of scrapbooks and folders or sketchbooks to document everything that they find, as a way to visualise the options and keep a record of the process. These folders are both physical as well as digital, such as boards created in Pinterest or Instagram. Householders who document their renovation in these ways, feel that they also create a record of the value creation for their home, which they can then share in the future, especially if they plan to re-sell the house.
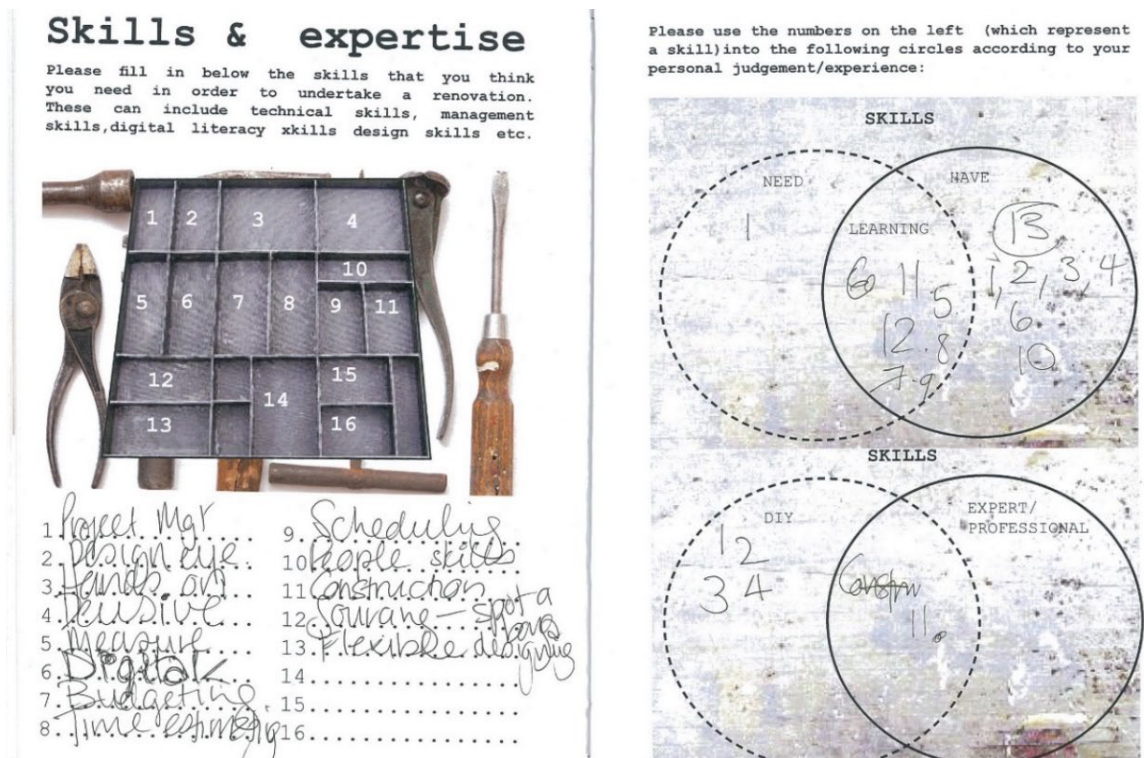
Skills & expertise

Please fill in below the skills that you think you need in order to undertake a renovation. These can include technical skills, management skills, digital literacy xkills design skills etc.

1. Project Mgr
2. Design eye
3. Hands on
4. Decisive
5. Measure
6. Digital
7. Budgeting
8. Time estimating

9. Scheduling
10. People skills
11. Construction
12. Sourcing - spot a bargain
13. Flexible designing
14.
15.
16.

Please use the numbers on the left (which represent a skill) into the following circles according to your personal judgement/experience:

Fig.7.8 Example of participant's skills list during Planning stage. These include project management, budgeting, scheduling as well as designing and 'people' skills. Other popular skills identified were negotiation and listening to others, DIY building skills and digital literacy
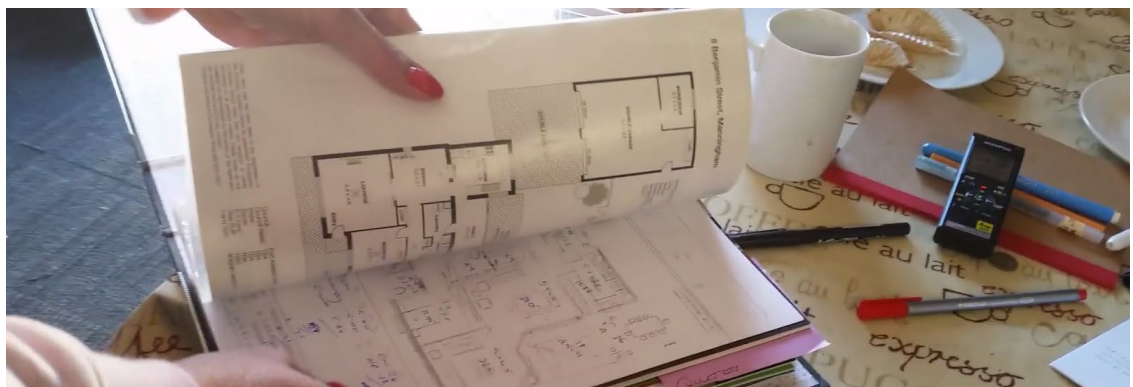
Fig.7.9 Sharon's ideas and products folder, which she kept informed throughout the process

Fig.7.10 Henry's sketchbook with measurement notes and diagrams. He suggests that he engaged in anthropometrics, measuring the space required to perform certain practices in specific spaces in his house and in other renovated homes, in order to come to the most efficient planning.

Planning intermediation

Formal intermediaries are prominent in the Planning stage. They comprise of small architecture or design firms, small building construction firms and many independent building trade individuals who operate on their own or as sub-contractors with builder firms. Having consulted their social networks for recommendations, householders meet in person and proceed to hire professionals. Talking face-to-face with professionals comes high on the household's tasks and assists their decision making in regard to the size of renovation works, and the specific upgrades and foci of renovation. This 'pairing' and matchmaking exercise is important, as householders suggest that they entrust their most valuable possession, their home, to professionals who they need to have similar values and professional conduct which reflect this.

Furthermore, having started to educate themselves through media texts and devices, householders feel more confident to discuss issues with formal intermediaries, as they have already started to develop the language through which they can communicate their needs and possible changes. This confirms Maller et al's (2012, p. 263) suggestion that knowledge of terminology is crucial for the navigation through the 'complex system of provision'. However, there is still a 'gap' in both the language and terminology used by experts, householders and media texts. This misinterpretation or different terminology generates confusion and uncertainty and even result in householders' hesitance to employ professionals because of this.

Incentives from local authorities or energy suppliers also influence Planning, especially if they involve short-term payback times. However, households are more likely to consider changes to their energy systems if they have experienced and discussed it with their social networks. Efficiency technologies therefore have to be accompanied by proof of their living experience from someone householders trust in order to be considered for installation.

Finally, householders during Planning face the challenge of co-ordination between the resources, decisions and intermediaries. Most households want to maintain control over the process, even when professional contractors are employed to do so. This increases the complexity of the process and often slows it down, as decisions have to be taken twice or more, especially when more than one householder is involved in the decision making.

7.2.4 Performing stage

Characteristic practices	Media practices & informal intermediation	Formal intermediation
Prepare house **(Part) demolish** **Move out** **DIY work** **Adjust to conditions/ Switch to new routines** **Re-design** **Imagine** **Learn new skills (building, management, listening, negotiating)**	Doing online searches for products (Google) Searching social media for 'how to' advice (Facebook, YouTube) Participating in online forums for finding product and energy systems information (Whirlpool) Visiting online marketplace for selling unwanted fittings and furniture (eBay, Gumtree) Watching TV programmes for entertainment and emotional support (Grand Designs, The Block, Fixer Upper, Masters of Flip) Visiting associated websites of TV programmes for product information (The Block, Grand Designs) Using mobile phone apps for tracking renovation progress & checking product availability (Building contractor app, Dulux app, Cabot's app, Houzz app) Consulting social networks about products, building practices and services (friends, family, neighbours)	Continue to appoint builders & building contractors Appoint other building trade professionals (joiners, roofers, blacksmiths) Continue or end appointment with architects and Interior Designers Consult product suppliers/ retailers about fittings and products

Table 7.6 Performing stage overview

Performing renovation practices

The Performing stage is the active phase of materially re-configuring the house. Households are actively and visibly transformed through this stage, often going through several layers of change. This includes steps such as temporarily moving out or getting confined in one area of the house, have their homes partly demolished and generally undergoing a prolonged period of disruption in their normal daily routines. Renovation is not always a linear and straight-forward process, and often performed at irregular times, in-between other everyday practices (such as work, family life, maintaining home). The performance of renovation often challenges the householders' expectations and visions of ideal home, by the sometimes-prolonged exposure to the element of hassle and the disturbance of normal everyday routines. Renovation also brings compromise to households' social life and work performance, particularly to those who work from home, either full-time or occasionally. Since space and time are limited, householders have to adapt to the new conditions, as in Sharon's case where the family had to convert their garage into a living space, creating inventive solutions for multi-tasking different practices in the same space.

The Performing stage, particularly for those that stay in their homes, enables the gradual normalisation of the newly created spaces, in line with the household's usual routines. In most cases there needs to be an adjustment between practices, the spaces they are performed in and the materials involved, along with the householders' competences to do so. Findings suggest that those who live through these changes or visit the home daily through the work synchronise easier and faster.

DIY work is a major component of Performing. Even when householders don't employ DIY as their main means of renovation, they suggest that trying it out gives them an idea of how things are made, and the time required for this. In some households it is a way to control the cost of professional work. Householders often request the help and advice of proficient people in their own network. DIY is more frequent in households without children and intergeneration households, mainly because of the advance of time and experience available. In households that perceive home as an ongoing creative process, DIY is experienced as a pleasurable engagement of transformation. DIY, or part-DIY, enables experimentation and adoption of low carbon practices, such as the re-purposing of materials.

Media are important 'scaffolds' to householders in regard to their technical and managerial competences. Social media sites, such as YouTube, are used frequently to learn or advance a skill relevant to renovation. Media (in their triple articulation) are major intermediaries in the Performing stage, not just as competence builders but as fortifiers of the consumption practices relating to the imagined lifestyle that households have conceptualised in the Dreaming and Thinking stages.

Householders suggest that TV shows such as The Block and Grand Designs through the Performing stage, enable them to relate to the process and its emotional fluctuations. However, most households claim that TV shows are not used for practical advice but mostly for design and stylistic inspiration and emotional support. They are interested in the narrative of the programmes, as a way to experience a resolution to the process, and as an encouragement that their renovation will also proceed successfully despite the challenges.

Moreover, online forums and social media sites act as valuable companions for understanding and contextualising information and assist in the confirmation of householders' decisions. Anna, for example, suggests that her renovation would not be happening if it wasn't for platforms such as Facebook, which enable her to feel connected with other renovators and confirm or inform her daily practices. However, in some cases, as John and Henry suggest, there seems to be a one-way, rather than interactive relationship with online platforms, particularly forums, on which householders prefer to watch, and read in order to learn and form their opinions, without actively giving something back to an online community. When enquired about the lack of interactivity, householders suggest that it is probably either issues of time, privacy or amateur expertise that get in the way of sharing their circumstances online. Despite, for example, the long exposure to renovation practices, throughout the process, householders feel conscious about relaying their own expertise, eponymously, online. This matter of one-way amateur expertise in online media texts needs further investigation, as it was not enquired further in this study.

Finally, media objects such as mobile phones and their applications are important tools in the process of Performing. Householders use them on the move, while at work and

at home, as quick reference guides to products and services and in some cases as way to follow the process of the renovation work through contract apps that give daily updates. This latter one permits a feeling of control and agency over both process and result. Media devices are therefore experienced as materials of the practice, and as connectors of the elements of meanings, materials and competences of householders.

Performing intermediation

The Performing stage is rich in both types of intermediation, formal and informal. There is an interactive relationship between them; while professionals perform the work, media, social networks and material objects continuously confirm or add layers of activity in the practice. The traditional process of professional building work is intersected with householders' inquiry and inspection of how and why things are done in certain ways. In some cases, co-creation, as a collaboration between householders and building professionals results in simultaneous performance of DIY and professional work, with professionals suggesting that they 'educate' their clients to work alongside them. However, the practice is also a synergy between the householders, the professionals and material objects involved.

Tools, materials and products are important informal intermediaries throughout the Performing. Householders suggest that the experimentation with found or excess materials on site, and the opportunity to engage with the materiality of the renovation directly is risky but rewarding. The materials enable and expand the performance of the renovation practice, while they assist in the advancement of householders' competences about renovation and homemaking. Objects such as furniture, are often the 'orchestrating nodes' (Hand & Shove 2007, p. 79) of renovations, as they steer the direction or design of space.
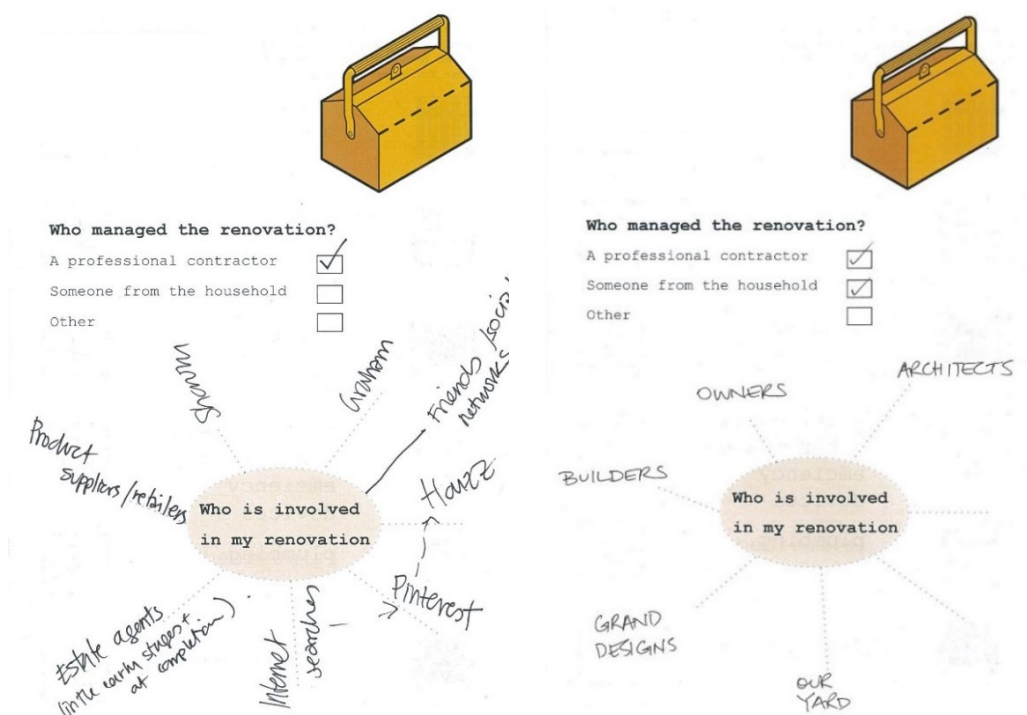
 Fig.7.11 Participants' descriptions of their renovation intermediaries. There is an equal distribution of formal and informal intermediaries including a high involvement of media.

7.2.5 Finalising/sharing stage

Characteristic practices	Media practices & (informal intermediation	Formal intermediation
Doing DIY work (finish small jobs) Move in Enjoy/share with family and friends Reflect on process 'Forget it all' 'Compose your consciousness and intention' Calculate house value Learn from experience Re-imagine (Make profit/ Sell the house)	Using social media for sharing renovation photos and advice (Facebook, Pinterest, Instagram, Blogs) Use email to share renovation results Visit online marketplace to sell any left-over materials (eBay/Gumtree) Invite social networks at home or share the results of renovation through conversations and media interactions (friends/ family/ neighbours)	Communicate feedback and results with architects/ designers Consult estate agents for the change of market value after renovation

Table 7.7 Finalising/sharing stage overview

The Finalising stage marks either the end of the renovation project or a cycle of the renovation works when these are undertaken over time. It also includes the period of final adjustments or finishing tasks, which often include the interior furnishings and outdoor spaces.

Householders express emotions of contentment and relief at this stage, as having been through the disruption and inconvenience of the performance of renovation, they start to see the improvements of comfort and functionality of the house. The change or improvement of aesthetics, through the design of their renovated home, becomes a focal point of pride for householders.

Finalising a renovation means sharing the results with others. Householders do this in diverse ways. Those that have undertaken renovation as a project, have a clearly defined end point, at which they know that everything is finished. These households, who often move out for a period, come to terms with the daily amendments of their routines, to adapt to the renovated house. In this stage the renovated home becomes their imagined home. Furthermore, households that have installed new solar systems or battery storage for their existing solar, such as Melissa's and John's, begin to adjust their daily routines in order to respond to fluctuations in the grid. In this example, the renovated home shapes the practices of the householders.

Fig.7.12 Serena's and Jody's photobook of the renovation process. They kept a detailed record of photographs and drawings from the moment they signed the contract to the end of the project. Serena suggests that neighbours and passers-by commented positively on the final result of their renovation: '*Everybody, people parking here and they just come one-off and look at it and say Oh I like the colour[..] it's nice to get the confirmation*'

243

Some householders suggest that the Finalising/Sharing stage enabled them to bring their house up to the standard of their street and gives them the feeling of belonging and achievement. Renovation practice is experienced in this instance as a fulfilment of identity and social status and as a process in which peer pressure from the community sustains the practice. There is an opportunity to use this pressure for targeting low carbon amendments to households, by embedding them in the already regular renovation activities of neighbourhoods. Furthermore, this stage consolidates householders' feelings of 'being at home' within the specific context of their neighbourhoods and therefore brings in focus the importance of the household unit as a social connector between the micro and macro levels. Renovation is experienced not only as a practice in the micro level of the home but extends to the community urban level. Findings indicate that renovations are much more likely to happen in streets where renovation has taken place previously and where the community supports and encourages development that brings the area's value up. Peer pressures also point that practices need to be similar in character in order to fit in with the geographical and socio-cultural background.

Sharing with media

Households' media practices are important at this stage, as householders are keen to share their results with their networks. Sharing the results through social media platforms, such as Facebook, is common and desirable, however it usually happens in closed groups rather than fully in public. For those that have been sharing the process on media platforms, this stage becomes the conclusion of their story, which is published and supported by highly visual material. Shared material includes before and after photographs and written comments about the emotions and practical changes of each space. However, information regarding costs or incentives received are not as widely shared. Exception of this are the households that took place in the Sustainable House day, a national event throughout Australia which enables people to visit renovated or newbuilt homes that have been sustainably made, such as John's and Melissa's. These two households that participated in this event suggested that the experience was educating and exciting, as they were able to re-tell their stories to others, while giving valuable insights about the challenges of the process. During this event householders often discuss incentives, costs of installation and experience of performance of energy efficient technologies and they also present their overall

experience in a video-recorded public session. Melissa suggests that the event was perceived as an opportunity for self-reflection and consideration of future practices and amendments. This is an indication of how the Sharing stage links back to the Dreaming, when householders continue to imagine the further steps they will take in their ongoing journey of making home.

Finalising/ sharing intermediation

The Sharing stage is primarily saturated with informal intermediaries, such as media platforms (for the sharing of results), friends and family and the material objects of the renovated homes. These include items which householders have personally created or maintained, and they are proud to present to others. Preservation of architectural elements and features such as windows, ceiling cornices and skirting boards are frequently mentioned as the critical reason for which householders performed the renovation in certain ways. So do furniture and media devices; households often showcase their latest gadgets in the home such as sound systems, internet infrastructures and screens which were co-ordinators of the layout of their renovated homes.

Formal intermediaries often share the results of households' renovations, through their websites or through photographs they take for showing to other clients. Tensions sometimes exist for the ownership of the result between architects/designers and building professionals, especially in the cases that these have been contracted for shorter periods of time and taking over each other's work. Finally, estate agents are often consulted in order to confirm or discuss the upgrade of the home's market value through renovation, as a confirmation for households that their changes also contribute to the increase of the financial value of home.

7.3 Chapter conclusion

This chapter unpacked the process of renovation through its stages in order to respond to my third research question and sub-question of:

> *How do media and intermediaries configure the renovation practice and process?* and

What are the stages of a home renovation as perceived by householders and what do they involve?

I began by discussing the renovation intermediation, as a practice of incubating, connecting and accelerating renovation that takes place along and within the identified stages of renovation. I presented the roles and significance of intermediaries, as they emerged from my empirical material, under two categories: formal and informal, to indicate their short and long-term presence in households. I argued that the ecosystem of home renovation intermediaries is complex and heterogeneous professionally and socio-culturally. An important finding is the recognition of the multi-dimensional role of media as informal intermediaries, as mediators between intermediaries, but also as meanings, materials and competences of the renovation practice. My findings highlighted the continuous presence of informal intermediaries in households, through media, social networks and objects which are part of the everyday socio-cultural environment. I suggested that informal intermediation enables the connection and strengthening of renovator communities of practice, which support the meaning-making and competence building of householders, and are therefore able to facilitate and sustain change, towards low carbon, from the micro to the macro societal level.

Furthermore, informal intermediaries, particularly media, celebrate consumption. Even though there is some evidence of low carbon imaginaries and practices through their conduct, these are offset by- ethical or 'green'-consumption products or practices. This consumption is generated and supported by images of a 'universal reference point' (Baban 2013, p. 143) which encourages a globalised vision of ideal home and good life. There are tensions, therefore, between the informal intermediaries' ability to positively consolidate communities of practice, with the continuous projection of images of neoliberal uniformity and de-personalisation in aid of a safe and financially valuable investment in homemaking.

On the other hand, I argued that formal intermediation, which comprises of professional expertise, is shorter and needs to be enriched and extended through the early stages of renovation. There is an opportunity through the Dreaming stage particularly, to accommodate the dreams and visions of households, and pursuit intermediation which is culturally embedded in the householders' mediatised worlds. While some formal

intermediaries currently engage in low carbon or other experimental practices, their interactions with households and their contracted professional conduct is still mainstream and conventional. Despite these challenges, formal intermediation holds the local (geographical, technical and legislatory) understanding of the housing construction processes and with the appropriate associations to the everyday mediatised homemaking, it can assist and accelerate the transition to lower carbon home renovation practices.

In the second part, I presented the empirical renovation stages, alongside the relevant practices and intermediation. The identification and analysis of the stages are important findings as they enable the breaking down of the complexity of renovation in an analytical process through smaller blocks. This analytical investigation enabled me to interpret the diverse expressions of the renovation practice in households in a coherent framework, which can be used to understand and evaluate the practice, its intermediaries and its relevance to associated homemaking routines. The stages revealed that renovation is an integrative practice which involves several dispersed ones, which vary according to stage. Furthermore, the identification of the Dreaming stage confirms the argument that renovation can be an ongoing practice in households, which is expressed through the various dispersed practices of dreaming, imaging and homemaking. The continuous immersion of householders in the dreaming of ideal home, connects past living experience with future visions of ideal home and presents an opportunity for intervention in the transition to lower carbon living.

Chapter 8: Low carbon renovation considerations and transitions: household typologies and opportunities for appropriate intermediation

Chapter 8 is about low carbon renovation considerations in four different household typologies. Although the renovation practice is characterised by a complexity reflecting the chaotic nature of everyday life, there are patterns and common characteristics that were observed in certain households. I have rationalised these under household typologies, not as a way to 'categorise' them in generic groups but in order to frame my analysis, such as 'un-bundle' the dispersed renovation practices in each household type in order to observe their patterns.I examine how households' meanings of home, the materiality of the house, and the competences of householders are shaping, incubating and accelerating their low carbon practices. The chapter contributes to answering my second and third research questions of:

> *2. How do renovation practices emerge, reproduce and sustain themselves in Australian households?*

> *3. How do media and intermediaries configure the process of home renovation?*

The chapter associates four identified household typologies (households with no children, households with children, empty-nester and intergenerational households) with renovation practice, as encountered in my participants. Even though the thesis is exploratory it appears that these typologies have distinct characteristics and ways of renovating, depending on the stage of life they represent. The association of household typologies with renovation practice, media and intermediaries provides a useful framework for narrowing down the diversity and complexity of the renovation practice. It also helps identify the potential for appropriate intervention for lower carbon practices in each household type.

In the first part of the chapter, I present the general characteristics of the household typologies alongside characteristics of renovation practice and I explain how these relate to relevant literature. I briefly link these characteristics with the households'

meanings of home, as presented in chapter 6, their renovation practices and their identified renovation priorities.

In the second part of the chapter, I examine the households' low carbon renovation practices, and they ways in which they engage with intermediation, including their media practices, using the five renovation stages, as discussed in chapter 7. I start by presenting the low carbon considerations of households, comparing between the practices of each of the typologies. Then I discuss how households engage in the mediatised renovation practice, focusing on the use of media (in their triple articulation), as developed in the process of renovation. Finally, I present, analyse and compare the intermediation practices of households.

In the final part, I discuss identified opportunities for embedding low carbon renovation practices, based on the findings analysed on the first two parts. I present the most dominant or significant stage for each typology, and I use the associated intermediation practices identified in order to highlight the best opportunities for the adoption of low carbon renovation practices.

8.1 Household typologies

Households are continuously shaped around people's practices and vice versa. The stage of life of households, which often determines their tenure status, their consumption patterns and their socio-cultural position, affects their homemaking and renovation practices. Understanding the renovation practices, and the characteristic bundles of practices of different households, could be a useful tool for understanding and supporting low carbon priorities alongside these practices. Furthermore, the significance of different household typologies in the process of renovation lies in the opportunity to understand their practices during 'moments of change' (Darnton et al. 2011, p. 32; Karvonen 2013, p. 569). These 'windows of opportunity' usually comprise of significant events in people's lives, often marking the transition from one household typology to another, are significant times when people's habits and practices are shaped (Darnton et al. 2011, p. 33). This is therefore an opportunity to focus on the reconfiguration of 'the dynamic and complex relations between inhabitants and the built environment' (Karvonen 2013, p. 569).

As discussed in chapter 3, households are diverse in composition, size and socio-cultural homemaking practices. My study recognises this diversity, particularly the varied definition of family in contemporary Australia (such as single-parent, same-sex, extended family), as well as the prominence of single households (ABS 2019b). Since my study is explorative, I didn't set off to investigate certain household types. However, as my visits unfolded, I started to notice patterns in the renovation practice of similar households, and it gradually became apparent that these similarities could present opportunities for embedding associated practices to help the transition to lower carbon renovation.

Household typologies influence both the process and product of renovation. They can get implicated with renovation practice in two ways: through events that mark people's lives (births, divorce, retirement), which also mark the passing from one stage to another and through their interactive agency on the (renovation) process. It is often that when households move from one stage to another, renovation is triggered. For example, Mark's household has fluctuated between different household typologies in the past few years, moving from a household with children, to a household with no children (due to this divorce) and eventually to an intergenerational household. Renovation had already begun before the divorce; however, the changed circumstances affected the renovation planning (meanings), its requirements (materials) and performance (competences).

To help classify my findings, I used a study by Munro & Leather (2000), which associates householders' home improvement behaviour with five household typologies: the young household, the household with children, the empty-nester/ pre-retirement, the older household and a household which has been dissolved. Despite their study being older and partly superseded by emerging household typologies, such as diverse variations of family types, the prominence of single households and other group households (ABS 2019b), it is relevant to my work because of its direct association of the distinct characteristics of household behaviours with renovation (Munro & Leather 2000, p. 520). My findings, however, extend their work by concentrating on household renovation practices rather than individual behaviours and by relating these to occupancy status and their media and intermediation practices. This taxonomy, outlined below, is not meant as a comprehensive classification but as an exploratory,

contextual insight into the distinct renovation practices of the participating households and as a tool to break down the complexity of the process.

My participants' household typologies are:

1. Household with no children (T1): This is similar to Munro's and Leather's Young Household category, however, the changing composition of current households in Australia, point to households that are not necessarily young, but comprise of either single individuals or couples with no children.

2. Households with children (T2): This category is nearly identical to Munro's and Leather's.

3. Empty-nesters (T3): This involves individuals or couples that are either in the process of or have already had their children or other dependent minors leave home. The difference with Munro's and Leather's is that people in this category are not necessarily pre-retirement but could be in the middle of their working life.

4. Intergenerational household (T4): This involves households living in extended family conditions, comprising of relatives or other dependants. In my participants this is expressed by families that look after their elderly parents or have adopted another member of their extended family network.

My findings suggest that renovation practice prolongs the life-stage of households, by allowing them to stay still for longer, avoiding change of location, which can be challenging, therefore reducing the emotional stress that would have been caused by the adjustment to new conditions. This is particularly observed in T2 households. Renovation therefore reinforces households' connection to their communities. In addition, the improvement of homes is associated with a general upgrade and upscale of the whole neighbourhood and is usually welcomed by residents and other beneficiaries in the community.

The following sections present the general characteristics of each typology before unpacking their priorities, low carbon considerations and intermediation, in point 8.2.

'We're still in transition, realising what home is […]. Home for us is a bit of a testing ground' James and Kate

Household typology	Occupancy & investment	Meanings of home & renovation characteristics	Renovation priorities
Household with no children (T1) **(H3, H5, H9, H10)**	First time buyers/ Buy to renovate Average time at property: 10 years Short-term investment Location not fixed- happy to experiment with different areas Desire for old properties in need of renovation	Home as a creative project and as work Emphasis on production and consumption of home Smaller size of renovation works Risk-taking, experimental renovation practices	Improved/ larger space for relaxing and socialising Better connection of indoors/outdoors Highlighting/ improving property's original features Better bathrooms

Table 8.1 T1 household typology characteristics alongside renovation practices

Households with no children (T1), engage in renovation in an experimental and risk-taking way. They consider and experience home as an ongoing creative project. They enjoy the process of designing and re-making home and are motivated to find older properties in need of improvement to achieve this. Kate and James, for example, a couple in their early 30s and first-time buyers, suggest that their renovation was a way to do something exciting together as a couple. Renovation is therefore an emotional practice and an identity building process. DIY practices are undertaken by all the participating households with no children, who value it and consider it of equal quality to professional work. T1s present many examples of amateur experts (with the exception of Kate and James who are architects), who experience the making of their home as prosumers, able to challenge the 'monopoly' of professional expertise and leading to 'direct consumer (user) productivity' (Hartley 2012, p. 119). Performing is

their longest stage as they do not want to spend much time thinking or planning the work but rather learn and plan by doing.

This typology contains one renovation as an investment property, which could indicate that it is more likely that T1s might engage with investment properties due to greater availability of time and disposable income, or as an income-based practice as in Anna's case. However, the sample is too small to make generalisations about this. Finally, T1s are motivated to consider low carbon renovation practices, however, their short-term investment in properties, their intention to renovate for profit or regulatory obstacles - such as strata laws-make it difficult to perform low carbon practices to the full extent, such as incorporating energy efficiency amendments. T1's present weak or very short engagement with formal intermediaries, which hold the expertise to co-ordinate this transition. On the other hand, they are keen everyday users of media (texts and devices), as a first point of reference for their practices. This suggests that informal intermediation in T1s, particularly media-based strategies could work well for the embedment of low carbon practices. While T1s appreciate and value design and authenticity, they don't, in their majority, appoint professional designers or architects throughout their renovation. The exception to the rule is Kate's and James' household who, as professional architects, designed their renovation themselves.

8.1.2 Households with children (T2)

'As we got older we wanted to have some different spaces' Komala

Household typology	Occupancy status & investment	Meanings of home & renovation characteristics	Renovation priorities

Household with children (T2) (largest proportion of households) (H1, H4, H7, H11, H13)	Long-term homeowners Keen to preserve location Spend a lot of time at home Large investment in property Investment value of renovation important	Home as a safe place, a connecting/ connective unit and a workplace Considering both demolition and renovation Emphasis on the consumption of home; size is important Identity confirmation through renovation Renovation as continuity of culturally meaningful practices Compromising their ideal home (dreaming of building new) by renovation	Create adult space away from the children More space for children Open-plan living Enlarge and improve space for socialising Dedicated work-space for adults Kitchens are the No1 priorities in all T2 households Improve relationship of indoors/outdoors

Table 8.2 T2 household typology characteristics alongside renovation practices

T2 households experience renovation as a linear process, which tends to have a defined beginning and end, as most of them undertake renovation as a project or a series of projects. As they employ professionals for the design and construction, their planning stages are characterised by a more ordered and controlled procedure, led by the professionals' request for confirmation. Sophie suggests that they spent more time in Planning (stage) that they expected, and it was their biggest part of the process, particularly around tendering, when they had to choose kitchen layouts and fittings for the work done. She suggests there were a lot of 'forward and backwards' movements at this stage, as they had to be sure their choices were what they wanted.

T2s are busy, time poor households which perform renovation mostly to respond to life changes or events, such as the birth of a child and to pressing functional requirements that arise. They comprise of more established householders, who usually have owned more than one property, and they consider demolition of the existing house equally to renovation. However, past living experiences in combination with collective meanings of living in an 'authentic' home, prevent them from demolishing their house. T2s have lived in their homes for a few years prior to renovation, therefore showcase strong emotional attachment to it and proceed to perform renovation with more culturally and environmentally sensitive ways, preserving and upgrading the emotional and financial value of homes. T2s also adapt quicker and easier to the amendments of the

renovated home compared to other typologies, as they have spent longer dreaming about and planning them.

T2 are the households with the least perception of financial risk and a higher interest in the financial investment of their renovation, to preserve and raise the value and re-sale price of their home. They engage with formal intermediaries across most stages of the process, often assigning them as project managers for the length of the project. While they want to maintain control of the process, they accept the judgements and choices of professionals, as approved experts of the process. Informal intermediation in T2s acts as confirmation of the formal intermediaries' practices and as emotional support for going through the disruption of the performance of renovation. One way that this takes place is through their collective consumption of lifestyle programmes relevant to renovation, such as Grand Designs, which enables the emotional confirmation of their experience during the work's performance.

T2s are characterised by a mix of romantic emotions about ownership and social status, however, their everyday functional needs prevail as rational solutions to the material configuration of their homes. Their low carbon interest is high, however, since their timeframe is short, they follow the recommendations of professionals, who cannot always accommodate low carbon practices on the designated time or budget but focus on the quick delivery of a modern functional home. Some householders perform DIY, mostly for minor works, in order to satisfy their desire for customisation or for incorporating upcycling or re-purpose of the waste of renovation which was not considered by the professionals.

8.1.3 Empty-nesters (T3)

'Within the next 5-10 years, we will […] have grandchildren, and then just having a home that can accommodate life changes. We want a house to carry us to the next stage of life' Tracey

Household typology	Occupancy status & investment	Meanings of home & renovation characteristics	Renovation priorities

Empty-nester household (T3) (H6, H12)	Owners of larger properties	Home as a connecting / connective unit and a creative project	Create separate spaces for media consumption
	Keen to preserve house, location and community around them	Choice of high-quality products and services	More space for relaxing and socialising
			Improve outdoors space
	Long-term occupancy	Authenticity important	New/ more functional kitchens and bathrooms
	Long-term investment		Kitchen and energy upgrades come as No1 priority
			Maintain and re-generate domestic atmospheres

Table 8.3 T3 household typology characteristics alongside renovation practices

Empty-nesters spend longer in the Thinking and Sharing stage. Preparing to move to a different stage of life, can bring amendments to daily practices and T3s spend a lot of time considering their options regarding issues such as downsizing, demolishing or renovating. They experience home as a creative project and their renovation is an opportunity to strengthen their links with local and virtual communities. They are therefore keen to share their process and results and contribute their experience to preparing others for the process.

T3 households engage with renovation as a way to prepare to transition to another stage of life. However, the participating households are not in pre-retirement stage, as in Munro's and Leather's case, but comprise of mid-career working professionals. Longevity and quality are conditions that households in this stage find really important. Householders have a sense of purpose and their choice of home- and its renovation- reflects this:

> '*Our son was leaving home, […] I needed to give him a place to leave. For me as a mother, I needed a nest for our little boy to jump out of […]. The renovated home is a very easy place to live in, a house that makes us happy and it's not about comparisons*' Melissa

T3's stage of life often inspires the renovation practice. Children leaving home results in more space and opportunity for change or fulfilment of their dream home. In other cases, moving into a new home brings the desired transformation. Renovation is an

emotional practice which involves the re-adjustment of everyday life in the new material layout of home, and a revision of everyday routines (Hunter 2019). Incorporation of energy efficiency technologies, for example, changes the temporal rhythms of daily washing and cleaning routines, which empty-nesters in particular find challenging.

T3 households showcase a blend of formal and informal intermediation in the process of renovation. While they employ professionals, including architects, to design and build their home, they also engage in DIY alongside them, and consult informal intermediaries, such as media and social networks, in order to experiment and often challenge the quality and method of the work performed.

T3 households associate low carbon living practices with their overall wellbeing and responsibility to the common good. They are keen adopters of low carbon practices, however, they are still limited by social norms and established routines, such as living in large homes and using carbon heavy means of transport for example. Furthermore, their socio-economic status enables them to adopt these upgrades and technologies, and this is reinforced by the practices of likeminded communities around them. They demand a high level of service from formal intermediaries and they are keen to share their renovation results with online and physical communities of practice, such as through events like the Sustainability House Day.

8.1.4 Intergenerational households (T4)

Household typology	Occupancy status & investment	Meanings of home & renovation characteristics	Renovation priorities
Inter-generational household (T4) **(H2, H8)**	Owners of larger properties or properties on large plots of land that can be extended Often move to find suitable plot and house to accommodate their requirements	Home as a connecting /connective unit and a creative project Renovation over time Authenticity and customisation important to respond the diverse needs	Extended and separate space for family's daily accommodation and space for hobbies Functional and beautiful space for socialising and accommodating guests Outdoor space improvement Provide adequate and suitable space for the amount of people that comprise their household/ utilise their property efficiently

Table 8.4 T4 household typology characteristics alongside renovation practices

Intergenerational households spend longer in the Planning and Performing stages. They consider and co-ordinate challenging needs and practices to reflect the diversity of their households. In order to ensure the efficient planning and construction, they mostly entrust the work to professionals. However, they are keen to participate and control the process, which often leads to co-creation between them and the formal intermediaries. Intergenerational households can go to great extends to satisfy their families' needs, despite the challenges, particularly as most houses are not suitable to accommodate them.

> *'We bought this (house) because my sister lives at the back [...]. We didn't even get an inspection […] we knew that we were gonna have to extend the house, because […] we would want more children to live with us […] but we didn't think that we would be in a financial position to do it for probably 7 years or so. So, […] the trigger was that Zhane came to live here* 'Rox

As Rox's quote suggests, the materiality of the house becomes almost imperceptible for households, who are willing to adapt and change it for the sake of creating a suitable environment for their extended family. In Rox's case, the newly created intergenerational family welcomed the opportunity to move next to her sister, for extra support. The growing of the family with the adoption of their godson, became the trigger for renovation works to start, in order to provide the living conditions for the family, who temporarily stayed in a caravan in the yard.

Home, and its associated homemaking and renovation practices, is considered a long-term asset which embodies the households' collective identities and principles. While budgets and financial issues often come as challenging aspects of this change, T4s prefer to take longer but invest in better quality products and craftsmanship. Formal intermediation is therefore trusted and important for the planning and performance of renovation. On the other hand, informal intermediation, presented mainly through the advice and support of friends and family and occasional use of online platforms such as YouTube, is used to complement the formal one and to emotionally support the householders in the process of change.

8.2 Households' low carbon practices and considerations

My findings indicate that low carbon renovation practices emerge out of the diverse meanings of home that each household typology holds, their material engagements with the house, the householders' competences and they ways in which they interact with (formal and informal) intermediaries. The next section outlines and compares these four elements in order to conclude what the opportunities and challenges are in relation to the specific household typologies.

8.2.1 Meanings of home and low carbon practices

Aesthetics, taste and authenticity

Being able to experience the aesthetic improvements of homes after renovation is important to householders, as these express their taste and social status (Sunikka-blank, Galvin & Behar 2018). Aesthetic improvements have varied expressions and depend on whether households have appointed professionals in the design of their homes. There are tensions and diverse understandings of what looks good and what is worth preserving, which have direct implications in the low carbon practices during renovation. Overall, the visibility and aesthetics of renovation improvements are important factors for the low carbon considerations of households. Low carbon is more likely to be adopted if it also looks pleasing.

Initially authenticity is seen as a reason to preserve the home and its features as Sharon explains:

> *'The originality of it, it makes it feel like it's a long-standing home […].*
> *There is a lot of love, care and attention put in doing that (preserving*
> *original features)'*

Fig.8.1 On the left, original ceiling detail that is considered worth preserving and on the right fireplace which is not considered for preservation as its front is probably not original

The original ceiling cornices are considered as worth preserving, while the fireplace, although an original feature, lacks its original front, which makes it undesirable and not worth keeping. Cultural interpretations of architectural heritage are involved in the appreciation of the home's authenticity and value for preserving, as Sharon, who has English heritage explains:

> *'Australian housing is very different to English housing, […] it lacks a*
> *lot of character […]. A lot of these, more expensive (new* build)
> homes didn't seem to have…there's no heart to them'

Nostalgia can aspire the maintenance of authenticity through renovation, which reduces the need for demolition. However, aesthetic and taste preferences, as in the case of Sharon's fireplace, get in the way of reducing construction waste. Furthermore, strong meanings about the preservation of features such as skirting boards, and issues of re-purposing of materials bring tensions between householders and their contractor:

> *'I love the skirting boards […] I wanted to save […] and repaint them*
> *but he said that he couldn't do it and he would use mdf […]. He's all*
> *about modernisation […] he doesn't believe in the preservation of*
> *anything […] he is a very good builder […] everything will come on*
> *time and budget. It's about ripping it out and replacing'*

Tensions between the delivery of a modernised home on time and on budget, with desires for authenticity and preservation express the prevalence of the 'soft-modern aesthetic' which aims to maximise the market value of home (Rosenberg 2011a, p. 13)

and influences the adoption of low carbon practices. While Sharon's home is not a heritage property, the identification and preservation of architectural features depends on the understandings of authenticity on their behalf rather than by the building contractors. The lack of preservation of certain features limits the opportunities for low carbon practices such as re-purposing and recycling of materials and fittings. Additionally, little involvement of architecture and design professionals, who could support the preservation of such elements, particularly during the Performance stage, intensifies this challenge.

Others, such as Sophie, invest emotionally in the existing house, suggesting that they felt it was working really well and have a '*good feeling about it'*, so when practical reasons for renovation arose, they were nervous as they didn't want renovation to destroy that feeling of the original:

> *'It had to be functional and liveable, but I was worried that if we*
> *messed it out too much it wouldn't work anymore'*

The authenticity of the house is an important element for preservation for empty-nesters too and contributes to the consolidation of the household's identity and recognition within their social context. Paul and Tracey suggest that they were attracted to their house, not just because of its location and layout but because it was unique and designed by an architect. They felt that they need to preserve its identity and improve its original condition through renovation. Melissa's family also point that the house's history and identity, as a material representation of their live, is as important as its functionality:

> *'These houses were getting demolished, this era, and we realised*
> *that for us, the four-roomed Victorian villa that you had cut the back*
> *off and spent a million dollars and then make half a house, it wasn't a*
> *financial option […]. And then […] Modernist Australia, I found them*
> *somehow and started going, Oh!*

She suggests that they weren't initially aware of the cultural and architectural value of the home, however, through their persistent research, and the involvement of suitable architects and designers, they were able to restore the house to a better version of

itself, maintaining its authenticity but upgrading its efficiency. Furthermore, the house became a status symbol for the identity of the family, both its terms of its design significance, and its performance as a highly efficient, comfortable home. Melissa suggests it was a high priority for the household to discuss the requirements for change and their ideas with architects, however, she says that they didn't provide enough visual material in the early stages so they could dream and visualise the renovated home. Therefore, while the preservation of authenticity can be a positive meaning for adopting low carbon practices, the lack of understanding of the aesthetic implications of low carbon changes to the fabric of home, present a challenging aspect for households. This confirms the importance of recognising households' interpretation of taste, in order to be able to accommodate satisfactory low carbon (Sunikka-blank, Galvin & Behar 2018) changes, which incorporate these desires.

Another example of the importance of aesthetics and the originality or uniqueness of the changes are found in T1 households, which often list these as high priorities, and often disregard issues of functionality and comfort, as Kate suggests:

> *'We both liked it (the renovation process), as a chance to test some things, like for example the painted concrete floor […] having a space[…] (that) represents us […]. I like doing things that seem different to people,[…] I'm most proud of the things that we have done ourselves[…] and doing it together'*

The visual aesthetics of the renovated elements of home serve as a motivation for T1 households, who although they have a high interest in low carbon changes, due to their short-term investment in their homes and other bureaucratic challenges, they do not fully embed it in their renovation practices. However, they put a lot of effort in re-purposing and recycling of materials, using online platforms as co-ordinators. I further discuss these in sections 8.2.2,8.2.3 and 8.2.4.

Finally, T4 households are interested in the long-term investment that low carbon building construction can bring to them, however, they also want these changes to be visible and recognisable to them and their community. The aesthetics of low carbon design and architecture, therefore, are important considerations in the process of incorporation in T4 homes. In Rox's and Ben's case, low carbon has to come in line

with pleasing looks. Mark additionally suggests that *'The opportunity to build a brand-new thing'* also comes as a way to improve the aesthetics of the home overall. Therefore, the aesthetics and comfort in T4 households need to be incorporated in the visions of low carbon building and considered in collaborative ways between households and intermediaries in order to be able to reach consensus in these multi-functional homes. T4s want to stay in those renovated homes long-term and building sustainably is a great way to establish longevity and stability of tenure. Therefore, T4 homes present a challenge and an opportunity for architects and designers to incorporate solutions and adaptations that accommodate lifestyle aspirations, practical everyday needs as well as low carbon practices that look desirable and will make sustainable, intergenerational homes for the future.

Comfort and lifestyle

While authenticity is rated highly, through preservation of the character of home, comfort and cleanliness reinforce the need for renovation, as ways to 'upgrade' the identity of the home. Comfort and lifestyle considerations can be problematic, as in most households are linked with inflated consumption of space, energy and materials. Households' tacit understandings of everyday comfort and lifestyle come in the way of adopting a lower carbon way of living, including during the times that the house is being renovated.

Comfort, for example, is associated with householders' perception of 'new'. Renovation usually provides the renewal of space, and of the practices that go on in that space, as well as a renewal to the experience of space, improving comfort. As Serena explains:

> *'It's new, to make it more comfortable […]. I didn't want to change the character […] to make the house like 'new'. Just […] make it comfortable, more loveable. I don't want to feel […] that you've renewed it too much[…], that's something to do with balance. You don't want to lose the character […] a new house in that sense… I wanted a more comfortable, clean and sustainable'* Serena

T2 householders are attached to expectations of comfort and contemporary living, which are not associated with older, non-renovated homes. Komala and Ben suggest

263

that their experience of living in older heritage homes made them realise the amount of maintenance they needed to do regularly suggesting that:

'We had romantic ideas of wanting a heritage home, but the reality was that we needed a modern home'

Comfort and privacy are significant priorities to be satisfied by renovation.

Cheryl: *'A really beautiful house that is comfortable to live in […], comfort is really important'*

Aggeliki*: 'How would you define it (comfort) in your own house?'*

Cheryl: *'Nice stable temperatures, and a house that works nicely, […] a functional space […] the layout. Comfort, that's a hard question!'*

Aaron: *'We need more bedrooms.'*

Comfort in T2s is not only translated as thermal satisfaction, but as adequate size and appropriate, efficient functionality. When these elements of comfort get compromised, renovation is triggered to satisfy the continuous demands of the everyday. There is an opportunity to script comfort, in visual and sensory ways, to products and design changes that embrace low carbon practices, and this can be mediated by media platforms, which T2 households consume daily.

Another example of prioritising convenience and lifestyle expectations over efficiency and other low carbon considerations is Sharon's, who suggests that their lifestyle improvements and the achievement of 'a casual home' kept them going through the renovation:

Aggeliki: *'What keeps you going?'*

Sharon: *'The vision of the end goal […] for us it's lifestyle […] have friends round and entertain them, […], have the big breakfast bar and big dining table and a very casual open house […] living openly […] nothing pleases us more than when people just rock up'*

These dreamed lifestyle practices, involving a prioritisation of leisure and entertainment, define households' meanings of comfort and shape the renovation practices of families with children. However, the actualisation of comfort is seen to be achieved by the enlargement of space, which essentially brings on enlarged demand for the consumption of energy and material objects. The dreaming of these practices, which go on continuously through the Dreaming stage, are reinforced by the householders' daily interactions with informal intermediaries, such as online media texts and TV shows such as The Block and Grand Designs, which reproduce domestic imaginaries of comfort and 'idealised notions of family and home' (Spinney et al. 2012, p. 2629).

Similarly, in empty-nester (T3) households, tensions exist between the preservation of familiar routines or long-term dreamed practices and the energy upgrade of homes. Tracey suggests for example, that although energy efficiency is important, lifestyle changes, such as the opening of the living room, present a more desirable outcome. This alteration involves major structural works to achieve a complete opening between the two rooms. Doing this would create a super-sized room and would increase their energy demand, in a house already difficult to maintain thermal comfort. However, Tracey envisions this new larger space as the heart of the house, a space where she imagines themselves living the everyday but also socialise- as they used to in the UK. When challenged about whether they would insulate the whole house or use their budget to allow for the structural opening of this room, they hesitate. Paul suggests that efficiency is the top priority whereas Tracey's heart lies with the imagined lifestyle of the newly extended room. The nostalgic dreaming of maintaining the long-term lifestyle of empty-nesters can create tensions and influence the actualisation of low carbon practices, such as insulation in this case. Empty-nesters present opportunities for renovation, rather than other options, such as demolition or new homes, however, it is important to focus on the links to the households' established routines and meanings of home in order to assist embedment of low carbon.

Overall, across households, there is great opportunity for incorporation of low carbon practices, as long as these do not compromise comfort and convenience and are carefully mediated to the household, taking in consideration the accumulated dreaming

and imagining that these households have performed during their years of living together.

Issues related to materiality, such as the existing house structure, its functionality and its geographical location, as well as the material objects through which renovation is undertaken are important shapers of households' low carbon considerations and practices. They enable the meanings of home to materialise and the maturing of appropriate householders' competences.

Location

First, the location of home along with its emotional and practical associations with householders can contribute to the emergence of low carbon considerations. This is particularly the case in households with children.

> *'We can move or buy a new house [...] (but through renovation) we'll*
> *get at the end is exactly what we want, rather than having to cope*
> *with someone else's house or their renovation'* Komala

Renovation provides the stability and security of the familiar locality, prolonging households' time in their property and maintaining their emotional links to the home's and community's identity. As discussed in chapter 3, the meso level of the household bridges the micro practices of individuals to macro socio-cultural practices. Acting as a mediator, the household transmits and interprets individual meanings to the societal level. Staying in the same location long-term supports the creation of a stronger community and enables a peer pressure between nearby households, who advise each other about homemaking and renovation works, appropriate to the context. Therefore, through their long-term investment in homes and desire to maintain the location of their residence, T2 households provide the potential for a more effective transition to a lower carbon footprint.

On the other hand, the familiarity of the home's location can counteract low carbon practices, such as maintaining a home which is much larger than required, as in the cases of empty-nesters. They often consider downsizing and selling their home,

however, the emotional connection with their home and its community makes it difficult to imagine living elsewhere, as Tracey describes:

'Friends […] have suggested, […] when the children move to the next stage, will you look at selling and downsizing? No, I love Sterling, there's nowhere else[…]. I love being surrounded by trees […] the connection to the house, […] this is our first house in Australia'

Fig.8.2 Paul and Tracey's living room view. Tracey suggests that this location makes the house and their connection with it very special and it's difficult to give up.

Renovation is an opportunity to maintain location, however, it also helps maintain a larger-than-needed home for empty-nesters, which, without the appropriate low carbon upgrades becomes inefficient and expensive. This translates to either inflated energy bills, proportionally to the number of people living in the property or to the experience of discomfort for householders. While an energy upgrade can be achieved through renovation, the consumption of large, partly unoccupied homes, remains a challenge, particularly through its entanglement to emotional and cultural reasons. Melissa suggests that consideration of unoccupied space during the different times of the day has led to the design of zones in the home, which work both in terms of the daily temporalities and rhythms, as well as according to seasonal demands. She refers to

the living and sleeping 'wings', which are centred around the fireplace, which provides heating in the daytime and adequate warmth during the night, as seen in Fig.8.3 below.
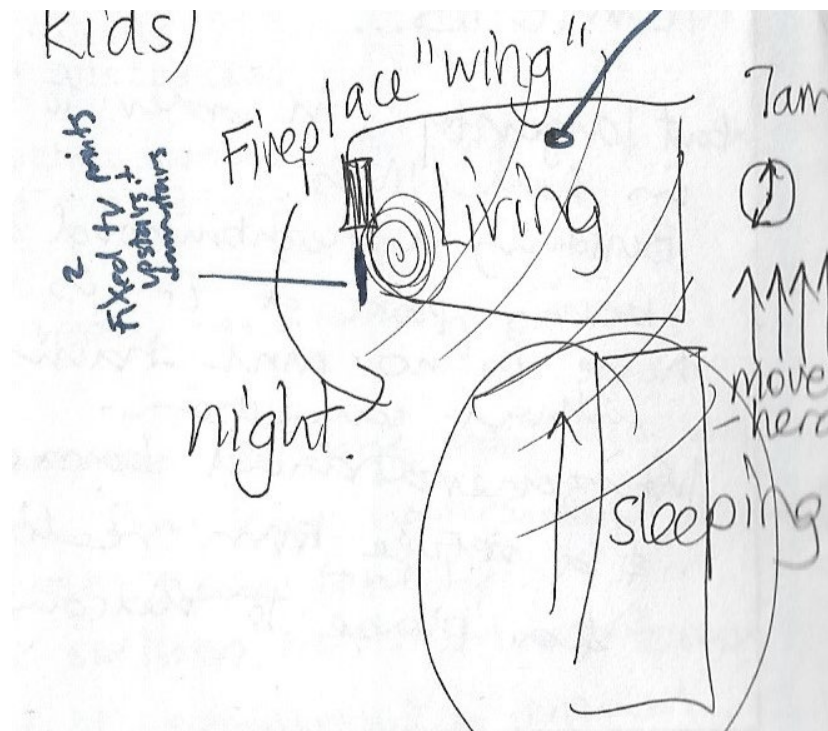
Fig.8.3 Zoning diagram showing Melissa's house 'wings'

Another example of how location contributes to tensions in the adoption of low carbon practices during renovation is found in T1 households. Householders are curious about different areas and not 'fixed' or tied down by the locality, as it happens with households with children. They consider properties in different locations, in close commuting distance from the city that have the potential to be renovated. Location, as well as home typology, provide a guide for them in terms of the level of engagement with renovation practices. Sometimes T1s for example are intentionally looking for unusual, old and non-renovated houses that they could customise. Even though their interest in upgrading older homes is contributing to the consideration of low carbon practices, their transitional or short-term investment in the house counteracts these. The reason for this short-term commitment is due to the house typology and their associated meaning of a good home, which I explain below.

Existing house typology

The house typology affects the household's incorporation of low carbon upgrades. Renovating a unit for example, as in the case of Kate and James is restricted by strata regulations, which the couple has found difficult to deal with, particularly to do with energy upgrades:

Aggeliki: *'What was your interest initially in energy efficiency?'*

Kate: '*Very interested!'*

Aggeliki: *'And how much did you actually incorporate?'*

Kate: *'Not a lot'*

Aggeliki: 'What happened?'

Kate: *'In this situation it's the strata. So, we would love to add new insulation to our roof, and […] maybe externally, […] but for us this isn't necessarily […] where ultimately where we would like to live, we probably wouldn't put the energy into doing it here'*

Strata restrictions combined with their short-term commitment to the property hold them back from incorporating low carbon changes. The couple plans to stay in the property for probably another year. This narrow frame poses a challenge for house types such as units which are sometimes seen as transitional homes, and points to wider social understandings of equating long-term living with certain typologies such as detached homes. So, while T1s are keen to experiment with different house typologies, there hold on to the socially prevalent model of the detached home as Kate suggests:

'We've always said that if we could transport this to a large plot with a shed, we would be sorted! […] we're definitely […] tied to that Australian ideal of having your own space'

Therefore, meanings which currently link the good, comfortable life to large detached homes need to be de-associated with certain house types, such as detached homes, in order to assist the transition to lower carbon futures, which not only can enable higher energy efficiency but also support a model of reduced housing and product consumption.

269

On the other hand, detached homes with large yards, provide the opportunity for the testing and adoption of low carbon practices, as in Rox's and Ben's and Henry's case. They suggest that having a large yard has enabled them to collect and sort different materials for re-use or re-purpose while renovating, a process which was encouraged by their architect and builders.

Fig.8.4 Rox and Ben's renovation performance and their back yard which as they explain plays a big part in the making by enabling them to store and experiment with materials and found objects

The space of the yard therefore consolidates the householders' meanings and competences and assists in the adoption of low carbon renovation practices. Furthermore, preserving the longevity of detached homes, which intergenerational and empty-nesters seek, presents an opportunity for low carbon amendments. Through their renovation practices these households are keen to embrace durability, as Ben suggests:

'We didn't want the house to look disposable, knock-downable […]
you buy this…structure […] and that lasts because it's got integrity.
We had a lot of conversations about the commodification of housing
[…] so we're trying to build something that would resist that'

The materiality of the detached home is important, as the physical evidence of this long-standing structure that carries the meanings of home. Renovation in this case is experienced as a social and cultural practice, which resists time and solidifies the households' perspectives about the (architectural) character of the community. The heritage and age of the house is considered an aspect worth preserving through efficient, low carbon practices.

Functionality

The functionality of spaces in the house is important, especially for households with children as a priority that is closely related to the enlargement of space. This can be problematic for low carbon adoption, in terms of increased volume and energy requirements, and in regard to the materials and waste associated with it. Householders suggest that functionality should also satisfy the improvement of the atmosphere and character of the existing home. Diverse family processes and dynamics make households with children particularly complex in regard to functionality. Tensions exist between the needs and space-time requirements of adults and their children:
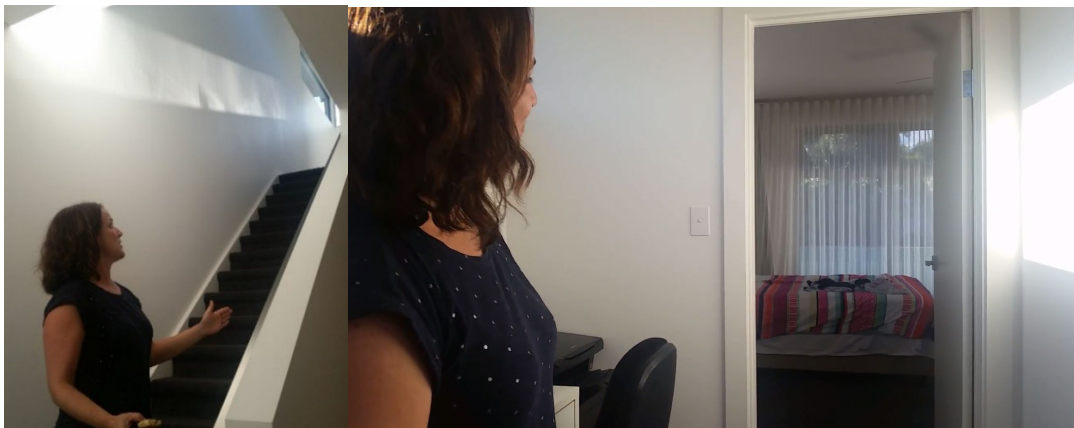
Fig.8.5 Sophie showing the upstairs 'sanctuary', which includes a home office and their bedroom, which is described as a quiet space away from the kids

Those with younger children need more adult space, which is not continuously 'invaded' by them, while households with teenagers seek to find a balance between the isolation of the bedroom- and time with media- and communal family space appropriately shaped to accommodate all needs. The favourite and, most prevalent, element in the households with children are open-plan kitchen and living spaces. Families prefer open-plan spaces, as *'everything happens there'* (Cheryl).
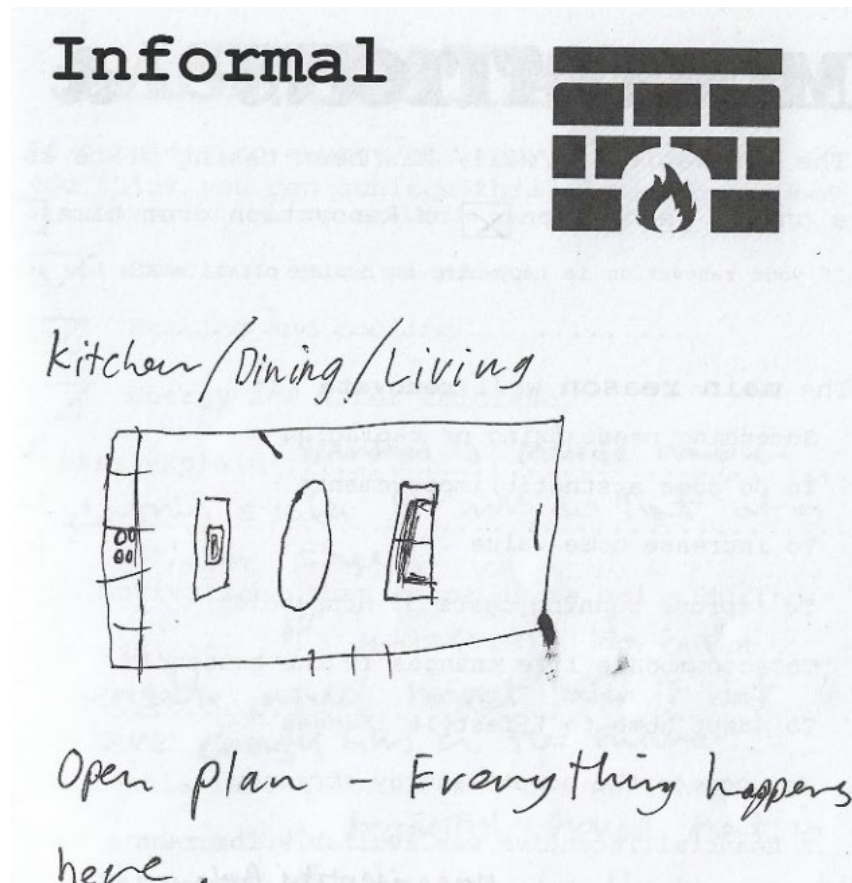
Fig.8.6 Cheryl and Aaron's zoning of their open-plan space

The kitchen, usually in an open-plan arrangement, is of primary focus, as a space 'bound up with the pursuit of happiness' (Mackay 2010, p. 5). Sharon, who is halfway through their renovation passionately suggests:

> *'The biggest challenge has been the kitchen […] wanted it to be*
> *modern but not too modern because it's a 1950s house […]. It's the*
> *most important part of the house […]. Everybody that comes to your*
> *house they see the kitchen'*

The kitchen is perceived as a lifestyle asset which needs to be presented and finished to a high standard. When I asked Sharon if she was worried about the aesthetics of the kitchen she describes a long process of negotiation about fittings with their contractor:

> *'The kitchen has to be finished nicely […] it's the docking station of*
> *the ship effectively so it […] has to be aesthetically lovely too'*

272

When tensions arise between functionality, efficiency and taste, there seems to be almost no reference to low carbon considerations such as the life-cycle or energy use, but rather the weight falls on satisfaction of style and dream-visions of lifestyle.

Besides this, open-plan kitchen-living rooms are completed with direct connection to the outdoors. Most T2 households have installed large doors and windows in order to create a feeling of openness and connection to the outside. Having this connection, as they explain, is linked to principles of good parenting-e.g being able to watch your children play while cooking- and a comfortable life. However, this layout presents a challenge, particularly regarding energy demand, as households might operate cooling or heating while having their doors open. The association of open-plan, open to the outside living, characteristic of Australian daily routines, satisfies aesthetic and taste desires, however, it can be problematic for the efficiency and performance of the house.

Re-purpose, Recycle and Reuse of materials (RRR)

The identification of materials for reuse, re-purpose or recycling (RRR) is a common social norm amongst households. Even when low carbon energy upgrades are not considered, householders show sensitivity in their handling of excess material during construction or when planning alterations. My findings suggest that RRR is a commonly accepted norm, and a practice synchronised with households' routine recycling and re-purposing of objects, such as unwanted furniture or devices, through online and physical markets (Gumtree or garage sales).

The low carbon changes to the building fabric of the home are not transferable to other properties when householders move on, and therefore are not considered a long-term or worthy investment for T1 households. Despite this they put effort in recycling, re-purposing and eliminating waste. Kate suggests that:

> '*We Gumtreed heaps, we Gumtreed carpets […] floorboards […] we didn't want to […] put to waste. We haven't had to throw a lot*'

Moreover, the couple explains that their choice of older homes meant that they wouldn't have to replace a newly installed kitchen suggesting that:

'It's a waste to have to redo it and we don't generally like things that
people do with their kitchens in contemporary places'

There is a big focus on issues of taste and style around kitchens and this is a good example how these can be wasteful especially when houses are sold. Kitchens as 'status symbols' (Mackay 2010, p. 10) are not only problematic in terms of construction and life-cycle but also as nearly disposable fittings that change frequently to satisfy the stylistic desires of householders. Furthermore, media texts in some cases, such as Anna's, reinforce low carbon meanings through promotional lifestyle consumption trends and stylistic design ideas.

Fig.8.7 Anna explains her idea of making a feature wall using recycled materials, inspired by a Canadian TV renovation show (Masters of Flip). She also mentions Amazon inspiration and other online media searches. Even though the wall will be reusing materials and therefore will be less carbon intensive to make, the emphasis here is on its stylistic and aesthetic value, which is validated (and initiated) by lifestyle media programmes.

On the other hand, in empty-nesters and intergenerational households, the Diderot effect, discussed in chapter 6, brings about recurring RRR, throughout the renovation process. Melissa suggests that the desire to maintain the authenticity of the house led to purposeful re-purposing or upcycling of fixings and fittings throughout the house. The satisfaction of seeing the result, led to more preservation practices. Similarly, Sharon and Henry both collect excess material during the construction or part-demolition to repurpose in other part of the house or garden.

Finally, tensions exist between the time-restricted, renovation projects managed by professionals and the opportunity for RRR, usually due to lack of time, space and ability to manage responsible re-allocation. Households with children are the least likely

to undertake RRR because of these reasons There is, however, an opportunity to support RRR renovation practices through media networks and appropriate formal intermediation, generating positive meanings around the RRR of spaces such as kitchens, the frequent and lifestyle-led renewal of which can be problematic for low carbon considerations.

8.2.3 Competences for low carbon practices

Shared vision and appreciation of good design

Householders' individual visions (of homemaking and renovation) take time to become common, collective practices. Consolidating these visions into low carbon practices can be challenging and depends on the years that the householders have been together. The shared vision of a unique, creative and low carbon home for example, keeps fuelling the continuity of the renovation practice and presents the motivation for householders' ongoing learning process- advancing their competences. This is particularly the case in T1 households. However, there are tensions between the short-term investment of time and finances and their consumption practices. While Kate and James suggest they do not want to invest in low carbon practices, as it is complicated and short-term in terms of financial return, they do invest a substantial amount of energy and money in incorporating customised design solutions and designer items in their home. They suggest that because of their passion for good quality things, the renovation process often slows down, as they can't afford to incorporate their desired fittings and refuse to buy cheaper or 'fake' alternatives:

> James: '*We both like spending money on good things […] we don't buy many things'*

> Kate: *'We don't want to buy cheap things we need to replace […] we want it to be sustainably made […] so it makes decisions harder […] and we've got lots of […] hand-downs […] so when we actually buy something it's probably something cool we don't have'*

The competing understandings of taste, lifestyle and efficiency of home therefore need attention and careful consideration. Kate's and James's consumption at home, in regard to the fittings and furnishings, is very strongly connected to their collective

identity, which is a mix of their common professional background and their relationship through the years. Their narrative for change, is strongly linked to this identity, so any low carbon changes, would need to be contextualised and symbolically embedded in this identity and lifestyle.

Furthermore, T1 households present a deep appreciation for the role and value of architecture and design in the process of renovation. Kate and James are both architects, so they have a life-long relationship with the practice, and they suggest that because of that, they always seek and respect the opinion and craft of the professional expert. Similarly, Henry has had a long-term enthusiasm and interest in architecture and design, suggesting that: *'Design has always been a part of my life',* and the renovation gave him an opportunity to express and develop this in practice. The desirability of design, as a product and a service are significant for the transition of households and presents an opportunity to utilise its agency in the process. First, it enables a low carbon vision of the household to be developed, in collaboration with designers and architects, and furthermore, it can associate household changes with less carbon intensive, locally produced materials and products. However, that pre-determines an appropriate intermediation and expertise, which is feasible and available at a relevant time for households.

Empty-nesters present the maturity to appreciate – and prioritise-the socio-cultural and architectural value of existing homes, they, however, need sensitive and personalised intermediation during the process in order to actualise changes that are relevant to their needs and appropriate for the context. Melissa suggests that their considerations of low carbon practices were triggered and maintained through the common appreciation of the house's identity and architectural value, in combination with the support of their architects. Appreciating and supporting design practices, has resulted in the reinforcement of low carbon renovation practices. Similarly, Rox and Ben suggest that despite their own active involvement in DIY low carbon practices, they wouldn't have achieved as much, in terms of whole house upgrade without the continuous input from their architect.

DIY renovation practices in mainstream renovations, present an opportunity for low carbon considerations in two different ways. Initially, as DIY takes place in renovation over time, householders have more time to consider, test and adopt low carbon incorporations, such as energy upgrades in their work. Mark for example finds DIY exciting as it gives him the opportunity to not only choose appropriate materials but to work with them, producing 'home exactly as I like it'. He also adds that he would find it *'absurd'* if he was completely uninvolved in the process of making. Secondly, undertaking DIY means that there are more opportunities for the responsible use or re-purpose of materials, both during planning and in the performance of renovation.

Intergenerational households for example, value DIY, as much as they do professional design and construction work. They practice DIY daily, performing tasks alongside the professionals employed. DIY contributes to the self-actualisation of householders and is strongly connected to their eagerness to have control over the process of change, which is constantly negotiated between household members and the intermediaries that are involved in it, including their daily media consumption.

Fig.8.8 Mark (to the left), showing me his new tool shed and Rox (to the right) explaining the use of their yard for experimenting with materials

Rox and Ben are not just undertaking DIY to cut costs and have control over the process but because they really enjoy the activity of making. Rox suggests that they have enjoyed the process of choosing materials for their home and that she is actively helping build the house, which is an important and welcomed element of their renovation. Furthermore, practices of re-purpose and re-use are common in the

process, using the space of their back yard as an experimentation lab. Similarly, Anna during the performance of her DIY renovation, is gradually adopting recycled materials for the interior, a practice which has been interwoven through her daily interaction with media platforms for learning DIY.

Financial maturity

The adoption of low carbon practices particularly for empty-nesters becomes more achievable due to their financial and emotional maturity, however, it requires appropriate intermediation in order to be contextualised in the established routines and changing requirements of this transitionary typology. Home is one of the most substantial purchases and investments of a household (Allon 2012) and aside from it being secure and happy, it should also preserve and increase its financial value and desirability in the local housing market.

> *'It wasn't a motivation to increase the value (of the house) but…if we*
> *don't increase (it) […] we're in trouble. We are putting a lot of money*
> *in retaining it.'* Ben

Low carbon renovation, as a desirable living and financial outcome, also comes as a compromise to householders' dreaming of building their own home:

> *'Our dream was always to build our own house, […] it's just become*
> *a realisation […] to get a block of land this big and build a house on it*
> *is a two-million-dollar job! And we don't have two million dollars'*
> Sharon

While empty-nesters' and families' financial maturity enables renovation and incorporation of low carbon practices, T1 households, have a more (time and financial) restricted investment, as their planned tenure is between five and ten years. This has a direct effect on the way that the materials and building technologies, including energy upgrades, are considered. As Kate claims, there is no point in making major energy improvements to a property that they don't consider to be a long-term home. Lack of adequate funds can also restrict the incorporation of low carbon practices through one-off renovation, and instead spread it over time, incorporating step-by-step energy upgrades, as in the cases of John and Henry.

Time and schedule restrictions of householders interfere with the renovation process, particularly in respect to the consideration of low carbon changes. Availability and perception of time for the thinking, planning and performance of the renovation is variable in my participants. Having a family with young children, as Sophie, Sharon, Cheryl and Aaron, and Komala and Ben, for example, limits the time for managing and performing a renovation. These four households have chosen to have their renovation performed and managed by professional contractors.

The long-term investment that T2 households aspire to, is interwoven with life-stage commitments and needs, and emotional connections with the materiality and locality of the home. While households that engage in long-term investment through renovation indicate a high interest in the incorporation of low carbon changes, their lack of time, and lack of sufficient support or intermediation, doesn't always enable the actualisation of these interests. Furthermore, the domestic imaginaries, through media use, that these households aspire to, don't explicitly explain how low carbon changes look and feel and how they can be incorporated without much hassle and time.

8.2.4 Intermediation for low carbon practices

The networks that support householders-in their everyday life and in events, such as the performance of renovation, are contributing to the emergence and consideration of low carbon practices in mainstream renovations. Below, I present a summary of the contribution of informal and formal intermediation to the shaping of low carbon meanings and competences of householders, through material and immaterial (virtual) aspects of interaction, which connects and often accelerates them.

Informal intermediaries
One of the major impacts of informal intermediaries on the consideration and adoption of low carbon renovation practices is their long-term involvement in households' everyday life, where they shape, connect and accelerate their practices. Even though the two forms of intermediation (formal and informal) are often merged- media texts for example contain professional guidance- it is the informal intermediaries' familiarity and frequency of interaction that generate a more successful embedment of low carbon.

Initially, the close social relationships of householders are important contributors in low carbon considerations, as long-term support networks who advise and confirm everyday practices. In the cases of Henry, Kate and James, and Rox and Ben, close friends are communities for sharing the emotional and practical load of the renovation work. Exchange of visits and materials objects, such as tools, occur frequently and assist the consolidation of appropriate meanings. Rox and Ben explain that this close network, along with the material contribution of their yard, have contributed to their persistent engagement with low carbon renovation practices over time and allowed them to reinforce their skills and know-how. Furthermore, householders confirm that visiting friends' renovated homes assists their understanding of low carbon living enabling them to imagine an alternative vision of life, by experiencing a real-life example of how people live in lower carbon homes.

Furthermore, neighbourhood renovation practices exercise peer pressure, which can affect low carbon considerations directly or indirectly. Ben and Komala, for example, explain that their neighbours contributed to their decision to renovate rather than demolish the house. Most householders admit to regularly walk down their neighbourhood to observe what is being done with other homes. The habitus in which people operate is important in the way that perceived standards of living are formed and sustained. Often household practices and decisions don't get 'validated' or become meaningful unless they are processed in a wider societal level, such as the local community. This finding points to an opportunity for supporting the embedment of low carbon norms in neighbourhood or community level, considering the specific local, socio-cultural context and practices.

Secondly, media, in their triple articulation (as texts, objects and contexts), shape, connect and accelerate low carbon practices through the reinforcement of relevant low carbon communities of practice online, through the communication and exchange of appropriate meanings and competences such as the ability to work with or challenge professional experts and their accommodation of multi-tasking and sharing of complex tasks. Furthermore, their role as cultural intermediaries and generators of low carbon imaginaries are particularly important in the transition to lower carbon homes, as I explain in detail below.

To begin with, lack of time and availability of householders, in combination with the opportunities or affordances (Gibson 2015, p. 119; Haider 2016, p. 474) of media, has resulted in the gradual replacement of neighbourhood discussions by social media platforms such as Facebook. This is an example of strong mediatisation, transferring former local chats to online environments, as Kate explains:

> *'It's almost that (Facebook groups) have replaced the neighbourhood […] you might have a chat […] say I'm trying to do this […] someone down the street replacing something […] that doesn't happen much these days'*

Since socialising is gradually moving online, the context of renovation extends further than the locality of the household to a virtual community of renovators and homemakers. A similar example is the partial replacement of support networks by traditional media texts, such as TV property shows. T2 households are particularly keen to *'learn about the process […] although it's not realistic but can relate to the pressure'* (Cheryl). Shows like The Block and Grand Designs, act as emotional scaffolds during the Planning and Performing stages. The episodes, whose narratives are enjoyed by the whole family, are experienced as 'a major source of people watching' (Hartley 1999, p. 155). My findings suggest that Grand Designs in particular help householders identify the different experiences of home, rather than only the technicality of its building or financial investment, confirming the expression of 'home as a set of practices' and as a complex weaving and connection between people, spaces and things (Podkalicka, Milne & Kennedy 2018, p. 53). Households, especially the ones with children, don't want to introduce unfamiliar elements through renovation in their lives, and the narrated living experience of TV programmes can often assist in the normalisation of low carbon building practices and give a good scope of different house types.

Media intermediation consists of an ongoing shaping and connecting process, moving between self-education and interaction. Media texts enable a targeted understanding of the low carbon lived experience, not only the technical transformations of homes, as Henry explains:

'You have […] a wider variety of ideas from the internet, or print media, versus going to a number of houses […] for me it's not media you're channelled […] Sanctuary magazine (for example), I know the […] particular types of houses, house technologies and ideas of how people want to live and therefore that aligns with my ideal and therefore that is a valuable source'

Similarly, Tracey explains that she is interested in *'what people do in their homes'*. Therefore, the focus during renovation, is not only on the materiality and architecture but in the everyday experience of space and being at home. Rather than the curated homes presented in home design magazines, the imaginaries represented in media texts need to concentrate on people's 'continuous process of change' (Wallis 2017, p. 20). The choices of print media, such as Sanctuary and Grand Design Magazine point to more ethical, eclectic and even eccentric imaginaries of homemaking, which particularly empty-nester households identify with. However, an opportunity for low carbon embedment relies on the narrative and representation of a variety of low carbon living options and how these are experienced daily.

The agency of media in their triple articulation (texts, objects and contexts) is multidimensional during renovation. As cultural intermediaries, they offer imaginaries to enable the dreaming of home, incubating householders' meanings. They also provide platforms for learning, peer interaction but also the challenging of expertise and conflict resolution with professionals. YouTube for instance, works as a platform for 'cultural participation' (Burgess 2012, p. 54) for DIYers, providing a common point of reference and a meeting point with other renovators. Despite the-sometimes-disruptive promotion of tools or services, householders perceive YouTube as an opportunity for the shaking of professional building expertise and an opportunity for more participation in design and construction processes. Watching videos, as Melissa suggests, was not done only for learning a skill, but as an informative way to understand builders' practices and become able to challenge them. Furthermore, the confidence gained through peer knowledge online and the familiarity of social media platforms, enabled the household to challenge and resolve disagreements with their builders:

'If you ever have any customer complaints, I would go straight to Facebook' Melissa

Media texts, through the daily media practices of householders blur the boundaries between professional and amateur expertise and generate competition for services which traditionally were performed only by trained professionals. They are valuable sources of 'shared stories' (John), bringing together communities of homemakers and renovators, connecting their meanings and competences with the material objects of the practices. My findings evidence that rather than only share the 'pleasures and rewards of co-operation' (Hesmondhalgh 2012, p. 138), online media intensify competition between professional and amateur producers.

The presence of like-minded communities of practice, through Facebook Groups and Pages for example, assists their connection and advancement of their competences, which enables the acceleration of renovation practices. Navigating through my own Facebook feed, I encountered several renovation Groups in Adelaide. By talking to its members (and participants), I realised that this geographic closeness cultivates trust, as members discuss problem-solving in the specific context and recommend professionals, products and solutions found locally. This is a good example of how a global online network is customised to reinforce local activity, which could be used for reinforcing the transitioning to lower carbon homes. Media are the links between householders' competences, the shared meanings they develop through the texts and common socio-cultural settings and the materials of the renovation practice.

However, trust is an important issue in online environments, particularly when technical issues are concerned. Kate and James, both architects, use peer-to-peer forums such as Whirlpool for product reviews, however, they are cautious about the advice on technical DIY practices:

> *'Maybe we're more attune to it because we are professionals, but you need to be aware of risk'*

Peer-to-peer forums are useful to householders as windows into others' direct experience with renovation practices, particularly regarding energy technologies such as solar panels:

'*Forums […] especially around solar panels […] you can follow a thread all the way through someone's building process, so you're tapping into what people have already done or they recommend*'

However, John, similar to Kate and James, suggests that the real skill is to be able to recognise how to trust these sources. His method was to follow the entire story rather than single posts, which combined with users' reputation on forums such as Whirlpool, gave him confidence about renovation tasks or products. He also suggests that he used the Choice website (https://www.choice.com.au/) for checking the ratings that other users have given to products he might be interested, as an additional layer of confidence Anna on the other hand suggests that she has devised ways to trust media sources, judging by the frequency she encounters similar information in different sites and through her trust in lifestyle experts:

'*This lady […] runs a (renovation) course, but I know […] she would not put her name at risk for a product that wasn't right […]. If Bunnings puts up a How to, you can […] trust it because they're gonna be shut down if not*'

Informal intermediaries provide 'insider' knowledge (Podkalicka & Anderson 2020, p. 260) and experience and householders appreciate this while they enjoy the comfort of engaging with this knowledge anytime through mobile media devices such as their phones. Furthermore, renovation knowledge comes interwoven with other homemaking content they browse, such as cooking and lifestyle blogs. Therefore, householders' everyday media practices are important contributors to their low carbon renovation considerations, as continuous backgrounds in which social norms and daily routines are shaped and reinforced. However, it is important for them to find relevant and appropriate cohorts online, which they trust, and who perform similar kind of projects with them, in order for media texts to be successful and timely renovation companions.

Another element that helps break down the complexity of low carbon considerations, is media platforms' role as co-ordinators, of visual and textual findings, through collated boards and social media groups. Householders spend a lot of time curating and classifying images and information online, but not always for public viewing. They suggest that it is important that they are searchable and easy to navigate, as they

become a record of their progress and thinking process. Anna for example suggests it took a while to select an appropriate platform, explaining her preference of Pinterest over Instagram because of the ability to tag elements. The convergence of media allows flexibility of use; however, it generates more content and householders get overwhelmed with too many sites or boards. Anna has found Facebook to be a co-ordinating tool:

> *'Once I found it […] my world changed! Because you can also save*
> *files and make photo albums […] excel spreadsheets and pins and*
> *pages […] it like a project management tool'*

Finally, material objects, such as furniture, household objects (including media devices) and tools link the meanings and competences of householders and could be important contributors in the transition to lower carbon homes, particularly in established households such as empty-nesters and intergenerational ones. Empty-nesters Paul and Tracey discuss the objects they bring home from trips as central to the home's spirit and as foci for the family. While these are not enabling specific practices, they contribute to the households' constitution of normality and collective identity. Having immigrated to Australia 10 years ago, these objects symbolise home and stability and are therefore critical when the re-configuration of home takes place. Objects contribute to the atmosphere of home, act as a preservation of their life together and create familiarity. The householders' tacit appreciation of things, in this case household objects, can extend to other layers of the household, to help embrace its materiality with equal desire for preservation and upgrade.

Fig.8.9 Mark showing me his collection of hi-fi systems

Mark on the other hand, a keen collector of electronics, such as old hi-fi systems and computers, and old cars, suggests that his renovation will provide the opportunity to improve his care and engagement with his possessions and therefore progress his practice of repairing and preserving. He says that:

'I tend to fix old ones (computers) and people give me junk and then before I know I've made them into perfectly respectable computers again!'

Even though Mark collects second-hand devices as hobbies, he hasn'tt employed the same principle in the materiality of his renovation, such as reusing or re-purposing materials. However, even though his practice is not yet transitioned to embrace reuse, his understandings and competences of appreciating the value of second-hand stuff, can enable him to apply the same principles into renovation. One way of achieving this would be through appropriate formal intermediation, which I discuss in the next section. Material objects can be scripted with technological meanings and capacities at production; however, the challenge is to transform their socio-cultural meaning into positive representations and interpretation of low carbon meanings. Media, as everyday companions, act as co-creators of renovation, becoming the link between the elements of the practice and the connectors with formal intermediaries, which I expand below.

Formal intermediaries

Formal intermediaries are important agents for the transition to lower carbon homes, as holders of expertise required in the materially-engaged stages of renovation. My analysis on formal intermediation in chapter 7 discussed the overall interactions and challenges between householders and professionals. This section focuses on the consideration of low carbon renovation practices or on the overall contribution of formal intermediaries to households' meanings of low carbon homes. Formal intermediaries are more likely to be hired after recommendation by the householders' social networks, who have already performed low carbon changes and they can discuss their experience. I focus on three categories of professions: estate agents, architects or designers and builders.

First, estate agents are intermediaries which are frequently consulted before any other professional. Their involvement in the early stages of renovation (Thinking and Planning), points to an opportunity for appropriate guidance for the adoption of low carbon practices. Households with children are the ones which mostly seek advice from them in the beginning of the process. Cheryl, for example, explains that they got advice from an estate agent about their consideration for demolition, which, in combination with their preference for older character homes, contributed to the decision to renovate. The challenge is that currently estate agents are mostly used by households for the financial evaluation of homes. There is an opportunity for developing different evaluation tools or services for households in the early stages of renovation, which consider all aspects of the process, putting equal value in socio-cultural meanings rather than only techno-economic.

Then, the involvement of architects and designers in renovation as cultural and process intermediaries is particularly important for households, particularly empty-nesters. They employ architects and designers as they recognise their ability to re-construct or improve the identity and cultural significance of their home. They appreciate architects' creative expertise, particularly in houses which need preservation and restoration which requires understanding of their history. As Melissa describes, their renovation journey involved the restoration of a mid-century house. They chose local architects who managed to increase the efficiency and layout of the house by effective space planning. She suggests that they got '*18% more house (with only) 4% more footprint'*. Furthermore, they offered continuous guidance about the interior design, linking design movements to specific products and materials for each space. Empty-nesters assign the management of the construction work to professionals, architects or builders, in order to achieve efficiency of time and quality.

Mutual trust between householders and professionals, enables the translation of intentions to practical adoptions of low carbon building practices. Rox and Ben are in a collaborative working relationship with their architects and builders. They suggest that the choice of professionals was made with this intention in mind as they wanted to be involved in the making of their home. Furthermore, they explain that despite their previous experiencing of renovating homes through DIY, the decision to hire architects in their current home comes through their realisation that they would not go very far in

terms of low carbon integration, through their own experience or through communities of other renovators.

However, not all household typologies hire architects or designers, particularly those with children, whose priorities are to achieve a quick and affordable result. The lack of architects' involvement in some or all stages of renovation can present a challenge to the adoption of low carbon practices. Even though their design services involve low carbon adaptations of the house, through for example an upgrade of energy efficiency or adaptation to a more efficient orientation, elements or intentions get lost in the transition from architecture service to builders or DIY construction. Architects suggest that this lack of control of the whole process generates the gap between high intentions and low incorporation of low carbon practices. Furthermore, as Luke, one of the architects, suggests, it generates tensions between professionals, such as the ownership of the work, particularly when different parties produce the design and construction, taking over from one another. Finally, the absence of professionals from the management of renovation, and the phenomenon of '*DIY management*', as Sam, one of the builders, suggests, is making the Performance stages more time consuming and difficult to co-ordinate for both households and professionals. Since householders haven't got the management expertise or experience, the resulted mis-co-ordination of trades on site causes confusion and impacts of the quality of work and the co-ordination of low carbon changes.

Finally, builders and contractors are major formal intermediaries, particularly in the Performance stage. Builders and building contractors are hired more frequently by T1 and T2 households, because of their time efficiency, good communication and market-desirable results. As Sophie and Sharon suggest, reliability of service such as answering the phone when they call, is considered a valuable skill and a reason to hire a builder or contractor. Services, such as a mobile phone application is used to inform households of the daily processes, overall progress or changes to work on site, are welcomed and highly appreciated by time-poor T2 households. However, while the efficiency of time planning and delivery are highly valued, low carbon advice and adoption often suffer consequently. In two of the households, issues such as recycling of materials or fittings, Sharon's skirting boards for example, were not considered as they would delay progress. Furthermore, as Sharon suggests, the skills required to

preserve architectural elements are not always there with mainstream contractors. Rox and Ben, recognising this, suggest that they sook builders who could undertake a sensitive and low carbon renovation of their home:

> *'We've chosen people who do that (preserve)[…] these skirtings, half*
> *of them are re-used […] and these ceiling people […] quite expensive*
> *[…] but they really enjoy jobs that are not new and have*
> *complications […] and this builder we have now again was*
> *specifically chosen because they really like to re-use'*

Furthermore, Rox and Ben's collaborative relationship with their builders establishes trust and encourages involvement. As builder Dan suggests:

> *'The idea is to give people the expertise and even the tools to get the*
> *job finished [...] oversee them, manage them […] charge on this sort*
> *of basis rather than be there every day'*

He also suggests that this collaboration enable low carbon practices to be considered:

> *'It's a very organic process and it's more about what we've got at the*
> *yard at that point […] so a lot of recycling of materials as they come*
> *in the project'*

The realisation that householders want to be involved in the planning and making of their home, and are educating themselves to do so, suggests that the transition to low carbon homes needs a suitable combination of top-down (regulatory) and bottom-up (collaborative) strategy which recognises amateur expertise as complementary to professional as a way to incorporate the socio-cultural and tacit knowledge of homes as evolving organisms.

8.3 Intermediation opportunities for the transition to low carbon

Having analysed the ways in which low carbon considerations are shaped, I now reflect on the most critical points for each household typology, discussing possible opportunities for further research or intervention in the transition to lower carbon homes. My identified renovation stages are non-linear or not always clearly defined,

and there is a lot of movement between them. As households are not isolated units, their practices are always grounded to the physical and virtual communities around them. There is no single way of performing a practice, and renovation- embedded in homemaking- follows this rule. However, by focusing on characteristic practices of the identified typologies throughout the renovation stages, we could assist the strengthening of the individual elements of the practice (such as meanings), as expressed in each context.

While household typologies might showcase similar patterns of stages, for example have the same length of Performing, they might carry out the practice in diverse ways. By concentrating on differences or similarities, I reflect on the type of intermediation required for better adoption of low carbon practices or in ways to bolster the association of practices that encourage their adoption. The following sections present four opportunities for intervention, focusing on formal and informal intermediation within the range of my findings.

8.2.1 T1 Performing: co-creation with media
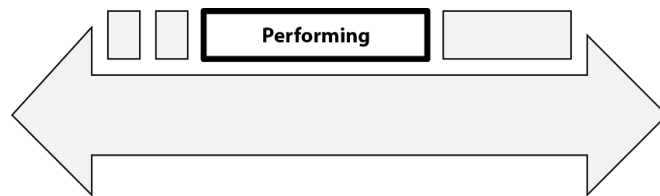
Fig.8.10 Dominant stage of households with no children

T1 households are characterised by a prolonged Performing stage. They experience home as a creative process and want to experiment in order to materialise their dreams and visions. They engage in DIY regularly and consistently, having media devices and platforms assist them in the process. They trust information and advice they find online as much as that from friends and family. The dominant presence of social media in their daily life and the frequent unavailability of immediate social networks to advise them, result in the establishment of a closely-knit digital network with online communities of practice, who inspire and support their practices. These mediatised environments transform their engagement with renovation daily and therefore it appears that its performance is a process co-created with media.

There is an opportunity to enhance these interactions with content and narratives, through media platforms, that relate to this household typology and its characteristics. Emphasis could be placed on meanings that T1 households hold, such as their appreciation of the value of design. This could be translated to long-term and sustainable benefits, for example through investment in good quality new or used products and through the reinforcement of their cultural significance for households, presenting design as a continuous process of achieving change. Good design solutions need to be better associated with comfortable as well as desirable low carbon living, particularly through the highly visual media platforms.

Since T1's priorities are not restricted by geographically specific contexts or house types, they present an opportunity as renovators and investors of diverse house typologies, which can expand the vision of ideal home away from the detached home in a single plot. Broadening T1's meanings of what consists a good home, and in extension a good life, promoting low carbon typologies, such as these of higher density, could support the decarbonising of their wider homemaking and lifestyle.

Furthermore, the competences that T1 could enhance, in order to adopt low carbon practices, lie in their availability of time for renovation practices, which can be translated into the building of appropriate meanings and competences for both planning and performance of renovation. The opportunities for co-creation in the design and construction of renovation could be reinforced with appropriate partnerships between professionals, amateur experts and media platforms.

8.2.2 T2 Planning: lifestyle and informal intermediation
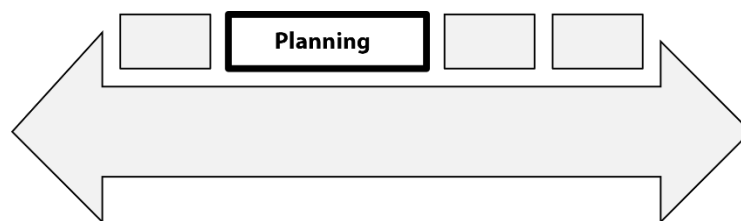
Fig.8.11 Dominant stage of households with children

T2 households present a large planning stage. They usually perform renovation as a one-off project, seeking control over a process with a defined beginning and end. However, having dreamed of their ideal home for many years, in combination with their immersion in media content such as property TV shows, they often develop extensive expectations of both the process and result of renovation. These expectations inflated by neoliberal responsibilities for self-and home- maximisation through investment in property, turn home into a financial asset, sometimes overshadowing its equally important emotional and socio-cultural value. The material manifestation of renovation is therefore important, as it visually communicates the (financial) value of home, as well as its 'compliance' with commonly accepted aesthetics and lifestyle aspirations, such as open-plan living arrangements and smooth connections with the outdoors.

Since renovation professionals, such as architects and builders are trusted as experts for the design and making of home, they are a good starting point for the intermediation of low carbon meanings and competences to T2 households. Since T2s often employ professionals such as architects to oversee the project from beginning to completion, there are more chances for low carbon practices to be considered and realised. However, this might not be enough. The Planning stage represents the phase when a house is being re-designed and its form is being re-configured to reflect an updated, modernised home. It is also the stage for tendering, the process when materials, fittings and appliances are chosen and detailed. Planning is therefore about the consumption practices, which can be problematic when only associated with the financial value of home. I have discussed how products, materials and technologies are 'scripted' with meanings as are designed spaces. However, the intermediation and *directions for use* by professionals is not enough for the change of practices, even when the physical conditions are present. The domestication, not only of technologies and objects but of new spaces and connections in the renovated home needs to be achieved through a combination of formal intermediation guidance and 'scripting', as well as informal and culturally specific adaptation, through media and social networks. The combination of formal and informal intermediation can address the alignment of top down and bottom up intermediation, by allowing a more diverse body of actors to be part of the renovation process.

Findings ways for example to script meanings of comfort and taste in low carbon design (objects and spaces) and technologies can contribute to the establishment of new social norms about homemaking and everyday life. A starting but challenging point would be to address the frequent priorities of T2s for open plan living and connectivity of living rooms to outdoors, which has problematic consequences in energy consumption, with low carbon practices, trying to compromise desire with efficiency. Satisfying the functional and pragmatic requirements of T2 households, which represent a large proportion of homes in Australian suburbs and of considerable financial investment, could help move niche attempts to wider regime changes.

8.2.3 T3 Thinking and sharing of renovation: Transition on two fronts: the next stage of life in low carbon
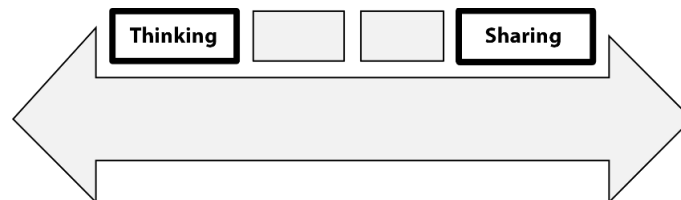
Fig.8.12 Dominant stages of empty-nester households

Empty-nester households prepare for, or have moved to, another stage of life, which usually involves the shrinking of household size and a change of daily routines, because of change of circumstances or retirement. This might indicate spending more time at home or engaging more intensive with homemaking and renovation. T3 households present a large Dreaming and Thinking stage, which is consistent with this emotional, financial and practical preparation to transition to new ways of living.

T3 households have established everyday practices, and strongly associated meanings of comfort and home maintenance practices with emotions and life experiences at home. While they might have more time and money available for renovation- or the potential for these in the near future- they also carry pre-determined ideas of how home should be made, some of which might be carbon heavy, based on their experience of life so far as well as social norms. However, moving towards a more mature age in life, comes with challenges, one of which is the suitability of their house for the years to

come. Many consider downsizing through relocation or demolition; however, the emotional significance of their homes and the familiarity of their locality leads them to renovation as compromise to these. Therefore, T3 households face a double-sided transition; one to the next stage of life and one to a lower carbon living, through the renovation and upgrade of their homes.

Being in a life transition brings an opportunity for homemaking and renovation practices to evolve, towards lower carbon ones, as perhaps people are already prepared for a change. Renovation provides a way to modify the layout, functionality and efficiency of the house, but also a way to reinforce the emotionally and culturally significant characteristics of the home that people have lived in long-term. While the narrative and vision of ideal home as a detached, single-family dwelling lives on, there is an opportunity to re-imagine a new model of adaptation for empty-nester homes and keep householders in place. Emerging collaborative consumption practices, under the wider sharing economy model, could address some of these issues. Media would be important intermediaries for this process, both for establishing the meanings of home as a shared asset, and for mediating between people.

Building on this, T3s also present a large Sharing stage, as householders are keen to and share the results, knowledge and experience they have gained in the process. Participation in community events, such as the Sustainability House Day, provides an opportunity for sharing good practice, particularly when low carbon practices have been adopted. Similar sharing practices could be used to connect and co-ordinate communities of empty-nester households between them and with other organisations, in order to create a bottom-up peer to peer network.

8.2.4 T4 Planning and Performing: intergenerational co-creation with professionals
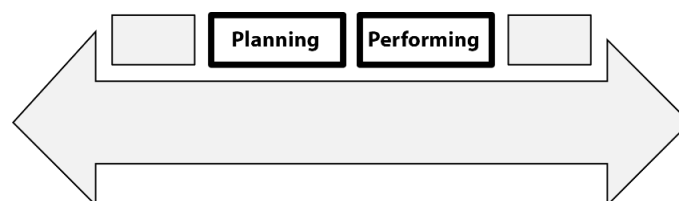
Fig.8.13 Dominant stages of intergenerational households

Intergenerational households contain everyday practices that are as diverse as their members. They present a complexity on different levels, because of the added layers of practices and needs of different generations in the same space. However, these challenges might become opportunities for successful integration of low carbon practices through the homemaking and renovation practices of T4 households.

On a theoretical level, the concept of 'practice memory' suggests that practices have the ability to leave re-collections of their performance to the carriers (Maller & Strengers 2013, p. 244), therefore their elements can travel down to others when re-activated. While the conditions, such as local context, space and materials might be different, low carbon homemaking and maintenance practices for example can migrate between generations. One way for this to happen is the awakening of dormant elements of the practices, such as meanings (such as comfort, responsible consumption and sharing) and competences of householders, through the performance of the practice in a new context or with the use of new objects to perform it. The competences that different generations hold, such as digital literacy of the younger and sensible consumption of the elderly, can come together to create hybrid practices which contribute to the decarbonisation of homes.

Furthermore, a more practical opportunity arises from the financial synergy of generations living together. The combination of incomes can assist in the planning and performance of renovation and encourage households to invest in more substantial, sustainable and long-term transformations of their home, through energy efficiency technologies, materials and space planning.

T4 households present large Planning and Performing stages, which are often intersected in the process, as householders move between researching and performing the practice. Furthermore, T4 often perform the renovation work alongside building professionals, with the aim of personalising the result, and maintain control of the process. Even though this co-creation still exists in small niches, there is potential to reinforce the practice with professionals as a way to create hybrid renovation practices which support the combined expertise and make use of the tacit and socio-cultural knowledge that householders possess. Further to these practical contributions of co-creation, it could also inspire more 'ethical production (in DIY renovations) (Rosenberg

2011a, p. 18) practices between households and the building industry. Finally, the co-creation and hybrid practice of renovation can re-connect the household to its physical and digital communities, through sharing and collaborative practices, scaling up the transformations to community or urban level.

8.4 Chapter conclusion

Chapter 8 associated four household typologies (household with no children, household with children, empty-nester and intergenerational households), relevant to the life-stage of householders, with the identified stages of renovation and explored how these contribute to the emergence and adoption of low carbon practices. While the small number of my cases doesn't allow for a comprehensive taxonomy, the household typologies identified unique characteristics in each stage of renovation, which can be used as opportunities for further inquiry and intervention towards the embedment of low carbon practices.

The chapter began with the ways in which each household typology engages with renovation, concentrating on distinct expressions of meanings, materials and competences of each. I found that tensions exist between the emotional and socio-cultural understandings of home and the householders' incorporation of low carbon practices, as the latter can contradict the established ways in which they make home. For example, even though empty-nester households have the financial maturity and desire to invest time and effort to the upgrade of their homes, they are somehow hesitant to incorporate large efficiency upgrades as these can transform the temporal rhythms of their daily routines. Furthermore, after presenting each typology's engagement with media (in their triple articulation), my findings add to recent literature which suggests that home renovation practices are 'almost inseparable from media practices' (Hunter 2019, p. 194).

The second part of the chapter identified the ways in which low carbon renovation practices and their considerations arise in the households investigated. These are, first of all each (household) typology's distinct meanings of home, such as the desire for authenticity and aesthetics, the distinct competences of householders, such as financial maturity and appreciation for good design, issues of materiality, such as the

home's location and type, and the short and long-term, interactions with networks of informal and formal intermediaries. My findings suggest that tensions exist in the ways that these meanings, competences, issues of materiality and intermediation are expressed in each household typology, which can have contradicting effects to the stabilisation of low carbon practices. For example, detached houses are considered as long-term homes, and valued by all typologies, and through their availability of extra space for experimentation, they offer the opportunity for testing low carbon amendments and practices, such as the reusing and repurposing of materials. However, meanings of taste - which contribute to preservation of comfort, lifestyle and functionality- can contradict this opportunity by supporting the prioritisation of extended space and aesthetic amendments rather than efficiency improvements. Furthermore, my analysis identified that even though the two forms of intermediation (formal and informal) are frequently intersected and merged, it is the informal intermediaries' familiarity and ongoing presence that can generate a more successful embedment of low carbon practices. This is primarily due to media's (objects, texts and contexts) capability of interpreting and contextualising meanings from global to local environments and vice versa. Householders' ongoing engagement with media, throughout all the renovation stages and through participation in various communities online, results in a smoother translation and normalisation of the meanings, competences and materials required for the transition to lower carbon homes. On the other hand, interactions with professionals offer opportunities for collaborative renovation practices, between householders, professionals and media. However, their impact is restricted because of the limited time exposure they have in the lives of households and in the stages of renovation.

Finally, the chapter discussed opportunities for further research or possible intervention that arise from the renovation stages as experienced in each household stage. Despite similarities in the length and sequence of stages, I highlighted that the practice of renovation can have many expressions and variations in each household typology, because of the distinct performances of the dispersed practices that comprise it and of the distinct interactions with intermediaries, including media. I concluded that appropriate combination of formal and informal intermediation per household typology can have positive effects in the decarbonisation of the home renovation process.

The next chapter is the conclusion of the thesis, which summarises my theoretical and empirical investigation of renovation and concludes the study by highlighting its contribution and possible future paths.

Chapter 9: Conclusion

My thesis has contributed to the interdisciplinary understanding of the home renovation practice as experienced in Australian households. This final chapter comes back to address the main aim of the thesis which was:

To explore and map the complexity of renovation, as a practice embedded in the everyday homemaking of mediatised Australian households.

Renovation is an opportunity and priority for the low carbon upgrade of existing homes, in high home-ownership societies such as Australia. However, low carbon renovations are usually integrated in ordinary home maintenance practices and embedded in the everyday routines of households. My thesis has addressed a gap in the understanding of renovation as a long-term process embedded in the mediatised household, by providing a mapping of the process, and its association with homemaking.

Using theories of practice and mediatisation, and adopting and interdisciplinary lens of investigation, I composed a framework through which the interactions and engagement with the materials, meanings and competences of households in the renovation process can be explored and evaluated. My analysis and interpretation of the complex components identified through the empirical research, including the identification of renovation stages in the Australian context, the media and intermediaries engaged in each stage, has sought to contribute to a targeted intervention to support low carbon renovations.

This chapter summarises my findings and their limitations in relation to my research questions, the theoretical and empirical contributions of the thesis and concludes with the identification of future directions.

9.1 Summary of findings

The thesis addressed three research questions. The first one related to the theoretical and conceptual understanding of renovation and the issues that frame it, through an interdisciplinary perspective. The second one related to the emergence and reproduction of the practice in households and the third concerned the process and its stages, including the interactions of households with media and intermediaries. The following sections summarise the responses to these questions.

9.1.1 How do different disciplinary perspectives frame the complexity of the renovation practice and process?

My interdisciplinary review indicated that the complexity of the renovation practice is entangled in wider socio-cultural meanings and everyday mediatised practices of home and in current socio-technical transitions of households to lower carbon housing. The extended review of literature in Part 1, indicated a rich landscape in which home renovation is embedded. This landscape can be arranged in three domains: social, cultural and building practice based. Each domain revealed unique characteristics and helped situate renovation amongst current discourses of the disciplines examined. It highlighted the importance of the combination of the theoretical perspectives of practice theories and mediatisation, which can add a conceptual layer to the study of renovation, through the enhanced understanding of media and communication technologies, not just as materials of the practice, but also as meanings and competences of the practitioners. My interdisciplinary review of renovation, focusing on the socio-cultural elements of households' everyday life, extends current discourses which suggest that in order to transition to lower carbon homes, focus needs to placed on householders' practices rather than merely the technical upgrade of houses (Horne 2018, p.3).

Initially, the social analysis examined the household, in the meso level of society, as an efficient level to observe both individual and collective practices, while contextualising and connecting them within the wider community level. Placing the focus on household practices can help observe everyday routines out of which renovation practices emerge. Understanding these established homemaking routines and consumption

patterns of households can help align them with emerging renovation practices. The adoption of a practice theoretical perspective can help re-direct the dominant techno-economic focus of renovation towards the consideration of socio-cultural and emotional aspects of the practices, which contribute to the conceptualisation and performance of the practice. Furthermore, theories of media as practice and mediatisation can help explore what kinds of things people do in relation to media and how media are incorporated in everyday life and cultural practices.

In addition, the unique, low-density urban landscape of Australian cities, enables large renovations and extensions of homes, which would be difficult in other, denser contexts. This phenomenon can be amplified by prevailing social norms of inflated consumption of space and materiality, which entrap the household in a vicious circle of creating more space to accommodate more things and practices, which in turn generate the need for more (space, materials and energy). Waste, of material and energy, as a by-product of this process, is an indicator that renovations can contribute to the exaggeration of everyday consumption, even when houses have been upgraded for better energy efficiency. A frequent and often undetectable phenomenon, the Diderot effect, can strengthen the effect of over-consumption and the waste produced, by triggering the acquisition of goods and the transformation of new spaces to maintain a symbolic integrity in the household.

Then, the building practice perspective concluded that home renovation practices don't always involve the low carbon amendment of households. Rather, low carbon renovations are more likely to be interwoven in the routine maintenance and renovation of homes or come as a result of these changes. Understanding renovation as a social practice, taking place routinely, recognises it as a widespread activity with shared collective meanings, involving a complex array of materials, technologies and the householders' know-how. My review indicated that there are two distinct ways of performing renovation: as a one-off project, carefully planned and managed, and as an ongoing activity over time, involving smaller works and frequent DIY. Renovation needs to be considered as a process which includes the period before and after the execution of construction work, as households continuously devise their economic, technical and lifestyle circumstances. My review revealed that there is little understanding and documentation of the process before and after this materially-engaged window,

specifically addressing the contribution of intermediation and the significance of media in the everyday life at home.

Finally, the cultural and media investigation of renovation, revealed that homes are mediatised environments, in which media, through their triple articulation (as texts, objects and contexts), are no longer supplementary to, but constitutive of what home is. The mediatisation of home is a process of connection of the different societal levels. The micro and meso level of individuals' and households' practices are linked, through media, with social transformations and discourses taking place at the macro level. Literature indicates that people do things *with media* rather than just *in response* to media. Therefore, understanding everyday media-involved household practices, such relaxing with media or organising home through media, might help explain the extended context (in media worlds) in which renovation practice takes place. Finally, my review of literature concluded that taste and lifestyle are orchestrating elements of people's everyday consumption, and embedded in dominant cultural intermediation, performed by 'traditional' and emerging amateur experts. Highly visual lifestyle media platforms are a frequent research and entertainment tool for householders who renovate. However, more research and empirical knowledge are required in order to understand their contribution to the renovation process particularly regarding amendments relevant to energy efficiency and other low carbon upgrades, a gap to which my thesis attempts to address.

9.1.2 How do home renovation practices emerge, reproduce and sustain themselves in Australian households?

My findings suggest that home renovation practices emerge:

- through the direct association of renovation with everyday homemaking practices,

- through the inter-connected meanings of home that householders possess,

- through the space and time demands for the reproduction of everyday media-practices

- through the Diderot effect, which triggers unplanned changes which result in larger renovation practices in order to maintain the symbolic unity of space and

- through the distinct homemaking practices and events that mark the different household typologies

One implication of these findings is that these meso level practices are underpinned by socially embedded and commonly held meanings of domesticity, homemaking and household identity. These meanings are shaped by narratives and social norms embedded in current global media cultures. Global media cultures are diverse, not location bound and related to the ubiquity of media in our everyday lives. Because of this, households are now embedded in a global community, rather than just a physical one, and are therefore part of a wider (and partially virtual) habitus and several communities of practice of renovators and home enthusiasts. My findings suggest, therefore, that the symbolic space of renovation is now global rather than local.

Homes, in addition, are considered as long-term emotional investments. This finding indicates that houses are not perceived as disposable and don't become obsolescent for participating households. However, households' definition or perception of long-term tenure is affected by the stage of life that these are in. The four different household typologies identified in the study (household with no children, household with children, empty-nester and intergenerational household), demonstrate distinct ways of homemaking and renovation practices, appropriate to the needs and desires of their members. Furthermore, life events such as births, divorces or children leaving home trigger the need or desire for the material re-configuration of home, to respond to the new conditions of everyday life. Renovation is found to prolong the life-stage of households by enabling them to maintain their location, reducing the stress of adjustment to new conditions and reinforcing their connections to local communities. Furthermore, my findings indicate that renovation is associated with a general upgrade of the wider neighbourhood and is welcomed by residents and other beneficiaries in the community. There is evidence that the regeneration or even re-invention of the household identity through renovation, extends to the regeneration of the immediate community. Therefore, renovation is experienced not just as a micro/meso practice, but

as a wider community action, which enables the reproduction of the practice to a larger societal scale.

My empirical research suggests that renovation is an integrative practice which involves several dispersed practices, associated with homemaking and held together by meanings of home, media technologies, emotion, and the tacit, culturally distinct, know-how of householders. The co-location of the two sets of practices at home enables this strong link and allows their co-evolution. My work extends current literature by demonstrating that the integrated elements of homemaking and renovation co-evolve, and that home is experienced as a dynamic process, rather than a static space and continuously re-created through everyday homemaking practices. I have demonstrated that renovation is a way to maintain and improve the home's stability, continuity and 'ontological security' (Giddens 1991, p. 82, 1984, p. 50). The implication of this, is that households increase their investment and consumption in and through renovation, as a way to reinforce and add value to their home ownership, while also expressing their socially embedded meanings of a 'good life'.

Home carries diverse meanings for households, which I identified as a safe place, a connecting unit, home as work and as a creative project. Each of these has been found to contribute to the emergence and reproduction of renovation as a way to assist the continuity of home, confirming recent literature which suggests that renovation is 'an adaptive response to perceived misalignments between the physical characteristics [..] and the meanings of a home' (Wilson, Crane & Chryssochoidis 2015, p. 18). Home as a safe place for example contributes to the creation of atmospheres of homeyness and togetherness, and to the improvement of comfort and functionality, as exemplified in families with children. Renovation in this case often emerges as a compromise of the households' visions of building a new home and as an opportunity to maintain their socio-spatial location. Home as a connecting unit, aspires the connection between past and present, as well as the physical and digital connection with community. Renovation in this case seeks to generate culturally appropriate space which maintains the past living experiences of households. Change, through renovation, in this case, is embedded in the familiarity of continuity. Experiencing home as work on the other hand, generates renovation practices which seek to improve the home's flexibility and connectivity, in order to support the appropriate multi-tasking and allow attendance to

simultaneous homemaking and working practices. Finally, home as a creative project contributes to the performance of practices such as DIY and householders' experimentation with technologies and materials. These meanings and narratives need, however, to be understood in the context of these households' habitus and considered in local and national policy regarding home renovation and energy upgrade. Issues of emotional security and comfort, as well as the emerging requirements for the multi-tasking and flexibility of houses interconnected and shaped by mediatised communications, can help direct initiatives for the low carbon upgrade of homes towards more appropriate and aspirational intermediation and regulation.

Furthermore, renovation practices emerge and reproduce through the triple articulation of media in the home environment. The space-shaping effect of media, as texts, objects and contexts, contributes to the tightening of the meanings of home and their association with the wider world. Households are experienced as flexible and adaptable spaces which accommodate the changing needs of their members. Householders operate in flexibly designed spaces, which allow multi-tasking and not fixed functions of rooms, and media devices are catalysts of that process. Household media-practices require specific space layouts (such as open-plan living) to be performed in, and appropriate devices that can support them, as exemplified particularly in households with children. Media therefore enable the inter-relation and connection of everyday practices, adding to the argument that technology is 'holding practices together' (Gram-Hanssen 2011, p. 69). Additionally, despite the omnipresence of media devices all around the home, they generate and inspire the zoning of the house, in private and public zones of activity. Public zones are associated with everyday media-practices, while private zones usually contain non-or limited use media spaces, as experienced in Serena's and Jody's case. Renovation practices emerge and reproduce themselves out of the demand for such zoning in households, confirming the role of media as homemaking agents. The representation of home as an integrated part of local economy, environment and society, rather than a detached, isolated unit, suggests that media-oriented renovation practices are increasingly being mediatised and performed with or through the influence of media. The 'space' of renovation in now not just in the physical enclosure of the home, but in the various expressions this takes online. This is particularly the case in heavy-mediatised households without children.

Renovation practices display great variation and cultural diversity and appear to emerge out of micro and meso level situations. However, the implication of the broader, macro level of society is observed through common patterns of consumption, which relate to dominant socio-cultural norms. Households' media consumption is a primary example of this. The commonly held meanings of appropriate homemaking, parenting and domesticity are underpinned and co-created with media.

Finally, the Diderot effect, which describes escalating consumption practices after a single change, is generating multiple renovation practices and energy upgrades in households. Starting off with a single appliance replacement, as in Komala's and Ben's case, or the plan of basic maintenance which turns into major extension of home, as in the cases of Serena and Sharon, the Diderot effect is implicated in the continuous remaking of home. However, the finding that households, through similar Diderot effects, engaged in the adoption of further efficiency upgrades of their homes, after getting positive experiences from one initial change, such as the instalment of solar panels (in John's case), is an important contribution which can encourage the generation and sustainment of low carbon practices in households. The significance of the Diderot effect finding is its theoretical and practical contribution towards the multiplication of low carbon upgrades, and also in its role as connector of scale small changes to wider, macro level practices.

9.1.3 How do media and intermediaries configure the process of home renovation?

This has been a complex question to answer as it involves multiple empirical findings, underpinned with theoretical aspects of interdisciplinary threads of literature, namely those of intermediation (transition intermediaries, cultural intermediaries), expertise (professional/technical and amateur expertise), media (mediatisation, triple articulation) and theories of practice (understanding and interpreting renovation as a practice). Taking the perspective of householders, the concept of intermediaries could be contradictory with that of theories of practice, particularly when they are perceived as agents of external influence. Following existing literature and my own findings, practices emerge and reproduce through the interconnection of their elements (meanings, materials and competences) and according to the context they are embedded in (Shove, Pantzar & Watson 2012), rather than the influence they receive

by individual forces. By redirecting the focus towards practices, I therefore conceptualised the role and function of intermediaries (including media) as mediators between practices, therefore acknowledging them as links between the elements of a practice (meanings, competences and materials). Before discussing the significance of media and intermediaries, I will summarise findings regarding the renovation stages and the mapping of intermediaries within them.

My thesis has contributed to the empirical mapping of the renovation practice, as a process that spans in five distinct stages: the Dreaming stage, the Thinking stage, the Planning stage, the Performing stage and the Finalising or Sharing stage. Households move through these but not always in sequence; they tend to jump between stages or, as participants suggest, going through different cycles of 'doings', as in Sharon's, Henry's and Rox and Ben's cases. An important finding is the continuous presence of the Dreaming stage, as a backdrop and guide of the journey of transformation. The Dreaming stage acts as the connector between the stages and becomes the link between the practice as entity and practice as performance. Furthermore, it is characterised by a lack of formal, professional intermediation. The existence of the Dreaming Stage and its association with the sayings and doings of renovation, consolidates renovation as a continuous and integrative practice, which involves several dispersed practices in each stage.

Furthermore, the stages support the argument that practices are not only 'bodily performances' but also 'mental activities', which involve the building of collective knowledge and meanings relevant to the practice (Reckwitz 2002b, p. 251). The contribution of the stages to renovation is situated in the mapping of meanings and meaning-making sources, including the engagement of intermediaries and media, which helps break down the complexity of the practice. Furthermore, the link between the renovation stages and four household typologies (household with no children, household with children, empty-nester and intergenerational household) contributes to a more systematic and focused- theoretical and empirical -understanding of the practice, in smaller parts. One significant implication of this finding is that renovation intermediation, through formal and informal intermediaries, can be designed to target the specific stages and their requirements.

My thesis contributes to existing understandings of home renovation intermediation by making connections between conceptual and empirical understandings of cultural and transition intermediaries. I have classified intermediaries into formal and informal, to interpret their presence in the process. Formal intermediation refers to one-off transactions and interactions with professionals, distinctly related to the practice of renovation, rather than homemaking or other everyday practices. Informal intermediaries contain the householders' (human) social networks, media (as texts and objects) and material things. Informal intermediation refers to the continuous presence of the actors involved in the household, regardless of the engagement with the practice of renovation. These actors (friends/family, media and objects) are part of the immediate context of the household and have a long-term relationship and continuous interaction with householders. I expand on the contribution on intermediation in section 9.3.2 below. Therefore, following this classification of intermediaries into formal and informal, and the recognition of media as informal intermediaries the question that I answer below needs to be rephrased as:

How do media and formal intermediaries configure the process of home renovation?

There are three important roles that both media and formal intermediaries perform in the process of renovation and these can be summed up in their roles as incubators or practice-shaping agents, as connectors and as accelerators. The combined agency of media and formal intermediaries:

Incubate and shape the renovation practice:

- by assisting the emergence, reproduction and evolution of the practice to alternative models through the different kinds of expertise they bring to the practice.

- by assisting the generation of meanings of the practice, contributing for example, to the evolution and progression of meanings of home and everyday life, and therefore assisting the transition of the practice to alternative versions which includes low carbon models

Connect :

- the meso level household renovation practices with the macro societal level

- the dispersed practices of renovation, by progressing and connecting the stages of renovation

- the associated practices of renovation and homemaking, influencing the stability of their common elements.

Accelerate:

- the movement of households through the renovation stages, by strengthening the elements that (can) weaken the practice through the different kinds of expertise they offer

- the progression of each individual stage they are involved in

Therefore intermediaries, including media, not only generate or articulate meanings, but they can accelerate the movement and development of the practice through the strengthening of the links between its elements. An example of this is Melissa's household, in which the architects (formal intermediaries) helped form the family's understanding and appreciation of the house. When the family bought it, they were committed to modernise it. However, through the intermediation of architects and online media sources (such as the Modernist Australia platform), the family appreciated the architectural value of the house and developed their collective competences in order to renovate and restore it. Through this process, the continuous intermediation of professionals, in combination with media platforms (Facebook groups), enabled the reproduction of the practice, while incubating new meanings about renovation, through the dissemination and support of concepts of sustainable building practices and responsible/ethical consumption.

Furthermore, an important implication of media and formal intermediaries' roles as practice shapers, is the emergence of co-creation practices they generate (co-creation with media and co-creation with professionals). These practices, which were evident in several of my cases, such as in households with no children (co-creation with media) and in intergenerational households (co-creation with professionals), were enabled through the transportation of meanings of collaborative building practices, with the contribution of intermediation. In extension, this meaning-making process has also enabled the enrichment of expertise of professionals, through the progressive movement from outreach experts (relying on one-way passing of expertise) towards the model of civic experts, who involve citizens in more participatory models of practice and enlighten their professional and technical knowledge (Brand & Karvonen 2007).

To sum up, media as informal intermediaries and building professionals, as formal intermediaries need to be considered as integral elements of the renovation practice, as they are contained in the meanings, materials and competences of householders through their different dimensions. By extending their function from external agents of influence to integral parts of the practice, there is also an opportunity to recognise intermediation as a dispersed practice of renovation and therefore associate it not only with the Performing stage of the practice but with its extended process of Dreaming, Thinking, Planning and Sharing. So rather than media and intermediaries shaping, accelerating and connecting the practice of renovation, in extension they need to be considered as elements that shape households' everyday homemaking, generating the context and meanings from which transitions to low carbon can emerge from.

9.2 Contribution of the thesis

The thesis has contributed to the understanding of renovation as an integrative social practice which takes place alongside the everyday homemaking of households within the mediatised home. The mapping of the renovation process through five distinct stages, in alignment with the dispersed practices that take place in each stage, have further contributed to the interdisciplinary understanding of home, as a multi-dimensional concept, bridging the material dimension of the house with the living experiences of home. I present the main theoretical, methodological and empirical contributes in more detail below.

The main theoretical and methodological contributions to knowledge relate to the interdisciplinary understanding of renovation as a social practice closely associated with homemaking in the mediatised home, which signifies the identification of media as an integrated element of both practices.

Renovation as ongoing practice: Theories of practice and mediatisation

The thesis contributes to existing literature which examines renovation as social practice, taking place routinely in the household. While this perspective is not new, my study contributes to the combined understanding of renovation practice, within the mediatised home, which indicates the symbiosis of people with media. My contribution is in the bridging of Theories of Practice with theories of Mediatisation and Transitions, which has enabled the conceptualisation of media as practice and as text, object and context that link the meso level of the household with the macro societal level. This theoretical identification of media as an integrated element of both renovation and homemaking practices, highlights its significance as a meaning, competence and material in the everyday practices of households, and adds to the small number of studies that engage with media and home renovation (Hunter 2019; Podkalicka 2018; Podkalicka & Milne 2017; Hulse & Milne 2019; Podkalicka et al. 2016; Hulse et al. 2015; Melles et al. 2017).

Furthermore, the thesis makes an important contribution to theories of practice by extending the understandings of the association of the practices of homemaking and renovation, identifying the core elements (meanings, materials and competences) that influence and strengthen each other's emergence and reproduction. By recognising these elements, such as meanings of nostalgia and the tacit know-how of householders' homes, I contribute to socio-technical understandings of how the transition to lower carbon homes can be assisted through the realisation that change is embedded in the familiarity of continuity.

Finally, the intersection of theories of practice with mediatisation contributes to further evidence of media as an inseparable element of everyday life, which underpins homemaking and contributes to the material shaping of space, practice and identity.

Methodological contribution

The thesis contributes to the development of an ethnographically inspired, design methodology which combines elements of observation and sensory exploration of homes, with participatory methods. By doing this I uncover the tacit and latent knowledge of participants, usually invisible and difficult to expose by discussion or observation. This combination provides an opportunity to get and in-depth account of everyday practices, while engaging the multiple actors in the framing of the challenge by collaborative and participatory tasks, such as the mapping that took place through the workshop.

9.2.2 Empirical contributions

Mapping of the renovation practice

My thesis responds to the need for an analytical mapping of the renovation process on behalf of householders, in order to understand its complexity and include the socio-cultural aspects of the practice. An important empirical contribution of my research is the understanding of renovation as a series of moments of homemaking. The identification of the five distinct but interconnected stages of renovation contributes to empirical studies of renovation, mapping renovation as an ongoing household practice and adds to them by including the non-materially-engaged periods, such as the Dreaming stage and the Sharing stage. This is particularly significant for policy; it is evident that targeting isolated renovation projects towards low carbon models is not adequate if these are not supported or understood within the backdrop of everyday homemaking.

The renovation stages provide a framework upon which we can build a more comprehensive understanding of the process, extending it further than the materially-engaged periods of transformation. My mapping identified what people do in each stage, who they do it with but also what they think, say and dream about. Therefore, the stages framework contributes to the identification of the several dispersed practices that comprise the integrative practice of renovation and adds to existing literature by unpacking the meanings, materials and competences required for the transition of households to low carbon.

Furthermore, my thesis contributes to the connection of the media practices and intermediation in households with the dispersed renovation practices in each stage of the process. For example, my findings suggest that living with media encompasses dreaming with media, which enables householders to be part of the dominant discourses around current discourses on homemaking, environmental and social concerns, while supporting and expanding their consumption desires. Focusing on the ways in which individual ideals and dreams intersect and form the collective household dreams, could give us insights into the ways that households negotiate priorities and values about their everyday life. The Dreaming stage is a connecting element of the dispersed practices of renovation and can contribute to targeting further research and design projects in the transition to lower carbon homes.

Finally, the association of the renovation stages with four distinct household typologies, along with the media and intermediaries involved, provides a useful framework for narrowing down the diversity of the practice and identifying the appropriate periods and practices in which intervention for lower carbon practices would be more meaningful for each household typology.

The Diderot effect as trigger for low carbon changes

An important empirical contribution relevant to understandings of household consumption practices comes through the identification of the Diderot effect, as a positive trigger for low carbon practices in households. I have shown how the Diderot, evident in several cases, presented a supporting mechanism for households to continue investing in low carbon practices, encouraged by the initial adoption of one efficiency change (such as solar energy), and determined to adopt several other low carbon amendments, such as water tanks in their homes. The Diderot can be more effectively linked with media strategies for the integration of appropriate meanings for low carbon living to households, aligning them with their everyday homemaking practices, as expressed and performed by their household stage.

Intermediation

My research contributes to the empirical recognition of home renovation intermediation as a dispersed practice of renovation and classifies intermediaries under two categories: formal and informal, which characterise their presence and contribution to

households' meanings, materials and competences during the renovation process. My research broadens the range of what is considered an intermediary in the process of renovation further than that of professionals, linking the practice with the ongoing homemaking, through the identification of informal intermediation. My findings show that the contribution of intermediaries in the renovation stages, including media (in their triple articulation), material objects and people (professionals and non-professionals), is multidimensional, ranging from casual everyday interactions to formal professional appointments. The significance of this finding is that intermediaries should not perceived as one-off external agents of influence specific to the performance of renovation, but contributors to the ongoing everyday practices of the household.

Furthermore, I have shown, through the examination of renovation practices of different household typologies, how important it is to achieve a merged intermediation process, combining elements of both formal and informal intermediaries, such as co-creation processes between professionals and householders, or householders and media, as in the cases of Rox and Ben and Anna or Henry respectively. Intermediation is not just about the translation or mediation of information and expertise regarding the technical and financial performance and accomplishment of renovation, but a wider socio-cultural meaning and competence making process. This involves elements of cultural intermediation, such as media's capacity in contextualising low carbon meanings and materials and amateur expertise, which often challenges the professional contribution, as exemplified in Melissa's case. Therefore, in order to transition to lower carbon homes, the challenging of professional expertise and the merging with amateur experience are both important, as ways to integrate the tacit, culturally distinct knowledge of home by householders. Furthermore, assisting the development of alternative practices of intermediation, supporting participation and co-creation between professionals and householders, can potentially diffuse the trust, responsibility and expertise from central systems of provision and professionals towards transitions through collaborative initiatives based on households and communities.

Furthermore, the recognition of media (as objects, texts and contexts) as intermediaries of renovation, is an important contributor in the ways that people make and think of home, shaping their dreams, which at different stages of life materialise through renovation. I have presented for example the long-term dreaming periods of

householders, such as Paul and Tracey, who, despite owning different homes in different countries, are still planning their 'dream' home and expect to achieve it through renovation. Their long-term process has been supported and inspired by media engagement with various forms of dream-making sources, such as magazines, TV programmes and online texts. The length of media interaction with households is proportional to the contribution they have as meaning-making agents. Even though householders' know-how (competences) can take years to develop, the meanings of renovation-which can lie dormant- can be consolidated very quickly with an input from a source of intermediation. The context of renovation is therefore expanded from the physical environment of home to symbolic and digital manifestations, and intermediation needs to respond and support this. It is therefore important to consider the substantial involvement of media, as informal intermediaries, in the process of renovation, as meaning and dream-makers.

9.3 Limitations of the study

Although more rewarding than not, the interdisciplinary nature of research presented a few challenges to the process of the thesis. The development of common meanings and language in order to compose the perspectives of three disciplines, took time and negotiation, as often competing elements of literature found their way in the text. My intention was to perceive interdisciplinary research more as a process and negotiation of a continuous transaction of knowledge (Mackley & Pink 2013).

The exploratory and informal nature of my research enquiry made it possible to represent the rich and culturally diverse practices encountered in my participants. However, it is important to observe that these represent the distinct practices and views which relate to the Adelaide metropolitan region, which might express local particularities. Furthermore, the analysis of these observations is bound by my point of view and critical self-reflection, as explained under the reflexivity section 2.4.3.

It is not certain to what extent the findings of this thesis can be generalised and applied in larger parts of the population in Australian or another similar socio-economic context. First, the small number of participating households and their narrow geographical area, limit the range and diversity of the socio-economic and cultural backgrounds of

participants, which could present different characteristics if scaled up. Even though there is a rich cultural diversity in the participants, the inclusion of low-income households involved in renovation was much harder to achieve. However, there is an opportunity to compare similar socio-economic contexts, while extending the study to more diverse samples.

Furthermore, the findings regarding the household typologies are indicative of my participants. They are not meant to be a comprehensive taxonomy of Australian households but to help explain the findings relevant to the emergence and process of the renovation practice and its low carbon considerations. While these household typologies reflect my participants, they were also interwoven with multiple characterisations. For example, some empty-nesters were also families with children, but about to reduce their members. The very small numbers of the typologies represented, particularly those of empty-nester and intergenerational households, point to conflicts that might arise in the characteristics of the practices when these are scaled up to include larger parts of the population.

The same applies for the identification and analysis of the media and intermediaries. The thesis does not include a comprehensive range of the media and intermediaries that are engaged in renovations in Australian contexts, but classifies the findings into formal and informal intermediaries, in order to explain and discuss my participating households. Since my focus was not on media or intermediaries per se, but the exploration of the context in which the complexity of renovation is observed, there are understandably missing parts of the wider and more complex practice of intermediation of renovation. However, the connection between the different types of intermediaries with the identified stages of the renovation process provides a starting point for understanding the association and significance of homemaking, renovation and intermediation in the transition to lower carbon homes.

9.4 Impications for policy and future research

There are several strands of the thesis that could be scaled up, using larger samples, to get generalised for a wider population and to inform policy

My findings have demonstrated that renovation is a practice closely associated with everyday homemaking and embedded in the socio-cultural context of households. Furthermore, these associated homemaking practices, including homeworking, leisure and housekeeping, are progressively being mediatised. One way for policy to integrate these findings is to look for opportunities for the decarbonisation of these associated lifestyle and consumption aspects of homemaking, such as the energy-intensive use of media and ICTs, which feed directly in the way that householders experience and maintain home. Using my identification of the Dreaming stage for example, as a connector, incubator and accelerator of homemaking and renovation practices would enable the more thorough understanding of how households collectively construct their meanings alongside specific use of media as objects and as texts. Examining the roles of memory, nostalgia and imagination in the shaping of homemaking, could enrich the way we understand the manufacture of domestic imaginaries and how these relate to the adoption of low carbon practices of households. By understanding, for instance, the length of time it takes for the long-term dreaming to take place, through changes in the materiality of homes, the transition towards more efficient and relevant solutions to household challenges could be reinforced.

This could move things further than current financially-rational interventions toward more socially and culturally embedded ones which involve everyday consumption, such as targeting knowledge networks and regulatory standards that would assist in the transformation of the elements of these practices. Additionally, my empirical identification that co-creation of renovation practice with intermediaries can assist in the integration of meanings of low carbon practices, can inform policy about collaborative models of home building and renovation, to complement existing low carbon building legislation.

Following on, further research based on my work, including a quantitative investigation of the practices of the four different household typologies, can contribute to a more focused understanding of how low carbon practices can be embedded in the specific homemaking practices that these households engage in. In combination with my renovation stages framework, future research on the household typologies could be enriched with information about house types, age, location and sizes, which would compose a wider and more thorough representation of households and their practices

and assist in the targeted integration of low carbon practices in households at each stage of the renovation process.

Finally, on a theoretical level, using my findings of renovation as homemaking practice and its associated intermediation framework, further studies could adopt the perspective of power and govermentality (Foucault 1991), within the practice theoretical framework. This could highlight the role of the formal and informal networks of governance, particularly through media, in the ongoing process of renovation as homemaking practice. An empirical exploration, for example, of the ways in which renovators and intermediaries, can transform formal institutions through their practice (Avelino 2017, p. 509), can potentially link the meso level home studies to wider macro phenomena.

9.5 Epilogue

My motivation to undertake this research was to understand and map renovation as a practice of everyday life. Having spent the past four years visiting and thinking about homes and everyday life, I encountered several of its dimensions: homes as 'castles', homes as experimental hubs, homes as unfinished projects, homes as real, functional objects and homes as imagined practices. What progressively became clear is that there is no absolute interpretation of 'normal' in either the definition of home or in the way that practices are conceptualised and performed. Furthermore, the continuous dreaming of ideal home or good life are fabrications of people's ongoing negotiations with their past -through memory and nostalgia- and with current visions embedded in their daily mediatised reality.

However, the common elements in all the diverse cases and encounters of home is the increasing junction of media with everyday life, as active, shaping agents. Having discussed the theoretical and practical implication of media's involvement in renovation practices, it becomes evident that in the transition of homes to future versions, media along with other communication technologies, will become more and more involved in the shaping and circulation of meanings and competences amongst people. While 'no culture is mediatized to such extent that all of its meaning resources are mediated by media' (Hepp 2013, p. 70), we need to conceptualise what the emerging meanings and

318

competences of media are, considering them as co-performers of practices, rather than just as their elements. This includes our understandings of media not only as means of human-to-human communication-but as means of 'virtualised communication' (Hepp 2013, p. 65), generated and performed by non-human agents. Essentially 'life […] is unimaginable without media' (Hepp 2013, p. 70).

References

Van Abel, B, Evers, L, Klaassen, R & Troxler, P 2011, *Open Design Now: Why Design Cannot remain exclusive*, Creative Commons Netherlands, The Netherlands Institue for Design and Fashion, Waag Society, Amsterdam.

Abreu, MI, Oliveira, R & Lopes, J 2017, 'Attitudes and Practices of Homeowners in the Decision-making Process for Building Energy Renovation', *Procedia Engineering*, vol. 172, The Author(s), pp. 52–59, viewed <http://dx.doi.org/10.1016/j.proeng.2017.02.016>.

ABS 2016, '2016 Census QuickStats', *2016 Census QuickStats*, viewed 9 July, 2019, <https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/4GADE?opendocument>.

ABS 2019a, 'Greater Adelaide statistics', *Adelaide Region Summary*, viewed 9 July, 2019, <https://itt.abs.gov.au/itt/r.jsp?RegionSummary&region=4GADE&dataset=ABS_REGIONAL_ASGS2016&geoconcept=ASGS_2016&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS2016&datasetLGA=ABS_REGIONAL_LGA2018&regionLGA=LGA_2018&regionASGS=ASGS_2016>.

ABS 2019b, 'Houshold and Family Projections, Australia 2016 to 2041', *Households and Family Projections*, pp. 2–5, viewed 1 May, 2020, <https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3236.0Main Features42016 to 2041?opendocument&tabname=Summary&prodno=3236.0&issue=2016 to 2041&num=&view=>.

Adelaide, C of 2019, 'Carbon Neutral Adelaide | City of Adelaide', *Carbon Neutral Adelaide*, viewed 9 July, 2019, <https://www.cityofadelaide.com.au/about-adelaide/our-sustainable-city/carbon-neutral-adelaide/>.

Adelaide, CN 2019, 'Make your home / building more energy efficient | Carbon Neutral Adelaide', *Make your home/building more energy efficient*, viewed 9 July, 2019, <https://www.carbonneutraladelaide.com.au/take-action/energy-efficiency>.

Adloff, F, Gerund, K & Kaldewey, D 2015, 'Locations, Translations, and Presentifications of Tacit Knowledge. An Introduction', in F Adloff, K Gedrund & D Kaldewey (eds), *Revealing Tacit Knowledge: Embodiment and Explication*, Bielefeld, Germany, pp. 7–18.

Aggeli, A & Melles, G 2015, 'Greening " The Block ": Sustainability in mainstream lifestyle TV', *UnMaking Waste*, Adelaide, pp. 1–11.

Allon, F 2013, 'Ethical consumption begins at home. Green renovations , eco-homes and sustainable home improvement', in T Lewis & E Potter (eds), *Ethical Consumption: A Critical Introduction*, Taylor & Francis.

Allon, F 2012, *Home as Investment*, *International Encyclopedia of Housing and Home*, Elsevier Ltd., viewed <http://dx.doi.org/10.1016/B978-0-08-047163-1.00304-0>.

Allon, F 2008, *Renovation Nation: Our Obsession with Home*, UNSW Press.

Appadurai, A 1986, *The Social Life of Things: Commodities from a Cultural Perspective*, Cambridge University Press.

Ástmarsson, B, Jensen, PA & Maslesa, E 2013, 'Sustainable renovation of residential buildings and the landlord/tenant dilemma', *Energy Policy*, vol. 63, Elsevier, pp. 355–362, viewed <http://dx.doi.org/10.1016/j.enpol.2013.08.046>.

Aune, M 2007, 'Energy comes home', *Energy Policy*, vol. 35, no. 11, pp. 5457–5465.

Australia, E 2013, 'The Block Sky High's sustainable living focus a perfect fit for EnergyAustralia http://www.energyaustralia.com.au/about-us/media-centre/current-news/the-block'.

Australia Population 2018, 'Population of Australia 2018', *Australia Population 2018*, pp. 2–3, viewed 5 October, 2018, <http://www.population.net.au/>.

Australian Bureau of Statistics 2018, '2016 Census QuickStats - Stonnington', *2016 Census QuickStats*, viewed 22 March, 2019, <http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA26350>.

Avelino, F 2017, 'Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability', *Environmental Policy and Governance*, vol. 27, no. 6, pp. 505–520.

Baban, F 2013, 'Cosmopolitanism Reinvented: Neoliberal Globalization and Thomas Friedman', in G Fridell & M Konings (eds), *Age of Icons. Exploring Philanthrocapitalism in the Contemporary World*, University of Toronto Press, Toronto, Buffalo, London, pp. 132–154.

Bachelard, G 1994, *Poetics of Space*, Beacon Press, Boston.

Backhaus, J 2010, 'Intermediaries as Innovating Actors in the Transition to a Sustainable Energy System', *Central European Journal of Public Policy*, vol. 4, no. 1, pp. 86–108, viewed <http://www.cejpp.eu/index.php/ojs/article/view/47>.

Barnes, J 2019, 'The local embedding of low carbon technologies and the agency of user-side intermediaries', *Journal of Cleaner Production*, vol. 209, Elsevier Ltd, pp. 769–781, viewed <https://doi.org/10.1016/j.jclepro.2018.10.258>.

Barnett, C, Cloke, P, Clarke, N & Malpass, A 2005, 'Consuming Ethics: Articulating the Subjects and Spaces of Ethical Consumption', *Antipode*, vol. 37, no. 1, pp. 23–45, viewed <http://onlinelibrary.wiley.com.globalproxy.cvt.dk/doi/10.1111/j.0066-4812.2005.00472.x/pdf>.

Barnett, C, Cloke, P, Clarke, N & Malpass, A 2010, *Globalizing responsibility: The political Rationalities of Ethical Consumption*, John Wiley & Sons.

322

Barr, S & Gilg, A 2006, 'Sustainable lifestyles: Framing environmental action in and around the home', *Geoforum*, vol. 37, no. 6, pp. 906–920, viewed 7 December, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S0016718506000583>.

Bartiaux, F, Gram-Hanssen, K, Fonseca, P, Ozoliņa, L & Christensen, TH 2014, 'A practice–theory approach to homeowners' energy retrofits in four European areas', *Building Research & Information*, vol. 42, no. 4, pp. 525–538, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.900253>.

Bassett, C, Fotopoulou, A & Howland, K 2013, *Expertise: A Scoping Study*, *http://www.communitiesandculture.org/files/2013/04/Sussex-scoping-report.pdf*, viewed <http://www.academia.edu/download/31125063/Sussex-scoping-report.pdf>.

Bate, B 2017, 'Understanding the influence tenure has on meanings of home and homemaking practices', *Geography Compass*, vol. 12, no. 1, pp. 1–15.

Baum, Scott; Hassan, R 1999, 'Home owners, home renovation andrResidential mobility', *Journal of Sociology*, vol. 35, no. 1, Australia, pp. 109–117.

Bauman, Z 2005, *Liquid life*, Polity Press.

Baxter, R & Brickell, K 2014, 'For Home UnMaking', *Home Cultures*, vol. 11, no. 2, pp. 133–143, viewed <http://dx.doi.org/10.2752/175174214X13891916944553>.

Bell, D & Hollows, J 2005, 'Making sense of ordinary lifestyles', *Ordinary Lifestyles : Popular Media, Consumption and Taste*, McGraw-Hill Education, pp. 1–20, viewed <http://search.ebscohost.com/login.aspx?direct=true&db=e000xww&AN=233850&lang=es>.

Bell, D & Hollows, J 2007, *Ordinary lifestyles:Popular media, consumption and taste*, Berkshire.

Belot, H 2017, 'Budget 2017.Six charts that tell you about housing affordability in

Australia', *ABC news*, pp. 1–4, viewed 14 March, 2020, <https://www.abc.net.au/news/story-streams/federal-budget-2017/2017-05-07/housing-affordability-australia-statistics-federal-budget-2017/8502106>.

Berger, R 2015, 'Now I see it, now I don't: researcher's position and reflexivity in qualitative research', *Qualitative Research*, vol. 15, no. 2, pp. 219–234.

Berker, T, Hartmann, M, Punie, E & Ward, K 2006, *Domestication of media and technology*, Open University Press.

Bessant, JC & Johnson, G 2013, '"Dream on": Declining Homeownership Among Young People in Australia?', *Housing, Theory and Society*, vol. 30, no. 2, pp. 177–192.

Bille, M, Bjerregaard, P & Flohr, T 2015, 'Emotion , Space and Society Staging atmospheres : Materiality , culture , and the texture of the in-between', *Emotion, Space and Society*, vol. 15, Elsevier Ltd, pp. 31–38, viewed <http://dx.doi.org/10.1016/j.emospa.2014.11.002>.

Bird, E 2010, 'From Fan Practice to Mediated Moments: The Value of Practice Theory in the Understanding of Media Audiences', in B Bräuchler & P Postill (eds), *Theorising Media And Practice*, Berghahn Books, Incorporated, pp. 85–104, viewed <http://books.google.com/books?id=IbycR6djcEEC&pgis=1>.

Bjögvinsson, E, Ehn, P & Hillgren, P-A 2012, 'Design Things and Design Thinking: Contemporary Participatory Design Challenges', *Design Issues*, vol. 28, no. 3, pp. 101–116.

Blismas, N & Wakefield, R 2009, 'Drivers, constraints and the future of offsite manufacture in Australia', *Construction Innovation*, vol. 9, no. 1, pp. 72–83.

Blomberg, J & Karasti, H 2012, 'Ethnography: Positioning ethnography within participatory design', *Routledge International Handbook of Participatory Design*, no. July, pp. 86–116.

Blunt, A 2003, 'Collective memory and productive nostalgia: Anglo-Indian homemaking at McCluskieganj', *Environment and Planning D: Society and Space*, vol. 21, no. 6, pp. 717–738.

Blunt, A & Dowling, R 2006, *Home*, Routledge.

Böhme, G 2013, 'The art of the stage set as a a paradigm for an aesthetics of atmospheres', *Ambiances*, no. February 2013, pp. 0–8, viewed <https://journals.openedition.org/ambiances/315>.

Bolton, S 2018, 'The Visual Thinking Method. Tools and approaches for repidly decoding design research data', in PA Rodgers & J Lee (eds), *The Routledge companion to Design Research*, Routledge.

Bonini, T 2011, 'The media as "home-making" tools: Life story of a Filipino migrant in Milan', *Media, Culture and Society*, vol. 33, no. 6, pp. 869–883.

Bonner, F 2005, 'Whose Lifestyle Is It Anyway ?', in D Bell & J Hollows (eds), *Ordinary Lifestyles: Popular media, Consumption and Taste*, McGraw University Press.

Bott, R 2008, 'Smart living:Lifestyle media and popular expertise review', *Continuum: Journal of Media & Cultural Studies*, pp. 1–5.

Bourdieu, P 1984, *Distinction: A Social Critique of the Judgement of Taste*, Routledge Kegan & Paul.

Bourdieu, P 1990, *In other words: Essays towards a reflexive sociology*, Stanford University Press, Stanford.

Boyd, R 2002, *The Australian Ugliness*, The Text Publishing Company.

Bradbury, M, Peterson, MN & Liu, J 2014, 'Long-term dynamics of household size and their environmental implications', *Population and Environment*, vol. 36, no. 1, pp. 73–84.

Brand, R & Karvonen, A 2007, 'The ecosystem of expertise: complementary knowledges for sustainable development', *Sustainability: Science, Practice and Policy*, vol. 3, no. 1, pp. 21–31, viewed <https://www.tandfonline.com/doi/full/10.1080/15487733.2007.11907989>.

Brandt, E, Binder, T & Sanders, EB-N 2012, 'Tools and techniques. Ways to engage telling, making and enacting', in J Simonsen & T Roberson (eds), *Routledge International Handbook of Participatory Design*, Routledge, pp. 145–181.

Bratteteig, T, Bødker, K, Dittrich, Y, Mogensen, PH & Simonsen, J 2012, 'Methods. Organising principles and general guidelines for Participatory Design Projects', in J Simonsen & T Robertson (eds), *Routledge International Handbook of Participatory Design*, Routledge.

Brauchler, B & Postill, J 2010, *Theorising Media and Practice*, Berghahn Books.

Bräuchler, B & Postill, P 2010, *Theorizing Media and Practice*, Berghahn Books, Incorporated.

Brayham, A 2015, 'Never stop improving: The complexity and contradictions of DIY home renovating as a serious leisure pursuit', *Loisir et Societe/ Society and leisure*, vol. 38, no. 1, Routledge, pp. 88–99, viewed <http://dx.doi.org/10.1080/07053436.2015.1006962>.

Van Breda, J, Musango, J & Brent, A 2016, 'Undertaking individual transdisciplinary PhD research for sustainable development:Case studies from South Africa', *International Journal of Sustainability in Higher Education*, vol. 17, no. 2, pp. 150–166.

van den Brom, P, Meijer, A & Visscher, H 2018, 'Performance gaps in energy consumption: household groups and building characteristics', *Building Research and Information*, vol. 46, no. 1, Taylor & Francis, pp. 54–70, viewed <https://doi.org/10.1080/09613218.2017.1312897>.

Brown, T 2011, 'Change by Design', *J ournal of Product Innovation and Management*, vol. 28, pp. 381–383.

Brown, T & Wyatt, J 2010, 'Design thinking for social innovation', *Development Outreach*, vol. 12, no. 1, pp. 29–43.

Buchanan, K, Russo, R & Anderson, B 2015, 'The question of energy reduction: The problem(s) with feedback', *Energy Policy*, vol. 77, Elsevier, pp. 89–96, viewed <http://dx.doi.org/10.1016/j.enpol.2014.12.008>.

Buchanan, R 2001, 'Design Research and the New Learning', *Design Issues*, vol. 17, no. 4, pp. 3–23.

Budge, K 2016, 'Teaching art and design: Communicating creative practice through embodied and tacit knowledge', *Arts and Humanities in Higher Education*, vol. 15, no. 3–4, pp. 432–445.

BuildSearch 2019, 'Average House siezes', *BuildSearch, Perth Home Builder Broker*, viewed 4 April, 2019, <https://buildsearch.com.au/house-size>.

Burgess, J 2012, 'YouTube and the formalisation of amateur media', in D Hunter, R Lobato, M Richardson & J Thomas (eds), *Amateur Media:Social, Cultural & Legal Prespectives*, Routledge.

Burke, T & Hulse, K 2015, *Spatial disadvantage: why is Australia different?*, viewed <http://www.ahuri.edu.au/publications/download/ahuri_myrp704_rp5>.

Burke, T & Ralston, L 2015, *The Australian household : Material consumption and the low carbon society*, viewed <CRC for Low Carbon Living>.

Burr, V 2015, 'Social constructionism', *International Encyclopedia of the Social and Behavioral Sciences*, 2nd ed., Elsevier, pp. 222–227, viewed <http://dx.doi.org/10.1016/B978-0-08-097086-8.24049-X>.

Bush, RE, Bale, CSE, Powell, M, Gouldson, A, Taylor, PG & Gale, WF 2017, 'The role of intermediaries in low carbon transitions e Empowering innovations to unlock district heating in the UK', *Journal of Cleaner Production*, vol. 148, no. April 2013, Elsevier Ltd, pp. 137–147, viewed <http://dx.doi.org/10.1016/j.jclepro.2017.01.129>.

Callaghan, JO 2017, 'Architecture as Commodity , Architects as Cultural Intermediaries : A Case Study', *Architecture and Culture*, vol. 5, no. 2, Routledge, pp. 221–240, viewed <http://doi.org/10.1080/20507828.2017.1325109>.

Campbell, C 2005, 'The Craft Consumer: Culture, Craft and Consumption in a Postmodern Society', *Journal of Consumer Culture*, vol. 5, no. 1, pp. 23–42.

Campbell, C 2015, 'The Curse of the New. How the accelerating pursuit of the new is driving hyper-consumption', in KM Ekström (ed.), *Waste Management and Sustainable Consumption: Reflections on Consumer Waste*, Routledge, Abingdon, Oxon ; New York, pp. 29–51.

Campbell, C 1992, 'The desire for the new: its nature and social location as presented in theories of fashion and modern consumption', *Consuming technologies*, Routledge, London, pp. 48–66.

Carew, AL & Wickson, F 2010, 'The TD Wheel : A heuristic to shape , support and evaluate transdisciplinary research', *Futures*, vol. 42, no. 10, Elsevier Ltd, pp. 1146–1155, viewed <http://dx.doi.org/10.1016/j.futures.2010.04.025>.

Carfagna, LB, Dubois, EA, Fitzmaurice, C, Ouimette, MY, Schor, JB, Willis, M & Laidley, T 2014, 'An emerging eco-habitus: The reconfiguration of high cultural capital practices among ethical consumers', *Journal of Consumer Culture*, vol. 14, no. 2, pp. 158–178.

Cellier, JM, Eyrolle, H & Mariné, C 1997, 'Expertise in dynamic environments', *Ergonomics*, vol. 40, no. 1, pp. 28–50.

Chambers, D 2016, *Changing Media, Homes and Households. Cultures, technologies and meanings*, Routledge, Oxon and New York.

Cherry, C, Hopfe, C, MacGillivray, B & Pidgeon, N 2017, 'Homes as machines: Exploring expert and public imaginaries of low carbon housing futures in the United Kingdom', *Energy Research and Social Science*, vol. 23, Elsevier Ltd, pp. 36–45, viewed <http://dx.doi.org/10.1016/j.erss.2016.10.011>.

Chetty, M, Banks, R, Harper, R, Regan, T, Sellen, A, Gkantsidis, C, Karagiannis, T & Key, P 2010, 'Who's hogging the bandwidth', *CHI 2010:At Home with Computing*, Atlanta.

Christensen, CL 2016, 'The mediatization of health expertise: Health programmes on Danish public service television', *Critical Studies in Television*, vol. 11, no. 2, pp. 204–216.

Christensen, TH & Røpke, I 2010, 'Can practice theory inspire studies on ICTs in everyday life ?', in B Brauchler & P Postill (eds), *Theorising Media and Practice*, Berghahn Books, New York, pp. 233–256.

Chu, CL 2017, 'Constructing a new domestic discourse: The modern home in architectural journals and mass-market texts in early twentieth-century China', *Journal of Architecture*, vol. 22, no. 6, pp. 1066–1091.

Chwialkowska, A 2019, 'How Sustainability Influencers Drive Green Lifestyle Adoption on Social Media : the Process of Green Lifestyle Adoption Explained Through the Lenses of the Minority Influence Model', *Management of Sustainable Development*, vol. 11, no. 1, pp. 33–42.

Clark, LS 2013, *The Parent App: Understanding Families in the Digital Age*, University Press, Oxford.

ClimateWorks Australia 2013, *Tracking progress towards a low carbon economy: Buildings*, viewed

<http://www.climateworksaustralia.org/sites/default/files/documents/publications/cli
mateworks_tracking_progress_discussion_paper_nov2012.pdf>.

Clune, S, Morrissey, J & Moore, T 2012, 'Size matters: House size and thermal
efficiency as policy strategies to reduce net emissions of new developments',
Energy Policy, vol. 48, Elsevier, pp. 657–667, viewed
<http://dx.doi.org/10.1016/j.enpol.2012.05.072>.

Collingridge, DS & Gantt, EE 2008, 'The quality of qualitative research', *American
Journal of Medical Quality*, vol. 23, no. 5, pp. 389–395.

Collins, R 2015, 'Keeping it in the family? Re-focusing household sustainability',
Geoforum, vol. 60, Elsevier Ltd, pp. 22–32, viewed
<http://dx.doi.org/10.1016/j.geoforum.2015.01.006>.

Commonwealth Research 2018, *Australian home size hits 20-year low*, *CommSec
Home Size Trends Report*.

Coolen, HCCH 2012, *Qualitative methods in housing research*, *International
Encyclopedia of Housing and Home*, Elsevier Ltd., viewed
<http://dx.doi.org/10.1016/B978-0-08-047163-1.00663-9>.

Corner, J 1998, 'Meaning , Genre and Context The Problematics of "Public Knowledge"
in the New Audience Studies', *Studying Media: Problems of theory and Method*,
Edinburg University Press, Edinburg, pp. 108–134.

Couldry, N 2012, 'Media as practice', *Media, society, world, social theory and digital
media practice*, Polity Press, pp. 33–58.

Couldry, N 2008, 'Mediatization or mediation ? Alternative understandings of the
emergent space of digital storytelling', *New Media & Society*, vol. 10, no. 3, pp.
373–391.

Couldry, N 2010, 'Theorising media as practice', in B Bräuchler & P Postill (eds),

Theorising Media and Practice, Berghahn Books, Incorporated, pp. 35–54.

Courtois, C, Mechant, P, Paulussen, S & De Marez, L 2012, 'The triple articulation of media technologies in teenage media consumption', *New Media and Society*, vol. 14, no. 3, pp. 401–420.

Courtois, C & Verdegem, P 2012, 'The Triple Articulation of Media Technologies in Audiovisual Media Consumption', *Television & New Media*, vol. 14, no. 5, pp. 421–439.

Cox, R 2016, 'What are Homes Made of ? Building Materials , DIY and the Homeyness of Homes WHAT ARE HOMES MADE OF ? BUILDING MATERIALS , DIY AND THE HOMEYNESS OF', *Home Cultures*, vol. 13, no. 1, Routledge, pp. 63–82, viewed <http://dx.doi.org/10.1080/17406315.2016.1122966>.

Crabtree, BF & Miller, WL 1999, *Doing qualitative research*, 2nd ed., SAGE Publications, Inc.

Craig, G 2010, 'Everyday Epiphanies: Environmental Networks in Eco-Makeover Lifestyle Television', *Environmental Communication: A Journal of Nature and Culture*, vol. 4, no. 2, pp. 172–189.

Craig, G 2019, *Media, Sustainability and Everyday Life*, *Media, Sustainability and Everyday Life*, Palgrave macmillan.

Crang, M & Hughes, A 2015, 'Editorial: Globalizing ethical consumption', *Geoforum*, vol. 67, pp. 131–134.

Crocker, R 2016, *Somebody else's problem. Consumerism, sustainability & Design*, Greenleaf Publishing Limited, Sheffield.

Crosbie, T & Baker, K 2010, 'Energy-efficiency interventions in housing: Learning from the inhabitants', *Building Research and Information*, vol. 38, no. 1, pp. 70–79.

Cross, N 1982, 'Design as a Diciple - Designerly ways of knowing', *Design Studies*, vol. 3, no. 4, pp. 221–227.

Cross, N 2006, *Designerly Ways of Knowing*, Springer, London.

Crotty M. 1998, 'Constructionism: The making of meaning.', *The foundations of social research. Meaning and perspective in the research process*, SAGE Publications, pp. 42–65.

Crotty, M 1998, *The Foundations of Social Research: Meaning and Perspective in the Research Process*, SAGE Publications, London, Thousand Oaks, New Delhi.

Czarniawksa-Joerges, B 2007, *Shadowing, and other techniques for doing fieldwork in modern societies*, Copenhagen Business School Press.

Dalton, T 2018, 'Another Suburbaan Transition? Responding to Climate Change in the Australian suburbs', *Urban Sustainability Transitions: Australian cases-International perspectives*, Springer, Singapore, pp. 193–212.

Darby, S 2010, 'Smart metering: What potential for householder engagement?', *Building Research and Information*, vol. 38, no. 5, pp. 442–457.

Darnton, A, Verplanken, B, White, P & Whitmarsh, L 2011, *Habits, Routines and Sustainable Lifestyles Summary Report.*, London.

Davies, P & Osmani, M 2011, 'Low carbon housing refurbishment challenges and incentives: Architects' perspectives', *Building and Environment*, vol. 46, no. 8, Elsevier Ltd, pp. 1691–1698, viewed <http://linkinghub.elsevier.com/retrieve/pii/S036013231100059X>.

Davison, A 2011, 'A Domestic Twist on the Eco-Efficiency turn', in R Lane & A Gorman-Murray (eds), *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd., pp. 34–49.

Dayaratne, R & Kellett, P 2008, 'Housing and home-making in low-income urban settlements: Sri Lanka and Colombia', *Journal of Housing and the Built Environment*, vol. 23, no. 1, pp. 53–70.

Dean, M 2010, *Governmentality:power and rule in modern society*, 2nd editio., SAGE, Los Angeles, London.

Denzin, NK & Lincoln, YS 2000, 'Introduction. The Discipline and Practice of Qualitative Research', *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc, Thousand Oaks, London, New Delhi.

Department of Industry, Science, E and R 2020, 'Individuals and Households', pp. 2–4, viewed <https://publications.industry.gov.au/publications/climate-change/climate-change/individuals-and-households.html#:~:text=Australia's households are responsible for,to emissions through electricity consumption.>.

Dietz, T, Gardner, GT, Gilligan, J, Stern, PC & Vandenbergh, MP 2009, 'Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions.', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 106, no. 44, pp. 18452–18456.

Dinesh, D 2017, 'Why micro-influencers are a social marketing imperative for 2017', *Industry Insights*, pp. 14–15, viewed <econtentmag.com>.

Dingle, T 2000, 'Necessity the Mother of Invention, or Do-it-youself', in P Troy (ed.), *A History of European Housing in Australia*, Cambridge university press, Cambridge, pp. 55–76.

Douglas, M 1991, 'The Idea of a Home: A Kind of Space', *Social Research*, vol. 58, no. 1, pp. 287–307.

Dowling, R, Mcguirk, P & Bulkeley, H 2014, 'Demonstrating retrofitting Perspectives from Australian local government', in M Hodson & S Marvin (eds), *Retrofitting Cities: Priorities, Governance and Experimentation*, Taylor and Francis.

Dowling, R & Mee, K 2007, 'Home and Homemaking in Contemporary Australia', *Housing, Theory and Society*, vol. 24, no. 3, pp. 161–165, viewed 2 January, 2015, <http://www.tandfonline.com/doi/abs/10.1080/14036090701434276>.

Dowling, R & Power, E 2011, 'Beyond McMansions and Green Homes: Thinking Household Sustainability Through Materialities of Homeyness', in R Lane & A Gorman-Murray (eds), *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd.

Dowling, R, Power, E, Dowling, R & Power, E 2012, 'Sizing Home , Doing Family in Sydney , Australia Sizing Home , Doing Family in Sydney ', *Housing studies*, vol. 27, no. 5, pp. 605–619.

Doyle, R & Davies, AR 2013, 'Towards sustainable household consumption: Exploring a practice oriented, participatory backcasting approach for sustainable home heating practices in Ireland', *Journal of Cleaner Production*, vol. 48, Elsevier Ltd, pp. 260–271, viewed <http://dx.doi.org/10.1016/j.jclepro.2012.12.015>.

Dupuis, A & Throns, DC 1998, 'Home, home ownership and the search for ontological security', *Journal of Consumer Research*, vol. 25, pp. 78–90, viewed <http://amr.aom.org/content/23/3/393.short%5Cnhttp://www.researchgate.net/publication/50313187_Not_So_Different_After_All_A_Cross-Discipline_View_of_Trust/file/e0b495224ede519d7a.pdf>.

Duyvendak, JW 2011, *The Politics of Home. Belonging and Nostalgia in Western Europe and the United States*, 1st editio., Palgrave Macmillan, Amsterdam.

Eames, M, Dixon, T, May, T & Hunt, M 2013, 'City futures: exploring urban retrofit and sustainable transitions', *Building Research & Information*, vol. 41, no. 5, pp. 504–516, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2013.805063%5Cnhttp://dx.doi.org/10.1080/09613218.2013.805063>.

Economics, B of R and E 2014, *2014 Australian Energy Update*, viewed

<bree.gov.au>.

Economics, C for I 2010, *Energy-efficiency: building code star-ratings.What's optimal, what's not*, Canberra.

Ellis, J 1992, *Visible Fictions: Cinema, Television, Video*, Routledge, New York, New York, USA.

Ellsworth-Krebs, K 2016, 'The history of home making and expectations of "normal" life today', *DEMAND centre conference*, pp. 1–12.

Emmison, M, Smith, P & Mayall, M 2012, *Researching the visual*, 2nd ed., SAGE Research Methods.

Eon, C, Morrison, GM & Byrne, J 2017, 'Unraveling everyday heating practices in residential homes', *Energy Procedia*, vol. 121, Elsevier B.V., pp. 198–205, viewed <http://dx.doi.org/10.1016/j.egypro.2017.08.018>.

Fang, ML, Woolrych, R, Sixsmith, J, Canham, S, Battersby, L & Sixsmith, A 2016, 'Place-making with older persons : Establishing sense-of-place through participatory community mapping workshops', *Social Science & Medicine*, vol. 168, Elsevier Ltd, pp. 223–229, viewed <http://dx.doi.org/10.1016/j.socscimed.2016.07.007>.

Faruqui, A, Sergici, S & Sharif, A 2010, 'The impact of informational feedback on energy consumption-A survey of the experimental evidence', *Energy*, vol. 35, no. 4, Elsevier Ltd, pp. 1598–1608, viewed <http://dx.doi.org/10.1016/j.energy.2009.07.042>.

Fawcett, T 2013, 'Exploring the time dimension of low carbon retrofit: owner-occupied housing', *Building Research & Information*, vol. 42, no. 4, pp. 477–488, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2013.804769>.

Fawcett, T & Killip, G 2014, 'Anatomy of low carbon retrofits: evidence from owner-

occupied Superhomes', *Building Research & Information*, vol. 42, no. 4, pp. 434–445, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.893162>.

Featherstone, M 1987, 'Lifestyle and Consumer Culture', *Theory, Culture & Society*, vol. 4, pp. 55–70.

Fincher, R & Gooder, H 2007, 'At home with diversity in medium-density housing', *Housing, Theory and Society*, vol. 24, no. 3, pp. 166–182.

Flanders, J 2015, *The making of home: the 500 -year story of how our houses became our homes*, Thomas Dunne Books/ St,Martin's Press, New York.

Fontana, A & Frey, JH 2000, 'The Interview: From Structured Questions to Negotiated Text', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Foucault, M 1991, 'Governmentality', in G Burchcell, C Gordon & P Miller (eds), *The Foucault Effect:studies in governmentality, with two lectures by an an interview with Michel Foucault*, University of Chicago Press, pp. 87–104.

Fridell, G & Konings, M 2013, *Age of Icons : Exploring Philanthrocapitalism in the Contemporary World*, University of Toronto Press.

Fuist, TN, Mogford, E & Das, A 2018, 'Lifestyle Movements as Social Networks : The Connections between Everyday Politics and Larger Collective Action in an Indian Feminist Movement', *Sociological Perspectives*, vol. 61, no. 6, pp. 894–910.

Gabriel, M & Watson, P 2013, 'From Modern Housing to Sustainable Suburbia: How Occupants and their Dwellings are Adapting to Reduce Home Energy Consumption', *Housing, Theory and Society*, vol. 30, no. 3, pp. 219–236.

Gabriel, M & Watson, P 2012, 'Supporting Sustainable Home Improvement in the Private Rental Sector: The View of Investors', *Urban Policy and Research*, vol. 30,

no. March 2015, pp. 309–325.

Galiotto, N, Heiselberg, P & Knudstrup, M 2015, 'The Integrated Renovation Process : application to family homes', *Engineering Sustainability*, vol. 168, no. ES6, pp. 245–257.

Gallant, K, Arai, S & Smale, B 2013, 'Celebrating, challenging and re-envisioning serious leisure', *Leisure/ Loisir*, vol. 37, no. 2, pp. 91–109.

Galletta, A 2013, *Mastering the Semi-Structured Interview and Beyond. From Research Design to Analysis and Publications*, New York University Press, New York and London.

Galvin, R & Sunikka-Blank, M 2016, 'Schatzkian practice theory and energy consumption research: Time for some philosophical spring cleaning?', *Energy Research and Social Science*, vol. 22, Elsevier Ltd, pp. 63–68, viewed <http://dx.doi.org/10.1016/j.erss.2016.08.021>.

Gaskell, G 2000, 'Individual and Group Interviewing', in MW Bauer & G Gaskell (eds), *Qualitative Researching with Text, Image and Sound*, pp. 39–56.

Gatt, C & Ingold, T n.d., 'From Description to Correspondence: Anthropology in Real Time', in W Gunn, T Otto & C Smith, Rachel (eds), *Design Anthropology: Theory and Practice*, Bloomsbury, pp. 139–158.

du Gay, P 1997, *Production of Culture/Cultures of Production*, Sage, Open University Press, London.

Du Gay, P, Hall, S, Janes, L, Madsen, AK, Mackay, H & Negus, K (eds) 2013, *Doing cultural studies: the story of the sony walkman*, 2nd editio., Sage, Open University Press, London.

Geels, FW 2012, 'A socio-technical analysis of low-carbon transitions : introducing the multi-level perspective into transport studies', *Journal of Transport Geography*,

vol. 24, Elsevier Ltd, pp. 471–482, viewed <http://dx.doi.org/10.1016/j.jtrangeo.2012.01.021>.

Geels, FW 2010, 'Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective', *Research Policy*, vol. 39, no. 4, Elsevier B.V., pp. 495–510, viewed <http://dx.doi.org/10.1016/j.respol.2010.01.022>.

Gergen, KJ 1994, *Realities and relationships:Soundings in social construction*, Harvard University Press, Cambridge, MA and London, England.

Gibson, C, Farbotko, C, Gill, N, Head, L & Waitt, G 2013, 'Household Sustainability: Challenges and Dilemmas in Everyday Life', *Journal of Cleaner Production*, vol. 112, pp. 73–81.

Gibson, C, Head, L, Gill, N & Waitt, G 2011, 'Climate change and household dynamics: Beyond consumption, unbounding sustainability', *Transactions of the Institute of British Geographers*, vol. 36, no. 1, pp. 3–8.

Gibson, JJ 2015, *The ecological approach to visual perception.*, Classic ed., Taylor & Francis, New York and Hove.

Giddens, A 1991, *Modernity and self-identity: Self and society in the Late Modern Age*, Polity Press, Cambridge.

Giddens, A 1984, *The constitution of society: Outline of the Theory of Structuration*, 2013th ed, Polity Press.

Giles, DC 2002, 'Keeping the public in their place: audience participation in lifestyle television programming', *Discourse & Society*, vol. 13, pp. 603–628.

Gillon, C 2018, 'Under Construction: How Home-making and Underlying Purchase Motivations Surface in a Housing Building Site', *Housing, Theory and Society*, vol. 35, no. 4, Routledge, pp. 455–473, viewed <http://doi.org/10.1080/14036096.2017.1337650>.

Glanville, R 2018, 'The Sometimes Uncomfortable Marriages of Design and Research', *The Routledge companion to Design Research*, Routledge, Oxon and New York.

Glover, A 2014, 'The practices of material divestment. Extending the life of domestic durable goods', in Y Strengers & C Maller (eds), *Social Practices, Intervention and Sustainability: Beyond Behaviour Change*, Routledge, pp. 127–143.

Goodsell, TL 2008, 'Diluting the Cesspool: Families, Home Improvement, and Social Change', *Journal of Family Issues*, vol. 29, no. 4, pp. 539–565, viewed 27 November, 2014, <http://jfi.sagepub.com/cgi/doi/10.1177/0192513X07310320>.

Gorman-Murray, A & Dowling, R 2011, 'Making Home in Contemporary Australia', *Architecture Australia*, vol. 100, no. 3, pp. 45–46.

Gourlay, S 2006, 'Towards conceptual clarity for "tacit knowledge": a review of empirical studies', *Knowledge Management Research & Practice*, vol. 4, no. 1, pp. 60–69, viewed <http://www.palgrave-journals.com/doifinder/10.1057/palgrave.kmrp.8500082>.

Graf, H 2012, 'Examining Garden Blogs as a Communication System', *International Journal of Communication*, vol. 6, no. 6, pp. 2758–2779.

Gram-Hanssen, K 2014a, 'Existing buildings – Users, renovations and energy policy', *Renewable Energy*, vol. 61, Elsevier, pp. 136–140, viewed 18 October, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S0960148113002498>.

Gram-Hanssen, K 2015, 'Housing in a sustainable consumption perspective', in L. Reisch & J Thøgersen (eds), *Handbook of Research on Sustainable Consumption*, Edward Elgar Publishing Limited, pp. 178–191.

Gram-Hanssen, K 2010a, 'Residential heat comfort practices: understanding users', *Building Research & Information*, vol. 38, no. 2, pp. 175–186.

Gram-Hanssen, K 2014b, 'Retrofitting owner-occupied housing: remember the people',

Building Research & Information, vol. 42, no. 4, pp. 393–397, viewed 15 February, 2015, <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.911572>.

Gram-Hanssen, K 2010b, 'Standby consumption in households analyzed with a practice theory approach', *Journal of Industrial Ecology*, vol. 14, no. 1, pp. 150–165.

Gram-Hanssen, K 2011, 'Understanding change and continuity in residential energy consumption', *Journal of Consumer Culture*, vol. 11, no. 1, pp. 61–78.

Gram-Hanssen, K & Bech-Danielsen, C 2004, 'House, home and identity from a consumption perspective', *Housing, Theory and Society*, vol. 21, no. 1, pp. 17–26.

Gray, D 2015, 'Explainer:what's really keeping young and first home buyers out of the housing market', *The Conversation*, viewed 3 May, 2019, <https://theconversation.com/explainer-whats-really-keeping-young-and-first-home-buyers-out-of-the-housing-market-45716>.

Grin, J, Rotmans, J & Schot, J 2010, *Transitions to sustainable development: New Directions in the study of long term transformative change*, Routledge, London.

Grindstaff, L 2014, 'DI(t)Y, Reality-Style. The Cultural Work of Ordinary Celebrity', in L Ouellette (ed.), *A Companion to Reality Television*, John Wiley & Sons, pp. 324–344.

Grindstaff, L 2012, 'Reality TV and the Production of "Ordinary Celebrity": Notes from the field', *Berkley Journal of Sociology*, vol. 56, pp. 22–40.

Grubbauer, M 2015, 'Not everything is new in DIY: Home remodelling by amateurs as urban practice', *Ephemera U6*, vol. 15, no. 1, pp. 141–162.

Guest, BG, Namey, EE & Mitchell, ML 2017, 'Qualitative Research : Defining and Designing', *Collecting Qualitative Data : A Field Manual for Applied Research*, SAGE Publications, pp. 1–40.

Guillemin, M & Gillam, L 2004, 'Ethics, reflexivity, and "Ethically important moments" in research', *Qualitative Inquiry*, vol. 10, no. 2, pp. 261–280.

Gunn, W & Løgstrup, LB 2014, 'Participant observation , anthropology methodology and design anthropology research inquiry', *Art & Humanities in Higher Education*, vol. 13, no. 4, pp. 428–442.

Gunn, W, Otto, T & Smith, Rachel, C 2013, *Design Anthropology: Theory and Practice*, Bloomsbury Publishing Plc, London, New York.

Haddon, L 2007, 'Roger Silverstone's legacies: Domestication', *New Media and Society*, vol. 9, no. 1, pp. 25–32.

Haddon, L 2016, 'The domestication of complex media repertoires', in K Sandvik, AM Thorhauge & B Valtysson (eds), *Media and the Mundane*, NORDICOM, pp. 17–30.

Haenfler, R 2019, 'Changing the world one virgin at a time : abstinence pledgers , lifestyle movements , and social change', *Social Movement Studies*, vol. 18, no. 4, Routledge, pp. 425–443, viewed <https://doi.org/10.1080/14742837.2019.1590691>.

Haenfler, R, Johnson, B & Jones, E 2012, 'Lifestyle Movements: Exploring the Intersection of Lifestyle and Social Movements', *Social Movement Studies*, vol. 11, no. 1, pp. 1–20.

Hagbert, P 2016a, '" It 's Just a Matter of Adjustment ": Residents ' Perceptions and the Potential for Low-impact Home Practices', *Housing, Theory and Society*, vol. 33, no. 3, Routledge, pp. 288–304, viewed <http://dx.doi.org/10.1080/14036096.2016.1141797>.

Hagbert, P 2016b, *A sustainable home? Reconceptualizing home in a low-impact society*, *Chalmers University of Technology, Gothenburg, Doctoral Thesis*, Chalmers University of Techonolgoy.

Hagbert, P & Bradley, K 2017, 'Transitions on the home front: A story of sustainable living beyond eco-efficiency', *Energy Research and Social Science*, vol. 31, no. February, pp. 240–248.

Haider, J 2016, 'The Shaping of Environmental Information in Social Media: Affordances and Technologies of Self-control', *Environmental Communication*, vol. 10, no. 4, Taylor & Francis, pp. 473–491, viewed <http://dx.doi.org/10.1080/17524032.2014.993416>.

Haines, V & Mitchell, V 2014, 'A persona-based approach to domestic energy retrofit', *Building Research & Information*, vol. 42, no. 4, pp. 462–476, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.893161>.

Haines, V, Mitchell, V, Haines, V & Mitchell, V 2014, 'A persona-based approach to domestic energy retrofit', *Building Research & Information*, vol. 42, no. 4, pp. 462–476.

Hall, A 2017, 'Trends in home ownership in Australia: a quick guide – Parliament of Australia', *Parliament of Australia*, viewed 29 March, 2019, <https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1617/Quick_Guides/TrendsHomeOwnership>.

Hall, SM 2011, 'Exploring the "ethical everyday ": An ethnography of the ethics of family consumption', *Geoforum*, vol. 42, no. 6, Elsevier Ltd, pp. 627–637, viewed <http://dx.doi.org/10.1016/j.geoforum.2011.06.009>.

Hamilton, J 2012, 'Keeping Up with the Joneses in the Great British Refurb : The Impacts and Limits of Social Learning in Eco-renovation', in S Whitmarsh, Lorraine; O'Neill & I Lorenzoni (eds), *Engaging the Public with Climate Change, Behaviour Change and Communication*, Taylor & Francis.

Hampton, S 2017, 'An ethnography of energy demand and working from home: Exploring the affective dimensions of social practice in the United Kingdom', *Energy Research and Social Science*, vol. 28, no. September 2016, Elsevier, pp.

1–10, viewed <http://dx.doi.org/10.1016/j.erss.2017.03.012>.

Hand, M & Shove, E 2007, 'Condensing practices: Ways of living with a freezer', *Journal of Consumer Culture*, vol. 7, no. 1, pp. 79–104.

Hand, M & Shove, E 2004, 'Orchestrating Concepts:Kitchen Dynamics and Regime Change in Good Housekeeping and Ideal Home 1922-2002', *Home Cultures*, vol. 1, no. 3, pp. 235–256.

Hand, M, Shove, E & Southerton, D 2007, 'Home extensions in the United Kingdom: Space, time, and practice', *Environment and Planning D: Society and Space*, vol. 25, no. 4, pp. 668–681.

Hanington, B & Martin, B 2012, *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*, Quayside Publishing Group.

Hansen, AR 2016, 'The social structure of heat consumption in Denmark: New interpretations from quantitative analysis', *Energy Research and Social Science*, vol. 11, Elsevier Ltd, pp. 109–118.

Hansen, AR, Gram-hanssen, K, Knudsen, HN, Rhiger, A, Gram-hanssen, K, Knudsen, HN, Hansen, AR, Gram-hanssen, K & Knudsen, HN 2018, 'How building design and technologies influence heat-related habits', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 83–98, viewed <https://doi.org/10.1080/09613218.2017.1335477>.

Hansen, AR, Madsen, LV, Knudsen, HN & Gram-Hanssen, K 2019, 'Gender, age, and educational differences in the importance of homely comfort in Denmark', *Energy Research and Social Science*, vol. 54, no. April, pp. 157–165.

Hartley, J 2012, 'Interaction Design, Mass Communication and the Challenge of Distributed Expertise', in Routledge (ed.), *Design and Ethics:Reflections on practice*.

Hartley, J 1999, *Uses of television*, Routledge, London and New York.

Hartman, T 2007, 'On the Ikeaization of France', *Public Culture*, vol. 19, no. 3, pp. 483–498.

Hartmann, M 2014, 'Home is where the heart is?Ontological security and the mediatization of homelessness', in K Lundby (ed.), *Mediatization of Communication*, De Gruyter Mouton, pp. 641–660.

Hartmann, M 2006, 'The triple articulation of ICTs.Media as technological objects, symbolic environments and individual texts', in T Berker (ed.), *Domestication of Media and Technology*, Open University Press, pp. 80–102.

Hawkins Gay, Muecke, S 2003, *Culture and Waste: The Creation and Destruction of Value*, Rowman & Littlefield Publishers Inc.

Hay, J 2010, 'Too Good to Fail : Managing Financial Crisis Through the Moral Economy of Realty TV', *Journal of Communication*, vol. 34, no. 4, pp. 382–402.

Head, L, Farbotko, C, Gibson, C, Gill, N & Waitt, G 2013, 'Zones of friction, zones of traction: The connected household in climate change and sustainability policy', *Australasian Journal of Environmental Management*, vol. 20, no. 4, Taylor & Francis, pp. 351–362, viewed <http://dx.doi.org/10.1080/14486563.2013.835286>.

Head, L, Gibson, C, Gill, N, Carr, C & Waitt, G 2016, 'A meta-ethnography to synthesise household cultural research for climate change response', *Local Environment*, vol. 21, no. 12, Taylor & Francis, pp. 1467–1481.

Hepp, A 2013, *Cultures of mediatization*, Polity Press.

Hepp, A & Krotz, Frederich 2014, *Mediatised Worlds: Culture and Society in a Media Age*, A Hepp & Friedrich Krotz (eds), palgrave macmillan, Bassingstoke.

Hesmondhalgh, D 2006, 'Bourdieu , the media and cultural production', *Media, Culture*

& Society, vol. 28, no. 2, pp. 211–231.

Hesmondhalgh, D 2012, 'Have amateur media enhanced the possibilities for good media work ?', in D Hunter, R Lobato, M Richardson & J Thomas (eds), *Amateur Media:Social, Cultural & Legal Prespectives*, Routledge, pp. 137–149.

Heuts, E & Versele, A 2016, 'RenoseeC : renovating with a social , ecological and economic benefit through a collective approach', *Energy Procedia*, vol. 96, The Author(s), pp. 540–550, viewed <http://dx.doi.org/10.1016/j.egypro.2016.09.097>.

Hill, A 2005, *Reality tv: Audiences and Popular Factual Television*, Routledge.

Hjarvard, S 2004, 'From bricks to bytes: The mediatization of a global toy industry', in I Bondebjerg & P Golding (eds), *European Culture and the Media: Changing Media - Changing Europe Series Volume 1*, Intellect Books, pp. 43–64.

Hjarvard, S 2008a, 'The mediatisation of Society: A Theory of the Media as Agents of Social Change', *Nordicom Review*, vol. 29, no. 2, pp. 225–242.

Hjarvard, S 2013, 'The mediatization of habitus. The social character of a new individualism', *The Mediatization of Culture and Society*, Routledge.

Hjarvard, S 2008b, 'The Mediatization of Society. A Theory of the Media as Agents of Social and Cultural Change', *Nordicom Review*, vol. 29, no. 2, pp. 102–131.

Hoffman, AJ & Henn, R 2008, 'Overcoming the Social and Psychological Barriers to Green Building', *Organization & Environment*, vol. 21, no. 4, pp. 390–419.

Horne, R 2018, *Housing Sustainability in Low carbon cities*, Routledge.

Horne, R 2017, 'Urban Low Carbon Transitions : Housing and Urban Change', *Urban Sustainability Transitions: Australian cases- International perspectives*, Springer, pp. 3–18.

Horne, R & Dalton, T 2014, 'Transition to low carbon ? An analysis of socio-technical change in housing renovation', *Urban Studies*, vol. 51, no. 16, pp. 3445–3458.

Horne, R, Maller, C & Dalton, T 2014, 'Low carbon, water-efficient house retrofits: an emergent niche?', *Building Research & Information*, vol. 42, no. 4, pp. 539–548, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.896173>.

Horne, R, Maller, C & Lane, R 2011, 'Remaking Home: The Reuse of Goods and Materials in Australian Households', *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd., pp. 89–111.

Howard, Z & Somerville, MM 2014, 'A comparative study of two design charrettes: implications for codesign and participatory action research', *CoDesign*, vol. 10, no. 1, pp. 46–62, viewed <http://www.tandfonline.com/doi/abs/10.1080/15710882.2014.881883>.

Hsieh, HF & Shannon, SE 2005, 'Three approaches to qualitative content analysis', *Qualitative Health Research*, vol. 15, no. 9, pp. 1277–1288.

Hub, IM 2018, 'Pros and Cons of Working with Micro-influencers', *Influencer Marketing*, viewed 26 June, 2019, <https://influencermarketinghub.com/pros-and-cons-of-working-with-micro-influencers/>.

Hulse, K & McPherson, A 2014, 'Exploring Dual Housing Tenure Status as a Household Response to Demographic, Social and Economic Change', *Housing Studies*, vol. 29, no. 8, pp. 1028–1044.

Hulse, K & Milne, E 2019, 'Engaging home renovators : opportunities and challenges for low carbon living', in P Newton, D Prasad, A Sproul & S White (eds), *Decarbonising the Built Environment: Charting the Transition*, Palgrave Macmillan, Basingstoke.

Hulse, K, Morris, A & Pawson, H 2019, 'Private Renting in a Home-owning Society: Disaster, Diversity or Deviance?', *Housing, Theory and Society*, vol. 36, no. 2,

Routledge, pp. 167–188, viewed
<https://doi.org/10.1080/14036096.2018.1467964>.

Hulse, K, Podkalicka, A, Milne, E, Winfree, T & Melles, G 2015, *'I'd just Google it':
media and home renovation practices in Australia*, Sydney, NSW.

Hunt, J 2018, 'Prototyping the Social:Temporality and Speculative Futures at the
Intersection of Design and Culture', in AJ Clarke (ed.), *Design Anthropology*,
Bloomsbury Academic, pp. 87–100.

Hunter, S 2019, *Media-engaged home renovation and the transition to zero carbon
homes*, Swinburne University.

IKEA 2019, 'IKEA kitchen guarantee', *IKEA*, viewed 5 April, 2019,
<https://www.ikea.com/gb/en/customer-service/guarantees-and-
warranties/kitchen-guarantee/>.

Ingold, T 2012, 'Introduction : The Perception of the User - Producer', in W Gunn & J
Donovan (eds), *Design and Anthropology*, Ashgate Publishing, Ltd., pp. 19–31.

Ingram, J, Shove, E & Watson, M 2007, 'Products and Practices: Selected Concepts
from Science and Technology Studies and from Social Theories of Consumption
and Practice', *Design Issues*, vol. 23, no. 2, pp. 3–16.

Jacobs, JM & Merriman, P 2011, 'Practising architectures', *Social and Cultural
Geography*, vol. 12, no. 03, pp. 211–222.

Janda, KB & Killip, G 2013, 'Building Expertise : Renovation as Professional
Innovation', in RL Henn & AJ Hoffman (eds), *Constructing Green:The Social
Structures of Sustainability*, MIT Press.

Jansson, A 2014, 'Jansson_2014_Indispensable things_on mediatization, materiality
and space.pdf', in K Lundby (ed.), *Mediatization of Communication*, De Gruyter
Mouton.

Jeffery, E 2016, '" I Find New Things I " d Forgotten I Needed ': Consumption , Domesticity and Home Renovation', *Hecate*, vol. 42, no. 2, pp. 85–101.

Jenkins, P & McLachlan, F 2010, 'Is there a rôle for architects in mainstream private sector house building?', *The Journal of Architecture*, vol. 15, no. 2, pp. 153–180, viewed <http://www.tandfonline.com/doi/abs/10.1080/13602361003791036>.

Johanson, S 2011, 'The Block unearths home truths about renovation spending', *Estate, Real Network, Fairfax Media*, pp. 5–8.

Jones, L 2014, 'Living-With Others , Living-With an " Eco-Home ": From Frustration to Transformation in an Eco- Development', *Journal of Environmental Policy & Planning*, vol. 16, no. 2, pp. 221–240.

Jones, PJ, Patterson, JL & Lannon, SC 2013, 'Retrofitting existing housing: how far, how much?', *Building Research & Information*, no. 12 July 2013, viewed <http://orca.cf.ac.uk/41187/>.

Joosse, S & Brydges, T 2018, 'Blogging for Sustainability: The Intermediary Role of Personal Green Blogs in Promoting Sustainability', *Environmental Communication*, vol. 12, no. 5, Taylor & Francis, pp. 686–700, viewed <https://doi.org/10.1080/17524032.2018.1474783>.

Judson, EP 2013a, *Energy-efficient renovation of owner-occupied heritage dwellings : Insights from social practices*, RMIT.

Judson, EP 2013b, *Energy-efficient renovation of owner-occupied heritage dwellings : Insights from social practices*, RMIT.

Judson, EP, Iyer-Raniga, U & Horne, R 2014, 'Greening heritage housing: understanding homeowners' renovation practices in Australia', *Journal of Housing and the Built Environment*, vol. 29, no. 1, pp. 61–78, viewed 2 January, 2015, <http://link.springer.com/10.1007/s10901-013-9340-y>.

Judson, EP & Maller, C 2014, 'Housing renovations and energy efficiency: insights from homeowners' practices', *Building Research & Information*, vol. 42, no. 4, pp. 501–511, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.894808>.

Karvonen, A 2013, 'Towards systemic domestic retrofit: a social practices approach', *Building Research & Information*, vol. 41, no. 5, pp. 563–574.

Keene, JR & Batson, CD 2010, 'Under One Roof: A Review of Research on Intergenerational Coresidence and Multigenerational Households in the United States', *Sociology Compass*, vol. 4, no. 8, pp. 642–657, viewed <http://doi.wiley.com/10.1111/j.1751-9020.2010.00306.x>.

Kellenberg, BYS 2004, 'Making Green Communities Work', *Real Estate Issues-American Society of Real Estate Councelors*, vol. 29, no. 1, pp. 24–29.

Kelly, MJ 2009, 'Retrofitting the existing UK building stock', *Building Research & Information*, vol. 37, no. March 2015, pp. 196–200.

Kennedy, J, Nansen, B, Arnold, M, Wilken, R & Gibbs, M 2015, 'Digital housekeepers and domestic expertise in the networked home', *Convergence: The International Journal of Research into New Media Technologies*, vol. 21, no. 4, pp. 408–422, viewed <http://con.sagepub.com/cgi/doi/10.1177/1354856515579848>.

Kensing, F, Simonsen, J & Bødker, K 1998, 'Participatory Design at a Radio Station', *Computer Supported Cooperative Work*, vol. 7, pp. 243–271.

Kerr, NJ 2018, *The rationale for retrofit : A multi-level, interdisciplinary perspective on the energy efficient retrofit of existing residential buildings .*, University of Leeds.

Kersten, WC, Crul, MRM, Geelen, D V., Meijer, S a. & Franken, V 2014, 'Engaging beneficiaries of sustainable renovation - exploration of design-led participatory approaches', *Journal of Cleaner Production*, vol. 106, Elsevier Ltd, pp. 690–699, viewed <http://dx.doi.org/10.1016/j.jclepro.2014.07.060>.

349

Khamis, S, Ang, L & Welling, R 2017, 'Self-branding," micro-celebrity" and the rise of Social Media Influencers', *Celebrity Studies*, vol. 8, no. 2, Routledge, pp. 191–208, viewed <https://doi.org/10.1080/19392397.2016.1218292>.

Killip, G, Fawcet, T & Janda, K 2014, 'Innovation in low-energy residential renovation:UK and France', *ICE Energy*, pp. 117–124.

Killip, G, Owen, A, Morgan, E & Topouzi, M 2018, 'A co-evolutionary approach to understanding construction industry innovation in renovation practices for low-carbon outcomes', *International Journal of Entrepreneurship and Innovation*, vol. 19, no. 1, pp. 9–20.

Kivimaa, P, Boon, W, Hyysalo, S & Klerkx, L 2018, 'Towards a typology of intermediaries in sustainability transitions : A systematic review and a research agenda', *Research Policy*, Elsevier, viewed <https://doi.org/10.1016/j.respol.2018.10.006>.

Kivimaa, P, Hyysalo, S, Boon, W, Klerkx, L, Martiskainen, M & Schot, J 2019, 'Passing the baton : How intermediaries advance sustainability transitions in different phases', *Environmental Innovation and Societal Transitions*, no. November 2018, Elsevier, pp. 1–16, viewed <https://doi.org/10.1016/j.eist.2019.01.001>.

Kleis Nielsen, R & Ganter, SA 2018, 'Dealing with digital intermediaries: A case study of the relations between publishers and platforms', *New Media and Society*, vol. 20, no. 4, pp. 1600–1617.

Klocker, N, Gibson, C & Borger, E 2012, 'Living together but apart: Material geographies of everyday sustainability in extended family households', *Environment and Planning A*, vol. 44, no. 9, pp. 2240–2259.

Knoblauch, H 2005, 'Focused ethnography', *Forum Qualitative Sozialforschung*, vol. 6, no. 3, viewed <http://www.qualitative-research.net/index.php/fqs/article/view/20>.

Knoblauch, H & Schnettler, B 2012, 'Videography: Analysing video data as a "focused"

ethnographic and hermeneutical exercise', *Qualitative Research*, vol. 12, no. 3, pp. 334–356.

Konstantinou, T & Knaack, U 2011, 'Refurbishment of residential buildings: A design approach to energy-efficiency upgrades', *Procedia Engineering*, vol. 21, pp. 666–675, viewed <http://dx.doi.org/10.1016/j.proeng.2011.11.2063>.

Koolhaas, R 2002, 'Junkspace', *October*, vol. 100, pp. 175–190.

Krotz, F 2017, 'Explaining the mediatisation approach', *Javnost*, vol. 24, no. 2, Taylor & Francis, pp. 103–118.

Krotz, F 2014, 'Mediatized Worlds : A Discussion of the Basic Concepts', in A Hepp & F Krotz (eds), *Mediatized Worlds: Culture and Society in a Media Age*, palgrave macmillan, pp. 72–87.

Krotz, F 2007, 'The meta-process of "mediatization" as a conceptual frame', *Global Media and Communication*, vol. 3, no. 3, pp. 256–260.

Kumar, K & Makarova, E 2008, 'The portable home: The domestication of public space', *Sociological Theory*, vol. 26, no. 4, pp. 324–343.

Lane, R & Gorman-Murray, A 2010, *Material Geographies of Household Sustainability*, Routledge.

Latour, B 2005, *Reassembling the social:An introduction to Actor-Network Theory*, oxford university press.

Latour, B 1992, 'Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts'', in EB Wiebe & J Law (eds), *Shaping Technology/Building Society: Studies in Sociotechnical Change*, MIT Press, Cambridge, MA.

Lawhon, M & Murphy, JT 2011, 'Socio-technical regimes and sustainability transitions: Insights from political ecology', *Progress in Human Georgaphy*, vol. 36, no. 3, pp.

354–378.

LCL, C 2019, 'CRC Low carbon living Research', viewed 6 March, 2020, <http://www.lowcarbonlivingcrc.com.au/research>.

Leadbeater, C & Miller, P 2004, *The Pro-Am Revolution*, *Demos*, viewed <papers2://publication/uuid/6CC951F6-C76C-4854-BE1C-C5E74164AB14>.

Leary, TO 2008, 'Sustainable Housing-Northern Suburbs of Adelaide Home Occupiers Perceptions', *AIBS South Australian Conference-Climate Change: Engaging the Elements*, pp. 47–73.

Leavy, P 2014, 'Introduction', in P Leavy (ed.), *The Oxford Handbook of Qualitative Research*, Oxford University Press, pp. 1–14, viewed <http://www.patricialeavy.com/>.

Lees, L 2001, 'Towards a critical geography of architecture: the case of an ersatz Colosseum', *Ecumene*, vol. 8, no. 1, pp. 51–86.

Lees, L & Baxter, R 2011, 'A "building event" of fear: thinking through the geography of architecture', *Social & Cultural Geography*, vol. 12, no. 2, pp. 107–122, viewed <http://www.tandfonline.com/doi/abs/10.1080/14649365.2011.545138>.

Lewis, T 2015, '" One city block at a time ": Researching and cultivating green transformations', vol. 18, no. 3, pp. 347–363.

Lewis, T 2010, 'Branding, celebritization and the lifestyle expert', *Cultural Studies*, vol. 24, no. 4, pp. 580–598.

Lewis, T 2008a, 'Changing rooms, biggest losers and backyard blitzes: A history of makeover television in the United Kingdom, United States and Australia', *Continuum*, vol. 22, no. 4, pp. 447–458, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802189949>.

Lewis, T 2014, 'Life Coaches, Style Mavens, and Design Gurus. Everyday Experts on Reality Television', in L Ouellette (ed.), *A Companion to Reality Television*, John Wiley & Sons, pp. 402–420.

Lewis, T 2011a, 'Making Over Culture? Lifestyle Television and Contemporary Pedagogies of Selfhood in Singapore', *Communication, Politics & Culture*, vol. 44, no. 1.

Lewis, T 2008b, 'Revealing the Makeover Show', *Continuum*, vol. 22, no. 4, pp. 441–446, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802190053>.

Lewis, T 2008c, *Smart living: Lifestyle media and Popular Expertise*, Peter Lang, New York.

Lewis, T 2011b, 'The Ethical Turn in Commodity Culture : Consumption , Care and the Other', *Journal of Literature, Culture and Literary Translation*, vol. 2, no. 1, pp. 1–7.

Lewis, T 2012, '"There grows the neighbourhood": Green citizenship, creativity and life politics on eco-TV', *International Journal of Cultural Studies*, vol. 15, no. 3, pp. 315–326, viewed 15 February, 2015, <http://ics.sagepub.com/cgi/doi/10.1177/1367877911433753>.

Lewis, T 2008d, 'Transforming citizens? Green politics and ethical consumption on lifestyle television', *Continuum, Journal of Media and Cultural Studies*, vol. 22, no. 2, pp. 227–240.

Lie, M & K., S 1996, *Making Technologies Our Own? Domesticating Technology into Everyday Life.*, Scandinavian University Press., Oslo.

Lin, HC, Bruning, PF & Swarna, H 2018, 'Using online opinion leaders to promote the hedonic and utilitarian value of products and services', *Business Horizons*, vol. 61, no. 3, 'Kelley School of Business, Indiana University', pp. 431–442, viewed <https://doi.org/10.1016/j.bushor.2018.01.010>.

Lincoln, YS & Guba, EG 1985, *Naturalistic inquiry*, SAGE, London.

Lincoln, YS & Guba, EG 2000, 'Paradigmatic controversies, contradictions, and emerging confluences', *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Livingstone, S 2007, 'On the material and the symbolic : Silverstone ' s double articulation of research traditions in new media studies', *New Media & Society*, vol. 9, no. 1, pp. 16–24.

Livingstone, S 2009, 'On the Mediation of Everything: ICA Presidential Address 2008', *Journal of Communication*, vol. 59, no. 1, pp. 1–18.

Livingstone, S & Das, R 2010, 'Existential Field 8 : Media , Communication and Information Technologies in the European Family. Working Report.', *Framework*, no. March 2011.

Long, TB, Young, W, Webber, P, Gouldson, A & Harwatt, H 2015, 'The impact of domestic energy efficiency retrofit schemes on householder attitudes and behaviours', *Journal of Environmental Planning and Management*, vol. 58, no. 10, Taylor & Francis, pp. 1853–1876, viewed <http://dx.doi.org/10.1080/09640568.2014.965299>.

Lunt, P & Livingstone, S 2016, 'Is "mediatization" the new paradigm for our field? A commentary on Deacon and Stanyer (2014, 2015) and Hepp, Hjarvard and Lundby (2015)', *Media, Culture and Society*, vol. 38, no. 3, pp. 462–470.

Lury, C 2004, *Brands: The Logos of the Global Economy*, Routledge.

Ma, Z, Cooper, P, Daly, D & Ledo, L 2012, 'Existing building retrofits: Methodology and state-of-the-art', *Energy and Buildings*, vol. 55, Elsevier B.V., pp. 889–902, viewed <http://dx.doi.org/10.1016/j.enbuild.2012.08.018>.

Mackay, C 2010, 'Kitchen remodelling in New Zealand-Issues of Sustainability',

Conference Proceedings of SB10 – Innovation and Transformation, Branz, Wellington, pp. 1–11.

Mackay, M & Perkins, Harvey C 2017a, 'DIY Dreams and the Potential of Home', *Housing, Theory and Society*, Routledge, pp. 1–17, viewed <http://doi.org/10.1080/14036096.2017.1408679>.

Mackay, M & Perkins, Harvey C 2017b, 'The globalising world of DIY house improvement : interpreting a cultural and commercial phenomenon', *Housing Studies*, vol. 32, no. 6, Routledge, pp. 758–777, viewed <http://dx.doi.org/10.1080/02673037.2016.1234031>.

Mackay, M & Perkins, Harvey C. 2017, 'The globalising world of DIY house improvement: interpreting a cultural and commercial phenomenon', *Housing Studies*, vol. 32, no. 6, Routledge, pp. 758–777, viewed <http://dx.doi.org/10.1080/02673037.2016.1234031>.

Mackley, KL & Pink, S 2013, 'From Emplaced Knowing to Interdisciplinary Knowledge', *The senses and society*, vol. 8, no. 3, pp. 335–353.

Madsen, LV 2018, 'Materialities shape practices and notions of comfort in everyday life', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 71–82, viewed <https://doi.org/10.1080/09613218.2017.1326230>.

Maguire, JS & Matthews, J 2012, 'Are we all cultural intermediaries now ? An introduction to cultural intermediaries in context', *European Journal of Cultural Studies*, vol. 15, no. 5, pp. 551–562.

Maller, C, Horne, R & Dalton, T 2012, 'Green Renovations: Intersections of Daily Routines, Housing Aspirations and Narratives of Environmental Sustainability', *Housing, Theory and Society*, vol. 29, no. 3, pp. 255–275, viewed 27 November, 2014, <http://www.tandfonline.com/doi/abs/10.1080/14036096.2011.606332>.

Maller, C & Strengers, Y 2013, 'The global migration of everyday life : Investigating the

practice memories of Australian migrants', *Geoforum*, vol. 44, Elsevier Ltd, pp. 243–252, viewed <http://dx.doi.org/10.1016/j.geoforum.2012.09.002>.

Maller, CJ & Horne, RE 2011, 'Living Lightly: How does Climate Change Feature in Residential Home Improvements and What are the Implications for Policy?', *Urban Policy and Research*, vol. 29, no. 1, pp. 59–72, viewed 16 November, 2014, <http://www.tandfonline.com/doi/abs/10.1080/08111146.2011.539514>.

Mallett, S 2004, 'Understanding home: a critical review of the literature', *The Sociological Review*, vol. 52, no. 1, pp. 62–89, viewed <http://doi.wiley.com/10.1111/j.1467-954X.2004.00442.x%5Cnhttp://onlinelibrary.wiley.com/doi/10.1111/j.1467-954X.2004.00442.x/abstract>.

Mandell, S & Wilhelmsson, M 2011, 'Willingness to Pay for Sustainable Housing', *Journal of Housing Research*, vol. 20, no. 1, pp. 35–51, viewed <http://ares.metapress.com/content/r012220m66316245/fulltext.pdf>.

Mandich, G & Cuzzocrea, V 2016, '"Domesticating" the city: Family practices in public space', *Space and Culture*, vol. 19, no. 3, pp. 224–236.

Mansvelt, J 2005, *Geographies of Consumption*, SAGE Publications.

Manzini, E 2015, *Design, When Everybody Designs. An introduction to Design for Social Innovation*, MIT Press, Cambridge, MA, London, England.

Markard, J & Truffer, B 2008, 'Technological innovation systems and the multi-level perspective : Towards an integrated framework', *Research Policy*, vol. 37, pp. 596–615.

Martin, F, Lewis, T & Sinclair, J 2013, 'Lifestyle media and social transformation in Asia', *Media International Australia incorporating Culture and Policy*, vol. 147.

Marwick, A & Boyd, D 2011, 'To See and Be Seen : Celebrity Practice on Twitter',

Convergence:The international Journal of Research into New Media Technologies, vol. 17, no. 2, pp. 139–158.

Masterbuilders 2018, 'Home renovations hit 14 year high', *MasterBuilders Australia*.

McCracken, G 1988, *Culture and Consumption: new approaches to the symbolic character of consumer goods and activities,* Indiana University Press.

Mcelroy, R 2017, 'Mediating home in an age of austerity : The values of British property television', *European Journal of Cultural Studies*, vol. 20, no. 5, pp. 525–542.

McElroy, R 2008, 'Property TV: The (re)making of home on national screens', *European Journal of Cultural Studies*, vol. 11, pp. 43–61.

Mckee, K 2012, 'Young People , Homeownership and Future Welfare', *Housing Studies*, vol. 27, no. 6, pp. 1466–1810.

McMahon, B 2001, *The architecture of east Australia:an architectural history in 432 individual representations*, Axel Menges, Stuttgard and London.

Mcmeekin, A & Southerton, D 2012, 'Sustainability transitions and final consumption : practices and socio-technical systems', *Technology Analysis & Strategic Management*, vol. 24, no. 4, pp. 345–361.

Medhurst, A 1999, 'Day for Night', *Signt and Sound*, vol. 9, no. 6, pp. 26–7.

Mee, K 2007, '"I ain't been to heaven yet? Living here, this is heaven to me": Public housing and the making of home in inner Newcastle', *Housing, Theory and Society*, vol. 24, no. 3, pp. 207–228.

Meijer, F, Itard, L & Sunikka-Blank, M 2009, 'Comparing European residential building stocks: performance, renovation and policy opportunities', *Building Research & Information*, vol. 37, no. March 2015, pp. 533–551.

Melles, G, Hulse, K, Podkalicka, A, Esther, M & Tomi, W 2017, *'Designing in' – media and communications for low carbon home renovation*, Mlebourne, viewed <http://builtbetter.org/node/5468>.

Miller, D 2001, *Consumption: Critical concepts in the social sciences*, D Miller (ed.), Volume III.

Miller, D 2012, *Consumption and its consequences*, Polity Press, Cambridge.

Miller, D 2018, 'Interior Decoration-Offline and Online', in AJ Clarke (ed.), *Design Anthropology. Object Cultures in Transition*, bloomsbury.

Miller Lane, B 2006, *Housing and Dwelling Perspectives on Modern Domestic Architecture*, Routledge.

Miranda, A 2016, 'Continuity , Change and the Circulation of Social Practices', *The Occasional Papers, Institute for Culture and Society t(OPICS)*, vol. 7, no. 1, pp. 1–20.

Mitchell, DM 2009, *Govermentality:Power and Rule in Modern society*, 2nd ed., SAGE Publications.

Mjörnell, K, Boss, A, Lindahl, M & Molnar, S 2014, 'A Tool to Evaluate Different Renovation Alternatives with Regard to Sustainability', *Sustainability*, vol. 6, no. 7, Multidisciplinary Digital Publishing Institute, pp. 4227–4245, viewed 12 February, 2015, <http://www.mdpi.com/2071-1050/6/7/4227/htm>.

Molloy, M & Larner, W 2010, 'WHO NEEDS CULTURAL INTERMEDIARIES INDEED?', *Journal of Cultural Economy*, vol. 3, no. 3, pp. 361–377.

Moore, T, de Haan, F, Horne, R & Gleeson, BJ 2017, *Urban sustainability transitions: Australian cases- International perspectives*, Springer.

Moore, T, Horne, R & Morrissey, J 2014, 'Zero emission housing: Policy development

in Australia and comparisons with the EU, UK, USA and California', *Environmental Innovation and Societal Transitions*, vol. 11, Elsevier B.V., pp. 25–45, viewed 11 December, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S2210422413000932>.

Moran, J 2004, 'Housing, memory and everyday life in contemporary Britain', *Cultural Studies*, vol. 18, no. 4, pp. 607–627.

Morgan, R 2017, 'Renovation Nation:home improvement in Australia', *www. roymorgan.com*, p. 7102, viewed <http://www.roymorgan.com/findings/7102-renovation-nation-home-improvement-in-australia-201701090848>.

Morley, D 2009, 'Domesticating Dislocation in a World of " New " Technology', in C Berry, S Kim & L Spigel (eds), *Electronic Elsewheres:Media, Technology, and the Experience of Social Space*, University of Minesota Press, pp. 3–15.

Morley, D 1986, *Family Television: Cultural Power and Domestic Leisure*, Comedia, London.

Morley, D 1980, *The 'Nationwide' Audience: Structure and Decoding*, BFI, London.

Morley, D 2006, 'What's "home" Got to do with it?: Contradictory Dynamics in the Domestication of Technology and the Dislocation of Domesticity', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, Maidenhead.

Morrison, C-A 2012, 'Home and heterosexuality in Aotearoa New Zealand: The spaces and practices of DIY and home renovation', *New Zealand Geographer*, vol. 68, no. 2, pp. 121–129, viewed <http://doi.wiley.com/10.1111/j.1745-7939.2012.01226.x>.

Moseley, R 2000, 'Makeover takeover on British television', *Screen*, vol. 41, no. 3, pp. 299–334.

Moss, T, Medd, W, Guy, S & Marvin, S 2009, 'Organising Water : The Hidden Role of

Intermediary Work', *Water Alternatives*, vol. 2, no. 1, pp. 16–33.

Müller, KF & Röser, J 2017, 'Media Convergence and Deconvergence', in S Sparviero, C Peil & G (Ed) Balbi (eds), *Convergence in Domestic Media Use? The Interplay of Old and New Media at Home*, palgrave macmillan, pp. 55–74.

Munro, M & Leather, P 2000, 'Nest-building or investing in the future? Owner-occupiers' home improvement behaviour', *Policy and Politics*, vol. 28, no. 4, pp. 511–526.

Nansen, B, Arnold, M, Gibbs, M & Davis, H 2011, 'Dwelling with media stuff: Latencies and logics of materiality in four Australian homes', *Environment and Planning D: Society and Space*, vol. 29, no. 4, pp. 693–715.

Nansen, B, Arnold, M, Gibbs, MR & Davis, H 2009, 'Domestic orchestration: Rhythms in the mediated home', *Time & Society*, vol. 18, no. 2–3, pp. 181–207.

Negus, K 2002, 'The work of cultural intermediaries and the enduring distance between production and consumption', *Cultural Studies*, vol. 16, no. 4, pp. 501–515.

Nicolini, D 2018, 'Is small the only beautiful? Making sense of "large phenomena" from a practice-based perspective', in A Hui, T Schatzki & E Shove (eds), *The Nexus of Practices: Connections, constellations and practitioners*, Routledge, pp. 98–113.

Nixon, S & Gay, P Du 2002, 'Who needs cultural intermediaries?', *Cultural Studies*, vol. 16, no. 4, pp. 495–500.

O'Reilly, K 2012, *Ethnographic methods*, 2nd ed., Routledge, Florence.

Olesen, BB 2010, 'Ethnic Objects in Domestic Interiors: Space, Atmosphere and the Making of Home', *Home Cultures*, vol. 7, no. 1, pp. 25–42.

Organo, V, Head, L & Waitt, G 2013, 'Who does the work in sustainable households? A time and gender analysis in New South Wales, Australia', *Gender, Place &*

Culture, vol. 20, no. 5, pp. 559–577.

Orton-johnson, K 2014, 'DIY Citizenship, Critical Making , and Community', in M Ratto & M Boler (eds), *DIY Citizenship. Critical Making and Social Media*, MIT Press, Cambridge.

Ouellette, L & Hay, J 2008a, *Better Living Through Reality TV: Television and Post-Welfare Citizenship*, Blackwell Publishing Ltd, Oxford.

Ouellette, L & Hay, J 2008b, 'Makeover television, governmentality and the good citizen', *Continuum*, vol. 22, no. 4, pp. 471–484.

Owen, A & Mitchell, G 2015, 'Outside influence-Some effects of retrofit installers and advisors on energy behaviours in households', *Indoor and Built Environment*, vol. 24, no. 7, pp. 925–936.

Owen, A, Mitchell, G & Gouldson, A 2014, 'Unseen influence-The role of low carbon retrofit advisers and installers in the adoption and use of domestic energy technology', *Energy Policy*, vol. 73, Elsevier, pp. 169–179, viewed <http://dx.doi.org/10.1016/j.enpol.2014.06.013>.

Paduart, a., Debacker, W, De Temmerman, N, De Wilde, WP & Hendrickx, H 2011, 'Re-design for change: environmental and financial assessment of a dynamic renovation approach for residential buildings', *Sustainable Development and Planning*, vol. 150, pp. 273–284, viewed <http://library.witpress.com/viewpaper.asp?pcode=SDP11-024-1>.

Pan, W, Gibb, AF & Dainty, ARJ 2007, 'Perspective of UK housebuilders on the use of offsite modern methods of construction', *Construction Management and Economics*, vol. 25, no. 2, pp. 183–194.

Pan, W, Gibb, AGF & Dainty, ARJ 2008, 'Leading UK housebuilders' utilization of offsite construction methods', *Building Research and Information*, vol. 36, no. 1, pp. 56–67.

Parrott, KR, Beamish, JO, Emmel, JM & Lee, S-J 2008, 'Kitchen Remodeling: Exploring the Dream Kitchen Projects', *Housing and Society,* vol. 35, no. 2, pp. 25–42.

Partidario, MR, Vicente, G & Belchior, C 2010, 'Can new perspectives on sustainability drive lifestyles?', *Sustainability*, vol. 2, pp. 2849–2872.

Patterson, JJ, Lukasiewicz, A, Wallis, PJ, Rubenstein, N, Coffey, B & Gachenga, E 2013, 'Tapping Fresh Currents : Fostering Early-Career Researchers in Transdisciplinary Water Governance Research', *Water alternatives*, vol. 6, no. 2, pp. 293–312.

Payne, G & Williams, M 2005, 'Generalization in qualitative research', *Sociology*, vol. 39, no. 2, pp. 295–314.

Peil, C & Roser, J 2014, 'The Meaning of Home in the Context of Digitization, Mobilization and Mediatization', in A Hepp & F Krotz (eds), *Mediatissed Worlds: Culture and Society in a Media Age*, palgrave macmillan, Basingstoke, pp. 293–249.

Pellow, D 2014, '"Everybody thinks they can build": The architect as cultural intermediary in Ghana', *Architectural Theory Review*, vol. 19, no. 1, Taylor & Francis, pp. 56–75.

Peng, T-C 2013, 'An Institutional Economic Analysis of the Decision to Do-it-yourself in Housing Renovation', *Urban Studies*, vol. 50, no. 9, pp. 1796–1816.

Peng, T 2013, 'A microstructural analysis of housing renovation decisions in Brisbane , Australia', *New Zealand Economic Papers*, vol. 47, no. 2, pp. 158–187.

Peterson, NM, Rai Peterson, T & Liu, J 2013, *The Housing Bomb: Why Our Addiction To Houses Is Destroying The Environment And Threatening Our Society*, The Johns Hopkings University Press.

Pettifor, H, Wilson, C & Chryssochoidis, G 2015, 'The appeal of the green deal: Empirical evidence for the influence of energy efficiency policy on renovating homeowners', *Energy Policy*, vol. 79, pp. 161–176, viewed <http://www.sciencedirect.com/science/article/pii/S0301421515000166>.

Pink, S 2012, *Advances in visual methodology*, SAGE Publications, London.

Pink, S 2014a, 'Digital – visual – sensory design anthropology : Ethnography , imagination and intervention', *Arts & Humanities in Higher Education*, vol. 13, no. 4, pp. 412–427.

Pink, S 2014b, 'Digital – visual – sensory design anthropology : Ethnography , imagination and intervention', *Arts and Humanities in Higher Education*, vol. 13, no. 4, pp. 412–427.

Pink, S 2009, *Doing Sensory Ethnography*, SAGE Research Methods.

Pink, S 2013, *Doing Visual Ethnography*, 3rd ed., SAGE, London.

Pink, S 2004, *Home Truths: Gender, Domestic Objects and Everyday Life.*, BERG, Oxford and New York.

Pink, S 2011, 'Images, Senses and Applications: Engaging Visual Anthropology', *Visual Anthropology*, vol. 24, no. 5, pp. 437–454.

Pink, S 2007, 'The Visual Ethnography:Photography, Video, Cultures and Individuals', *Doing Visual Ethnography*, SAGE Research Methods, pp. 21–40.

Pink, S, Leder Mackey, K, Morosanu, R, Mitchell, V & Bhamra, T 2017, *Making Homes. Ethnography and Design*, bloomsbury academic, London and New York.

Pink, S, Mackey Leder, K, Morosanu, R, Mitchell, V, Bhamra, T & Buchli, V 2017, *Making Home: Ethnography and Design*, Bloomsbury Publishing Plc.

Pink, S & Mackley, KL 2013, 'Saturated and situated : expanding the meaning of media in the routines of everyday life', *Media, Culture & Society*, vol. 35, no. 6, pp. 677–691.

Pink, S & Mackley, KL 2012, 'Video and a sense of the invisible: Approaching domestic energy consumption through the sensory home', *Sociological Research Online*, vol. 17, no. 1.

Pink, S, Mackley, KL & Moroşanu, R 2015, 'Hanging out at home: Laundry as a thread and texture of everyday life', *International Journal of Cultural Studies*, vol. 18, no. 2, pp. 209–224.

Pink, S & Morgan, J 2013, 'Short-term ethnography: Intense routes to knowing', *Symbolic Interaction*, vol. 36, no. 3, pp. 351–361.

Pitt&Sherry & Swinburne, U 2014, *National Energy Efficient Building Project*.

Plantin, JC, Lagoze, C, Edwards, PN & Sandvig, C 2018, 'Infrastructure studies meet platform studies in the age of Google and Facebook', *New Media and Society*, vol. 20, no. 1, pp. 293–310.

Podkalicka, A 2018, 'Actor, intermediary, and context: media in home renovation and consumption practice', *Communication Research and Practice*, Routledge, pp. 1–16, viewed <https://www.tandfonline.com/doi/full/10.1080/22041451.2018.1507326>.

Podkalicka, A & Anderson, D 2020, 'Lived, Local and Everyday:Understanding Media Use in Green Home Renovation', in J Diaz-Pont, P Maeseele, A Egan, S Maitreyee & K Foxwell-norton (eds), *The Local and the Digital in Environmental Communication*, palgrave macmillan.

Podkalicka, A & Milne, E 2017, 'Diverse media practices and economies of Australian home renovators: budgeting, self-education and documentation', *Continuum, Journal of Media and Cultural Studies*, vol. 4312, no. May, Routledge, pp. 1–12,

viewed <https://www.tandfonline.com/doi/full/10.1080/10304312.2017.1281882>.

Podkalicka, A, Milne, E, Hulse, K, Winfree, T & Melles, G 2016, *Hashtag Sustainability ? Home Renovators ' Media World*, Melbourne, VIC.

Podkalicka, A, Milne, E & Kennedy, J 2018, *Grand Designs: Consumer markets and Home-making*, palgrave macmillan.

Podkalicka, A, Winfree, T, Wright, A & Mcgregor, J 2019, *Sharing Advice Online to Foster Sustainable Homes*, P Newton, D Prasad, A Sproul & S White (eds), *Decarbonising the Built Environment*, Palgrave macmillan, Singapore, viewed <http://dx.doi.org/10.1007/978-981-13-7940-6_25>.

Polanyi, M 1966, *The tacit dimension*, 2009th ed, University of Chicago Press.

Putnam, T 2004, 'The modern home and the evolution of the house', *The Journal of Architecture*, vol. 9, no. 4, pp. 419–429.

Rainborough, J 2011, *Lifestyle Media and the Formation of the Self*, Palgrave Macmillan.

Rapoport, A 1995, 'Environmental quality and Environmental quality profiles', *Thirty papers in environment behaviour research*, Urban International Press, Newcastle.

Rasmussen, T 2014, *Personal Media and Everyday Life*, palgrave macmillan.

Ratto, M, Boler, M & Deibert, R 2014, *DIY Citizenship: Critical Making and Social Media*, MIT Press.

Ravetz, J 2008, 'State of the stock — What do we know about existing buildings and their future prospects?', *Energy Policy*, vol. 36, pp. 4462–4470.

Reckwitz, A 2002a, 'The Status of the " Material " in Theories of Culture : From " Social Structure " to " Artefacts "', *Journal for the Thoery of Social Behaviour*, vol. 32, no.

2, pp. 195–217.

Reckwitz, A 2002b, 'Toward a Theory of Social Practices A Development in Culturalist Theorizing', *European Journal of Social Theory*, vol. 5, no. 2, pp. 243–263.

Redström, J 2012, 'Introduction: Defining moments', in W Gunn & J Donovan (eds), *Design and Anthropology*, Ashgate Publishing, Ltd., pp. 89–103.

Reid, L, Sutton, P & Hunter, C 2010, 'Theorizing the meso level: the household as a crucible of pro-environmental behaviour', *Progress in Human Geography*, vol. 34, no. 3, pp. 309–327.

Reid, LA & Houston, D 2013, 'Low Carbon Housing : A "Green" Wolf in Sheep's Clothing?', *Housing Studies*, vol. 28, no. January 2013, pp. 37–41.

Reimer, S & Leslie, D 2004, 'Identity , Consumption , and the Home', *Home Cultures*, vol. 1, no. 2, pp. 187–208.

Richardson, L 2000, 'Writing: A Method of Inquiry', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Risholt, B 2013, *Zero energy renovation of single family houses*, *Norwegian University of Science and Technology\rFaculty of Architecture and Fine Art\rDepartment of Architectural Design*.

Robertson, T & Simonsen, J 2012, 'Participatory Design: An introduction', in J Simonsen & T Robertson (eds), *Routledge International Handbook of Participatory Design*, Routledge.

Rogers, EM 1982, *Diffusion of Innovations*, *Elements of Diffusion*, 3rd editio., The Free Press.

Roggema, R 2014, 'The Design Charrette', *The Design Charrette ; Ways to Envision Sustainable Futures*, Springer, viewed <http://link.springer.com/10.1007/978-94-

007-7031-7>.

Ronald, R, Druta, O & Godzik, M 2018, 'Japan's urban singles: negotiating alternatives to family households and standard housing pathways', *Urban Geography*, vol. 39, no. 7, Routledge, pp. 1018–1040, viewed <https://doi.org/10.1080/02723638.2018.1433924>.

Røpke, I 2009, 'Theories of practice - New inspiration for ecological economic studies on consumption', *Ecological Economics*, vol. 68, no. 10, Elsevier B.V., pp. 2490–2497, viewed <http://dx.doi.org/10.1016/j.ecolecon.2009.05.015>.

Rose, G 2016, *Visual methodologies:An introduction to researching with Visual Materials*, 4th ed., SAGE, London.

Rosenberg, BC 2012, 'Dangerous Houses', *Home Cultures*, vol. 9, no. 2, pp. 173–194.

Rosenberg, BC 2011a, 'Home improvement: Domestic taste, DIY, and the property market', *Home Cultures*, vol. 8, no. 1, pp. 5–24.

Rosenberg, BC 2008, 'Property and home-makeover television: Risk, thrift and taste', T Lewis (ed.), *Journal of Media and Cultural Studies*, vol. 22, no. 4, Taylor & Francis, pp. 505–513, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802189980>.

Rosenberg, BC 2011b, 'The Our House DIY Club: Amateurs, leisure knowledge and lifestyle media', *International Journal of Cultural Studies*, vol. 14, pp. 173–190.

Rowlands, R & Gurney, CM 2000, 'Young peoples' perceptions of housing tenure: A case study in the socialization of tenure prejudice', *Housing, Theory and Society*, vol. 17, no. 3, pp. 121–130.

Rubenstein, R 2001, *Home Matters: Longing and Belonging, Nostalgia and Mourning inWomen's Fiction*, Palgrave, New York.

Ryan, GW & Bernard, RH 2000, 'Data Management and Analysis Methods', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Ryan, M 2014, 'Apartment therapy, everyday modernism, and aspirational disposability', *Television and New Media*, vol. 15, no. 1, pp. 68–80.

Rybczynski, W 1997, 'Housing without architects', *Architecture*, vol. 86, no. 8, p. 78.

SA Department of Environment, W and NR 2015, *Carbon Neutral Adelaide – Foundation Report*, Adelaide, viewed <https://www.cityofadelaide.com.au/assets/FINAL_REPORT_-_CARBON_NEUTRAL_ADELAIDE_-_FOUNDATION_REPORT_-_27_November_2015.pdf>.

Salo, M, Nissinen, A, Lilja, R, Olkanen, E, Neill, MO & Uotinen, M 2016, 'Tailored advice and services to enhance sustainable household consumption in Finland', *Journal of Cleaner Production*, vol. 121, Elsevier Ltd, pp. 200–207, viewed <http://dx.doi.org/10.1016/j.jclepro.2016.01.092>.

Sanders, EB-N 2013, 'Prototyping For The Design Spaces Of The Future', in L Valentine (ed.), *Prototype: Design and Craft in the 21st Century*, Berg publishers.

Sanders, EB-N & Stappers, PJ 2008, 'Co-creation and the new landscapes of design', *CoDesign*, vol. 4, no. 1, pp. 5–18.

Sanders, EB-N & Stappers, PJ 2014, 'Probes, toolkits and prototypes: three approaches to making in codesigning', *Codesign-International Journal of Cocreation in Design and the Arts*, vol. 10, no. 1, SI, pp. 5–14.

Sanders, EBE 2002, 'From user-centered to participatory design approaches', *Design and the Social Sciences Making connections*, pp. 1–8, viewed <http://books.google.com/books?hl=en&lr=&id=cFW7ULpRjyUC&oi=fnd&pg=PA1&dq=From+User-

Centered+to+Participatory+Design+Approaches&ots=ttIj0Ji8Bo&sig=K7RMPPG6r
9O-1v9t9OViwV-
_afE%5Cnhttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:From+
User-Center>.

Sangiorgi, D & Scott, K 2018, 'Conducting Design Research in and for a complex
world', in PA Rodgers & J Yee (eds), *The Routledge companion to Design
Research*, Routledge, London and New York.

Sanquist, TF, Orr, H, Shui, B & Bittner, AC 2012, 'Lifestyle factors in U.S. residential
electricity consumption', *Energy Policy*, vol. 42, Elsevier, pp. 354–364, viewed
<http://dx.doi.org/10.1016/j.enpol.2011.11.092>.

Schäfer, M & Jaeger-erben, M 2012, 'Life Events as Windows of Opportunity for
Changing Towards Sustainable Consumption Patterns ? Results from an
Intervention Study', *Journal of Consumer Policy*, vol. 35, pp. 65–84.

Schatzki, T 2016, 'Practice Theory as Flat Ontology', in G Spaargaren, D Weenick & M
Lamers (eds), *Practice Theory and Research: exploring the dynamics of social
life*, Routledge, London and New York, pp. 28–42.

Schatzki, T 1996a, *Social practices: A Wittgensteinian approach to human activity and
the social*, Cambridge university press.

Schatzki, T 1996b, *Social Practices: A wittgensteinian approach to human activity and
the social*, Cambridge university press, Cambridge.

Schatzki, T 2013, 'The edge of change: On the emergence, persistence, and
dissolution of practices', in E Shove & N Spurling (eds), *Sustainable Practices:
Social Theory and Climate Change*, Routledge, pp. 31–46.

Schatzki, T, Cetina, KK & Savigny, E Von 2001, *The practice turn in contemporary
theory*, *Scandinavian Journal of Management*, viewed
<http://linkinghub.elsevier.com/retrieve/pii/S0956522103000290>.

Schön, D 1991, *The reflective practitioner: How professionals think in action*, 2nd. ed., Routledge.

Schön, DA 1988, 'Designing: Rules, types and words', *Design Studies*, vol. 9, no. 3, pp. 181–190.

Schutt, RK & Chambliss, DF 2013, 'Qualitative Data Analysis', *Making Sense of the Social World: Methods of Investigation*, pp. 320–357.

Schwandt, T 2000, 'Three epistemological stances for qualitative inquiry', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, SAGE Publications, Inc.

Scotland, J 2012, 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms', *English Language Teaching*, vol. 5, no. 9, pp. 9–16.

Senft, heresa M 2008, *Camgirls. Celebrity & Community in the age of social networks*, Peter Lang, New York.

Seyfang, G, Longhurst, N, Seyfang, G & Longhurst, N 2016, 'What influences the diffusion of grassroots innovations for sustainability? Investigating community currency niches', *Technology Analysis & Strategic Management*, vol. 28, no. 1, Taylor & Francis, pp. 1–23.

Shove, E 2010, 'Beyond the ABC: climate change policy and theories of social change', *Environment and Planning A*, vol. 42, no. 6, pp. 1273–1285, viewed 11 July, 2014, <http://www.envplan.com/abstract.cgi?id=a42282>.

Shove, E 2003, *Comfort, cleanliness and convenience: The social organization of normality*, Berg publishers, Oxford.

Shove, E 2014, 'Putting practice into policy : reconfiguring questions of consumption and climate change', *Contemporary Social Science*, vol. 9, no. 4, pp. 415–429.

Shove, E 2004, 'Social architectural and environmental convergence', in K Steemers & MA Stean, (eds), *Environmental Diversity and Architecture*, Spon Press, London and New York, pp. 19–29.

Shove, E a. & Pantzar, M 2005, 'Consumers, Producers and Practices Understanding the invention and reinvention of Nordic walking.', *Journal of Consumer Culture*, vol. 5, no. 1, pp. 43–64, viewed <http://joc.sagepub.com/cgi/content/abstract/5/1/43>.

Shove, E, Pantzar, M & Watson, M 2012, *The Dynamics of Social Practice: Everyday Life and How it Changes*, SAGE Publications, London.

Shove, E & Walker, G 2007, 'Caution! Transitions ahead:Politics, practice, and sustainable transition management', *Environment and Planning*, vol. 39, pp. 763–770.

Shove, E & Walker, G 2010, 'Governing transitions in the sustainability of everyday life.', *Research Policy*, vol. 39, no. 4, Elsevier B.V., pp. 471–476, viewed <http://dx.doi.org/10.1016/j.respol.2010.01.019>.

Shove, E, Watson, M, Hand, M & Ingram, J 2007a, 'Having and Doing: the Case of the "Restless Kitchen"', *The Design of Everyday Life*, Bloomsbury Publishing, London.

Shove, E, Watson, M, Hand, M & Ingram, J 2007b, *The Design of Everyday Life*, Berg publishers, New York, New York, USA.

Shufeldt, M & Gale, K 2007, 'Under the (Glue) Gun : Containing and Constructing Reality in Home Makeover TV', *Popular Communication*, vol. 5, no. 4, pp. 263–282.

Silverstone, R 2006, 'Domesticating Domestication.Reflections on the life of a concept', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, Maidenhead, pp. 229–248.

Silverstone, R 2005, *Media, Technology and Everyday Life in Europe:From Information to Communication*, Ashgate Publishing, Ltd., Aldershot.

Silverstone, R 1994, *Television and everyday life*, Routledge, London and New York.

Silverstone, R & Hirsch, E 1992, *Consuming technologies:Media and information in Domestic Spaces*, Routledge, London and New York.

Silverstone, R, Hirsch, E & Morley, D 1992, 'Information and communicaaaation technologies and the moral economy of the household', in R Silverstone & E Hirsch (eds), *Consuming Technologies:Media and Information in Domestic Spaces*, Routledge, London, pp. 13–28.

Simons, H 2014, 'Case Study Research: In-Depth Understanding in Context', in P Leavy (ed.), *The Oxford Handbook of Qualitative Research*, Oxford University Press, Oxford and New York, pp. 455–470, viewed <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199811755.001.0001/oxfordhb-9780199811755-e-005>.

Simons, H 2009, *Case study research in practice*, SAGE Publications.

Simpson, S, Banfill, P, Haines, V, Mallaband, B, Mitchell, V, Simpson, S, Banfill, P, Haines, V, Mallaband, B, Mitchell, V, Simpson, S, Ban, P, Haines, V, Mallaband, B & Mitchell, V 2016, 'Energy-led domestic retrofit : impact of the intervention sequence', *Building Research & Information*, vol. 44, no. 1, pp. 97–115.

Siva, JPS & London, K 2011, 'Investigating the Role of Client Learning for Successful Architect–Client Relationships on Private Single Dwelling Projects', *Architectural Engineering and Design Management*, vol. 7, no. 3, pp. 177–189.

Smith, a. 2010, 'Lifestyle television programmes and the construction of the expert host', *European Journal of Cultural Studies*, vol. 13, pp. 191–205.

Smith Maguire, J & Matthews, J 2010, 'Cultural Intermediaries and the Media',

Sociology Compass, vol. 4, no. 7, pp. 405–416.

Smith Maguire, J & Matthews, J (eds) 2014, *The Cultural Intermediaries Reader*, Sage.

Smith, ND 2014, *Lifestyle, design process and the creative practice of do-it-yourself (DIY) as a transformative experience*, Curtin University, viewed <http://espace.library.curtin.edu.au:80/R?func=dbin-jump-full&local_base=gen01-era02&object_id=219287>.

Social, W are 2020, 'Digital 2020 in Australia:1 in 3 minutes online are spent on social', viewed 9 April, 2020, <https://wearesocial.com/au/blog/2020/02/digital-2020-in-australia-analysis>.

Soper, K 2004, 'Rethinking the "good life": the consumer as citizen', *Capitalism Nature Socialism*, vol. 15, no. March 2015, pp. 111–116, viewed <http://www.tandfonline.com/doi/abs/10.1080/1045575042000247293>.

Southerton, D 2009, 'Consuming Kitchens', *Journal of Consumer Culture*, vol. 1, no. 2, pp. 179–203.

Southerton, D 2011, 'Cultural intermediaries', *Encyclopedia of consumer culture*, SAGE Publications, pp. 388–391.

Southerton, D 2013, 'Habits, routines and temporalities of consumption: From individual behaviours to the reproduction of everyday practices', *Time & Society*, vol. 22, no. 3, pp. 335–355.

Spaargaren, G 2003, 'Sustainable consumption: A theoretical and environmental policy perspective', *Society and Natural Resources*, vol. 16, no. 8, pp. 687–701.

Spaargaren, G, Lamers, M & Weenink, D 2016, 'Using practice theory to research social life', *Practice Theory and Research: Exploring the Dynamics of Social Life*, pp. 3–27, viewed <https://ebookcentral.proquest.com/lib/lancaster/detail.action?docID=4771783>.

Spaargaren, G & Van Vliet, B 2000, 'Lifestyles, consumption and the environment: The ecological modernization of domestic consumption', *Environmental Politics*, vol. 9, no. 1, pp. 50–76.

Spigel, L 1992, *Make room for TV: Television and the Family Ideal in Postwar America*, Duke University Press, Chicago, IL.

Spinney, J, Green, N, Burningham, K, Cooper, G & Uzzell, D 2012, 'Are we sitting comfortably? Domestic imaginaries, laptop practices, and energy use', *Environment and Planning A*, vol. 44, no. 11, pp. 2629–2645.

Spurling, Nicola; Blue, S 2014, *Entities, Performances and Interventions*, *Practices, the Built Environment and Sustainability- A Thinking Note Collection*, cambridge, Copenhagen, London.

Stappers, P & Sanders, E 2010, 'Generative tools for context mapping', *Design and Emotion*, pp. 77–81.

Stebbins, RA 2001, 'Serious leisure', *Society*, vol. 38, no. 4, pp. 53–57.

Stephan, A & Crawford, R 2016, 'Size does matter:Australia's addiction to big houses is blowing the energy budget', *The Conversation*, viewed 4 April, 2019, <https://theconversation.com/size-does-matter-australias-addiction-to-big-houses-is-blowing-the-energy-budget-70271>.

Stieß, I & Dunkelberg, E 2013, 'Objectives, barriers and occasions for energy efficient refurbishment by private homeowners', *Journal of Cleaner Production*, vol. 48, Elsevier Ltd, pp. 250–259, viewed <http://dx.doi.org/10.1016/j.jclepro.2012.09.041>.

Strebel, I 2011, 'The living building: towards a geography of maintenance work', *Social & Cultural Geography*, vol. 12, no. 3, pp. 243–262.

Strengers, Y 2013, 'Energy Feedback', *Smart Energy Technologies in Everyday Life.*

Smart Utopia?, Palgrave macmillan, pp. 73–93.

Strengers, Y & Maller, C (eds) 2014, *Social Practices, Intervention and Sustainability: Beyond Behaviour Change*, Routledge.

Stronach, I, Garratt, D, Pearce, C & Piper, H 2007, 'Reflexivity, the Picturing of Selves, the Forging of Method.', *Qualitative Inquiry*, vol. 13, no. 2, pp. 179–203, viewed <http://qix.sagepub.com/cgi/content/abstract/13/2/179>.

Sunikka-blank, M & Galvin, R 2016, 'Irrational homeowners ? How aesthetics and heritage values influence thermal retrofit decisions in the United Kingdom', *Energy research & Social Science*, vol. 11, Elsevier Ltd, pp. 97–108.

Sunikka-Blank, M & Galvin, R 2012, 'Introducing the prebound effect: the gap between performance and actual energy consumption', *Building Reserach and Information*, no. 40:3, pp. 260–273.

Sunikka-blank, M, Galvin, R & Behar, C 2018, 'Harnessing social class , taste and gender for more effective policies', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 114–126, viewed <https://doi.org/10.1080/09613218.2017.1356129>.

Swan, W & Brown, P 2013, *Retrofitting the Built Environment*, 1st editio., Wiley-Blackwell.

Thomsen, a & Flier, K Van Der 2008, 'Replacement or reuse? The choice between demolition and life cycle extension from a sustainable viewpoint', *ENHR International Research Conference Shrinking Cities, Sprawling Suburbs, Changing Country sides,* Dublin, Ireland, viewed <http://repository.tudelft.nl/assets/uuid:a670a506-74e6-4c4e-b7b6-71107fb9778d/219624.pdf>.

Thomsen, A & Van der Flier, K 2009, 'Replacement or renovation of dwellings: the relevance of a more sustainable approach', *Building Research & Information*, vol.

37, no. March 2015, pp. 649–659.

Thuvander, L, Femenías, P, Mjörnell, K & Meiling, P 2012, 'Unveiling the Process of Sustainable Renovation', *Sustainability*, vol. 4, no. 12, Molecular Diversity Preservation International, pp. 1188–1213, viewed 5 August, 2014, <http://www.mdpi.com/2071-1050/4/6/1188/htm>.

Tjørring, L & Gausset, Q 2019, 'Drivers for retrofit : a sociocultural approach to houses and inhabitants', *Building Research & Information*, vol. 47, no. 4, Routledge, pp. 394–403.

Toffler, A 1980, *The third wave*, Collins, London.

Toole, S, Klocker, N & Head, L 2016, 'Re-thinking climate change adaptation and capacities at the household scale', *Climatic Change*, vol. 135, no. 2, pp. 203–209.

Trachte, S & Deherde, A 2010, *Advanced and Sustainable Housing Renovation. A guide for designers and planners*.

Tracy, SJ 2010, 'Qualitative quality: Eight a"big-tent" criteria for excellent qualitative research', *Qualitative Inquiry*, vol. 16, no. 10, pp. 837–851.

Troy, P 2000, 'Suburbs of acquiescence, suburbs of protest', *Housing Studies*, vol. 15, no. 5, pp. 717–738.

Tweed, C 2013, 'Socio-technical issues in dwelling retrofit', *Building Research & Information*, vol. 41, no. 5, pp. 551–562, viewed <http://dx.doi.org/10.1080/09613218.2013.815047>.

Vashisht, R 2016, '5 Home Brands Showing Influencer Marketing How It's Done', *Influence*, viewed <https://influence.bloglovin.com/5-home-brands-showing-influencer-marketing-how-its-done-dcbad8524723>.

Vlasova, L & Gram-Hanssen, K 2014, 'Incorporating inhabitants' everyday practices

into domestic retrofits', *Building Research & Information*, vol. 42, no. 4, pp. 512–524, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.907682>.

Wahlen, S & Laamanen, M 2015, 'Consumption, lifestyle and social movements', *International Journal of Consumer Studies*, vol. 39, no. 5, pp. 397–403.

Wakely, M 2005, 'Home in the imagination', *Griffith Review*, no. 2, pp. 58–64.

Wakkary, RON, Desjardins, A, Hauser, S & Maestri, L 2013, 'A Sustainable Design Fiction : Green Practices', *Computer-Human Interactions*, vol. 20, no. 4, pp. 1–34.

Wallis, R 2017, 'Myths and imaginaries: depictions of lifestyle migration in Country Style magazine', *Rural Society*, vol. 26, no. 1, Taylor & Francis, pp. 18–29, viewed <http://dx.doi.org/10.1080/10371656.2017.1285471>.

Wang, X, Chen, D & Ren, Z 2010, 'Assessment of climate change impact on residential building heating and cooling energy requirement in Australia', *Building and Environment*, vol. 45, Elsevier Ltd, pp. 1663–1682, viewed <http://dx.doi.org/10.1016/j.buildenv.2010.01.022>.

Ward, K 2006, 'The bald guy just ate an orange.Domestication, work and home.', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, pp. 145–164.

Warde, A 2014, 'After taste: Culture, consumption and theories of practice', *Journal of Consumer Culture*, vol. 14, no. 3, pp. 279–303.

Warde, A 2005, 'Consumption and Theories of Practice', *Journal of Consumer Culture*, vol. 5, no. 2, pp. 131–153.

Watson, M & Shove, E 2008, 'Product, competence, project and practice: DIY and the dynamics of craft consumption', *Journal of Consumer Culture*, vol. 8, no. 1, UK, pp. 69–89, viewed <http://dx.doi.org/10.1177/1469540507085726>.

Weiss, J, Dunkelberg, E & Vogelpohl, T 2012, 'Improving policy instruments to better tap into homeowner refurbishment potential: Lessons learned from a case study in Germany', *Energy Policy*, vol. 44, Elsevier, pp. 406–415, viewed <http://dx.doi.org/10.1016/j.enpol.2012.02.006>.

Welch, D & Warde, A 2015, 'Theories of practice and sustainable consumption', *Handbook of Research on Sustainable Consumption*, Edward Elgar Publishing, Cheltenham, UK, pp. 84–100, viewed <http://www.elgaronline.com/view/9781783471263.00013.xml>.

West, A 2008, 'Dream Home (Land): Anxious Fantasies of Settlement in Home - improvement Television', *New Zealand Journal of Media Studies*, vol. 11, no. 2, pp. 27–37.

White, M 2014, 'House Hunters, Real Estate Television, and Everyday Cosmopolitanism', in L Ouellette (ed.), *A Companion to Reality Television*, John Wiley & Sons, Inc, pp. 386–401.

Whitmarsh, L & O'Neill, S 2010, 'Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours', *Journal of Environmental Psychology*, vol. 30, no. 3, Elsevier Ltd, pp. 305–314, viewed <http://dx.doi.org/10.1016/j.jenvp.2010.01.003>.

Wiesel, I, Pinnegar, S & Freestone, R 2013, 'Supersized Australian Dream: Investment, Lifestyle and Neighbourhood Perceptions among "Knockdown-Rebuild" Owners in Sydney', *Housing, Theory and Society*, vol. 30, no. 3, pp. 312–329.

De Wilde, M & Spaargaren, G 2019, 'Designing trust: how strategic intermediaries choreograph homeowners' low-carbon retrofit experience', *Building Research and Information*, vol. 47, no. 4, pp. 362–374.

Willand, N & Horne, R 2013, 'Low Carbon Residential Refurbishments in Australia : Progress and Prospects', *State of Australian Cities 6 proceedings*, Melbourne.

Willand, N, Maller, C & Ridley, I 2019, 'Addressing health and equity in residential low carbon transitions – Insights from a pragmatic retrofit evaluation in Australia', *Energy Research and Social Science*, vol. 53, no. March, pp. 68–84.

Willand, N, Moore, T, Hunter, S, Stanley, H & Horne, R 2012, *Drivers of Demand for Zero and Towards Zero Emissions*, Melbourne.

Williams, K & Dair, C 2007, 'What is stopping Sustainable Building in England? Barriers Experienced Sustainable Developments', vol. 147, no. September 2006, pp. 135–147.

Van Willinger, J 2002, *Applied Anthropology: An Introduction*, Greenwood Publishing Group, Inc.

Wilson, C, Chryssochoidis, G & Pettifor, H 2013, *Understanding Homeowners' Renovation Decisions: Findings of the VERD Project*, *UKERC Working Paper Series*.

Wilson, C, Crane, L & Chryssochoidis, G 2015, 'Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy', *Energy Research & Social Science*, vol. 7, Elsevier Ltd, pp. 12–22, viewed <http://linkinghub.elsevier.com/retrieve/pii/S2214629615000298>.

Wittmayer, JM, Avelino, F, Steenbergen, F Van & Loorbach, D 2017, 'Actor roles in transition: Insights from sociological perspectives', *Environmental Innovation and Societal Transitions*, vol. 24, Elsevier B.V., pp. 45–56, viewed <http://dx.doi.org/10.1016/j.eist.2016.10.003>.

Xiao, Y, Milgram, P & Doyle, DJ 1996, 'Capturing and modeling Planning Expertise in Anesthesiology_Results of a Field study', in CE Zsambok & G Klein (eds), *Naturalistic Decision Making*, Taylor & Francis group, pp. 363–378.

Yates, J 2012, 'Structural Sustainability of Homeownership in Australia', *Challenges of the Housing Economy: An International Perspective*, pp. 108–127.

YouHome 2019, 'The process of renovating or building a home', viewed 29 March, 2019, <http://www.yourhome.gov.au/introduction/how-use-your-home>.

YourHome 2019, 'YourHome', *YourHome home page*, viewed 29 March, 2019, <http://www.yourhome.gov.au/>.

Yu, M, Wiedmann, T, Crawford, R & Tait, C 2017, 'The Carbon Footprint of Australia's Construction Sector', *Procedia Engineering*, vol. 180, The Author(s), pp. 211–220, viewed <http://dx.doi.org/10.1016/j.proeng.2017.04.180>.

Zhang, H, Mao, Z & Zhang, W 2015, 'Design Charrette as Methodology for Post-Disaster Participatory Reconstruction: Observations from a Case Study in Fukushima, Japan', *Sustainability*, vol. 7, no. 6, pp. 6593–6609, viewed <http://www.mdpi.com/2071-1050/7/6/6593>.

Zimmerman, HM 2015, *Branding Environmentalism for TV : The Rise and Fall of Planet Green*, University of Minnesota.

Zukin, S & Kosta, E 2004, 'Bourdieu Off-Broadway : Managing Distinction on a Shopping Block in the East Village', no. June, pp. 101–114.

Appendices

Appendix 1- Evidence of Ethical Clearance

SHR Project 2016/042 - Ethics Clearance

Sally Fried <sfried@swin.edu.au>

on behalf of RES Ethics <resethics@swin.edu.au>

Wed 8/10/2016 10:03 AM

To: Gavin Melles <gmelles@swin.edu.au>

Cc: Aneta Podkalicka <apodkalicka@swin.edu.au>; Aggeliki Aggeli <aaggeli@swin.edu.au>;RES Ethics <resethics@swin.edu.au>

To: Dr Gavin Melles, FHAD

Dear Gavin,

> SHR Project 2016/042 – The Australian Home Renovation Process: Media and low carbon
> design choices
>
> Dr Gavin Melles, Ms Aggeliki Aggeli (Student) – FHAD/Dr Aneta Podkalicka – SISR
>
> Approved duration: 10-08-2016 to 10-08-2019 [Adjusted]

I refer to the ethical review of the above project by a Subcommittee (SHESC-Other) of Swinburne's Human Research Ethics Committee (SUHREC). Your responses to the review as e-mailed on 24 June and 29 July 2016 were put to the Subcommittee delegate for consideration.

I am pleased to advise that, as submitted to date, ethics clearance has been given for the above project to proceed in line with standard on-going ethics clearance conditions outlined below.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.

- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.

- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. Information on project monitoring and variations/additions, self-audits and progress reports can be found on the Research Internet pages.

- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance, citing the Swinburne project number. A copy of this e-mail should be retained as part of project record-keeping.

Best wishes for the project.

Yours sincerely,
Sally Fried
Secretary, SHESCs

-----Original Message-----

From: resethics@swin.edu.au <resethics@swin.edu.au>

Sent: Tuesday, 27 November 2018 9:34 AM

To: Gavin Melles <gmelles@swin.edu.au>

Cc: RES Ethics <resethics@swin.edu.au>

Subject: Acknowledgement of Report for SUHREC Project - 2016/042

Dear Gavin,

Re: Final Report for the project 2016/042

'The Australian home renovation process: Media and low carbon design choices' (Report Date: 27-11-2018)

The Final report for the above project has been processed and satisfies the reporting requirements set under the terms of ethics clearance.

Thank you for your attention to this matter.

Regards

Research Ethics Team

Swinburne Research (H68)

Swinburne University of Technology

PO Box 218

HAWTHORN VIC 3122

Tel: 03 9214 3845

Fax: 03 9214 5267

Email: resethics@swin.edu.au

Appendix 2- Participating households' details

Participant profiles

Participant	Number
Households	13 (18 individuals)
Building professionals	8

Households:

Household codes	Participant names/ pseudonyms	Age group	Total household members	Gender	Dwelling type & Location	House age/ year built (at 2017)
H1	Sophie	35-39	4	F	Detached house/ single floor/ Vale Park, Adelaide	50/1967
H2	Mark	55-59	2 (+2 only for a few days each week)	M	Detached house/ single floor/ Vale park, Adelaide	50/1967
H3	Anna	45-49	1	F	Detached house/ single floor/ Hahndorf, Adelaide Hills	About 45/1970s
H4	Sharon	40-49	4	F	Detached house/ single floor/ Manningham, Adelaide	65/1952
H5	Serena	50-54	2	F	Detached house/ single floor/ Glenelg, Adelaide	87/1930
H6	Paul, Tracey	50-54	4	M+F	Detached house/ single floor/ Sterling, Adelaide Hills	24/1993
H7	Cheryl, Aaron	35-39	4	F+M	Detached house/ single floor/	About 95/1920s

H8	Rox, Ben	30-39	4	M+F	Detached house/ single floor/ Adelaide	107-57(ext) / 1910- (1960 ext.)
H9	Kate, James	30-39	2	M+F	Townhouse/ Cumberland, Adelaide	65/1952
H10	Henry	45-49	1	M	Semi-detached house/ Single floor/ Adelaide	102/1915
H11	Komala, Ben	35-44	4	F+M	Detached house/single floor/ Vale Park, Adelaide	About 55 (45)/1960s (ext in 19070s)
H12	Melissa	40-54	4	M	Detached house/ single floor/	65 (25)/1952 (reno in 1980s)
H13	Jon	50-54	3	F	End of terrace townhouse/ Adelaide CBD	About 135/ 1880s

Professionals:

Professional type	Pseudonym	Age group	Gender
Architect	Michael	60-64	M
Interior Designer	Sienna	35-39	F
Architect	Luke	35-39	M
Architect	Josh	40-46	M
Builder	Dan	40-44	M
Builder	Sam	45-49	M
Local authority (sustainability)	Grace	45-49	F
Local authority(sustainability)	Ellie	40-44	F

my
HOME
renovation

stories, ideas & motivations

s

general INFORMATION

This project is set to investigate the effect of media and communication technologies in the home renovation process. The research adopts the perspective of private owned households, currently the largest representation of households in Australia, and investigate renovators' design decisions before, during and after a renovation process, considering the influence of media during this process. The aim is to create new knowledge of how homeowners make design choices and how we can influence them towards low carbon practices.

The project is part of the Cooperative Research Centre for Low Carbon Living. The outcomes for this broader project include reducing carbon emissions in the built environment and adoption of government policies and industry business models that set Australia on a pathway for future carbon reduction.

The storybook is intended to act as a playful way to collect information, requiring minimal time to fill in. Please be as informal and spontaneous as you wish and feel free to leave sections empty if you are sure about them. You can opt to remain anonymous by choosing a pseudonym. We just ask you to bring the diary with you to the first participatory workshop, which will happen approximately 3 months from the time of the introductory meeting. HAVE FUN!

This project has been approved by or on behalf of Swinburne's Human Research Ethics Committee (SUHREC) in line with the National Statement on Ethical Conduct in Human Research. If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Swinburne Research (H68),
Swinburne University of Technology, P O Box 218,
HAWTHORN VIC 3122.
Tel (03) 9214 5218 or +61 3 9214 5218 or resethics@swin.edu.au

CONTENTS

THINKING

about renovation

Did you consider increasing the size of your house?   Y   N

Did you attend any open home or similar events?   Y   N

Did you expect that the renovation would change your living practices at all after it is completed?   Y   N

If so in what way?..............................
....
....
....

WISH LIST

....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....

Who did you talk to in order to decide if your renovation was a good idea?

Design professionals	☐
Construction professionals	☐
Friends/relatives	☐
Estate agents	☐
Other/please state	☐

Your Renovation

My Plan

http://www.myrenovationmagazine.com/wp-content/uploads/2015/01/renovation.jpg

Please highligh with a marker which type of work (done or to be done) characterises the majority of your renovation

Professional work

DIY work

Mix of professional & DIY
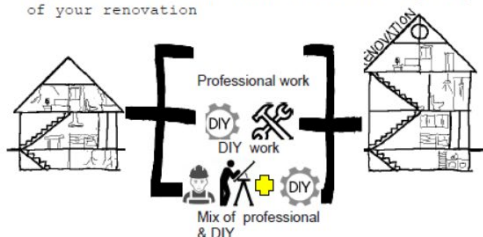
Please indicate the type of work done in each house area. If the area or service is not in the table please add using one of the empty boxes below
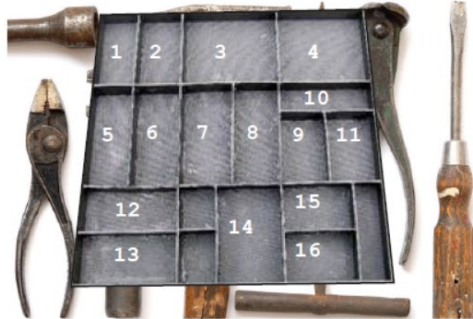
	Kitchen	Bathroom	Living	Bed-rooms	Internal walls	External walls
DIY						
Profess. work						
Mix of both						

	Roof	Floors	Windows	Heating system	Cooling system	Electrical work
DIY						
Profess. work						
Mix of both						

|	Plumbing	Solar panels	Garden/ external areas	Other		
DIY						
Profess. work						
Mix of both						

Skills & expertise

Please fill in below the skills that you think you need in order to undertake a renovation. These can include technical skills, management skills, digital literacy xkills design skills etc.

1	2	3	4
		10	
5	6	7	8	9	11
12		15	
13	14	16	

1.................   9.................
2.................   10.................
3.................   11.................
4.................   12.................
5.................   13.................
6.................   14.................
7.................   15.................
8.................   16.................

Please use the numbers on the left (which represent a skill)into the following circles according to your personal judgement/experience:

SKILLS

NEED   HAVE

LEARNING

SKILLS

DIY   EXPERT/ PROFESSIONAL
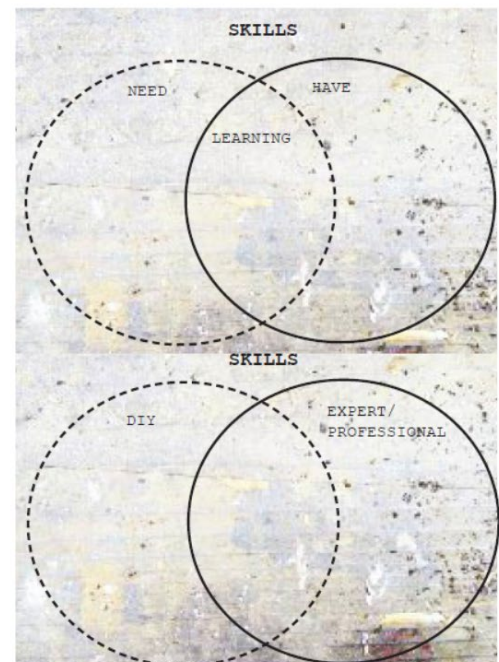
I FELT I spent more

Collecting information about products/ services				
Thinking about the renovation				
Getting ideas from media sources				
Getting ideas by talking to people				
Planning the renovation work				

TIME...

Learning DIY skills				
Getting through regulations/ approvals				
Making decisions				
Doing the renovation work				
Calculating costs/ budget				

Appendix 4- Workshop group mapping of the renovation process
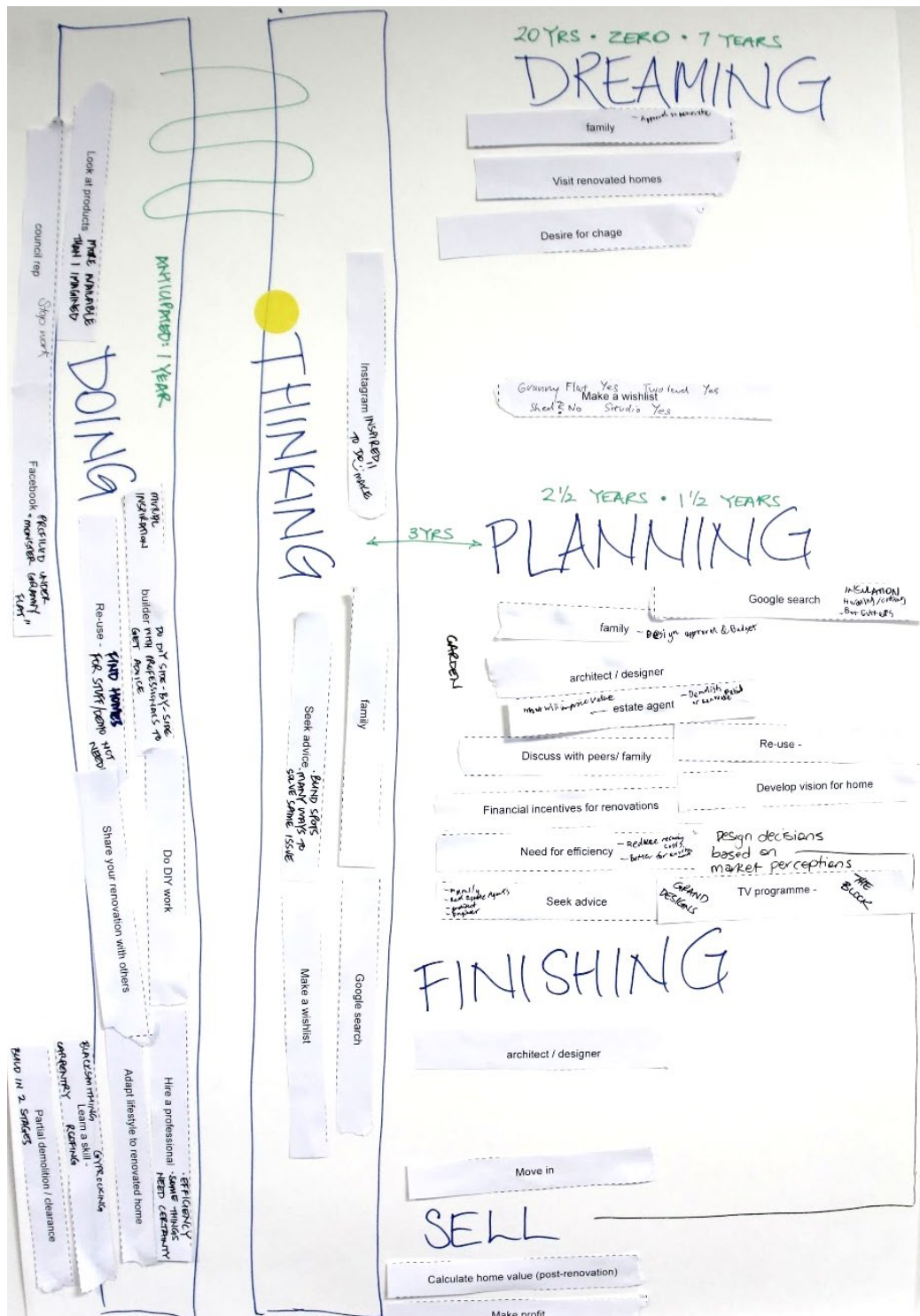
Group 1's representation of the renovation process, mapping the stages and the practices, intermediaries and media involved
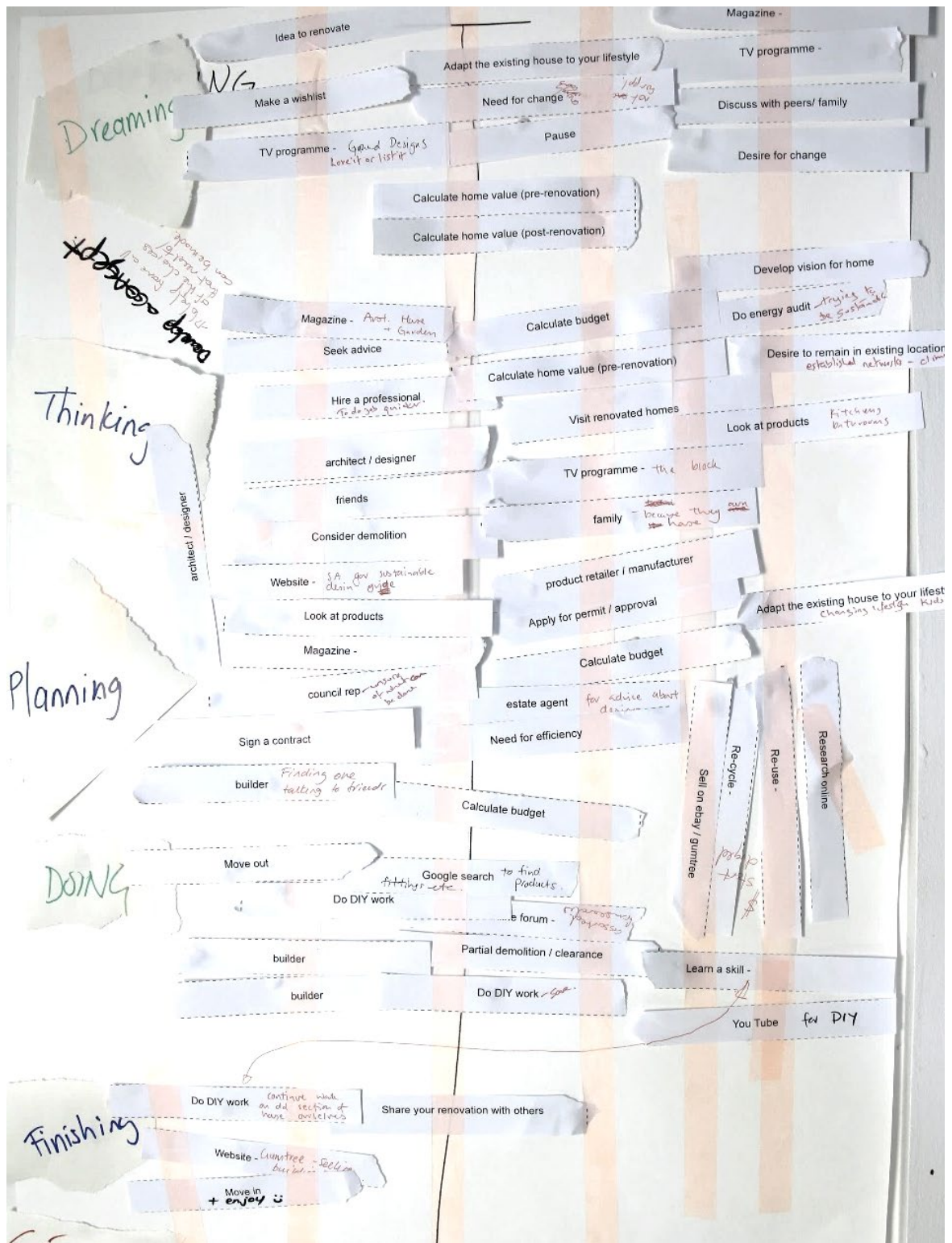
Group 2's representation of the renovation process, mapping the stages and the practices, intermediaries and media involved

Appendix 5- Participants' consent form- Households

Individual Consent Form for homeowners' cases

FACULTY OF HEALTH, ARTS AND DESIGN
SWINBURNE UNIVERSITY OF TECHNOLOGY

Project Title: The Australian home renovation process: Media and low carbon design
             Choices

1. ***I consent to participate*** in the project named above. I have been provided a copy of the
project consent information statement to which this consent form relates and any
questions I have asked have been answered to my satisfaction.

2. ***In relation to this project, please indicate your response by ticking the appropriate box:***

Activity	I agree	I do not agree
To record my renovation process through the storybook pack prepared (and be ***identified*** through my contribution to the research)		
To record my renovation process through the storybook pack prepared (and remain **anonymous** through the use of a pseudonym)		
To have my voice recorded (and be ***identified*** through my contribution to the research)		
To have my voice recorded (and remain ***anonymous*** through the use of a pseudonym)		
To be *filmed and photographed* (and be ***identified*** through my contribution to the research by having myself, my house and my activities recorded)		
To be *filmed and photographed* (and remain **anonymous** by having my face and other identifying details excluded or digitally obscured from recording)		
To have my sketches/illustrations/notes/other visual information produced during the workshops recorded (and be **identified** through my contribution to the research)		
To have my sketches/illustrations/notes/other visual information produced during the workshops recorded (and remain **anonymous** through my contribution to the research)		
To re-enact my renovation or media activities for the purposes of the video or photography according to what I feel comfortable with at the time (and be ***identified*** through my contribution to the research by having myself, my house and my activities recorded)		
To re-enact my renovation or media activities for the purposes of the video or photography according to what I feel comfortable with at the time (and remain **anonymous** by having my face and other identifying details excluded from recording)		
I understand that the data from this research will be used in a thesis and may be used in conference presentations, journal articles and media outlets.		
I will make myself available for follow up questions (generally by phone) after the initial data collection period has ended		
I **wish** to participate in the home visit option (please see separate consent form for visit)		
I **do not** wish to participate in the home visit option		

Please note you can change your anonymity preferences at any time by filling out a new consent form.

3. ***I acknowledge that:***

   (a) my participation is voluntary and that I am free to withdraw from the project at any time before publication without explanation;

   (b) the Swinburne project is for the purpose of research and not for profit;

   (c) any identifiable information about me which is gathered in the course of and as the result of my participating in this project will be (i) collected and retained for the purpose of this project and (ii) may be accessed and analysed by the researcher(s) for the purpose of future research by the Cooperative Research Centre for Low Carbon Living until 2021;

   (d) my anonymity is preserved and I will not be identified in publications or otherwise without my express written consent.

By signing this document I agree to participate in this project.

Name of Participant: ……………………………………………………………………..

Signature & Date: ……………………………………………………………………….

Project Team and contact details:
Ms Aggeliki Aggeli, PhD Candidate, Swinburne School of Design and Swinburne Institute for Social Research, Swinburne University, 0479183363, aaggeli@swin.edu.au
Supervisor: Dr Gavin Melles, Swinburne School of Design, Swinburne University,
+61 3 92146851, gmelles@swin.edu.au
Supervisor: Dr Aneta Podkalicka, Swinburne Institute for Social Research,
Swinburne University, +61 3 9214 4401, apodkalicka@swin.edu.au

Greening 'The Block': Sustainability in mainstream lifestyle TV

Aggeliki AGGELI & Gavin MELLES

Swinburne University, Australia (both authors)

Low Carbon Living, Sustainable Design, Participatory Design

Design Thinking, Human-centered Design, Sustainable development, Design Education

Residential renovations have become commonplace in westernised societies. Homeowners' expectations can be affected by environmental concerns and energy efficiency. However, it is unclear if these concerns influence homeowners' aspirations. Renovations occur more frequently and often without a clear rationale such as the repair or maintenance of a house (Maller & Horne 2011)*. The scale of renovation ranges between minor improvements to major alterations* (Thuvander et al. 2012)*, the carbon impact of which is often difficult to determine. However, the waste produced, presents a quantifiable measure which can be used to determine the environmental impact of projects.*

Meanwhile, mass media and television programmes in particular are increasingly penetrating people's lives, promoting reality shows, in which ordinary people are taken through transformative narrative of their daily lives (Lewis 2008a)*. Television, as a domestic media, represents the 'normality' of a household while programmes often relate to the triviality of everyday life*(Ellis 1992)*. Property 'makeovers' have been promoted and amplified by media since the 1990s as part of a desirable lifestyle and have been turned into a perpetual activity* (Goodsell 2008)*. More recently, there has been an attempt to 'green' such lifestyle television shows, introducing issues such as ethical consumption, environmental awareness while presenting and reflecting on the challenges that climate change brings to daily lives* (Craig 2010)*.*

Using The Block as an example, the paper discusses whether there is evidence of sustainable practices, particularly to do with managing waste in the renovation process in mainstream television shows and investigates whether the show can act as a kind of 'popular education', promoting viewers' (pro-environmental) choices when conducting similar real-life projects.

Keywords: Lifestyle television, home renovation, sustainability, waste

Fig 1. Junkspace, Koolhaas, 2002, http://valentinroma.org/?p=363

Introduction

> "If space-junk is the human debris that litters the universe, Junk-Space is the residue
>
> mankind leaves on the planet. […] Junkspace is what remains after modernization has run
>
> its course, or, more precisely, what coagulates while modernization is in process, its fallout."
>
> (Koolhaas 2002)

Contemporary Australia has been characterised as a 'Renovation Nation'. Through the progressive change of status from a nation of tenants , during the beginning of the 20th century, to that of home owners and landlords, in the last twenty years, property investment and maintenance has become an obsession (Allon 2008).

Amongst current discourses on sustainability, policy makers are investigating ways to shift and cultivate low carbon lifestyles (Whitmarsh & O'Neill 2010). However, in order to develop a long-term strategy and vision for a low carbon future it is imperative that home renovation practices consider the appropriate use of natural resources, the waste produced during building construction, as well as reconsider the lifecycle of residential design (Paduart et al. 2011).

Waste as a by-product of time and daily lives, has transformative value; it can be turned into art or into a source of profit (Hawkins Gay, Muecke 2003). This paper is concerned with waste as a result of household renovations and how this is being portrayed in lifestyle television renovation shows. It also investigates whether mainstream popular reality television shows support and promote, and in which ways, sustainable practices in the process of home renovations.

'"The fashioning of house as home has become a public televisual spectacle, enabling us to witness and share the triumphs and disasters of strangers' home styling[..]"(McElroy 2008)

Background

Amongst climate change concerns in Australia and worldwide, the renovation and retrofit of homes present an opportunity to reduce households' carbon emissions through a technical, technological and behavioural 'upgrade' (Judson 2013b; Reid & Houston 2013; Meijer, Itard & Sunikka-Blank 2009).Households are increasingly becoming aware of discourses on environmental policy and climate change scenarios and recognise the need to deal with improvements on their carbon footprint (Maller, Horne & Dalton 2012).

However, with regulations and low carbon initiatives primarily targeting new built homes (Kelly 2009), policy makers currently rely on people's voluntary commitments when it comes to sustainable renovations and retrofits. These decisions are driven by diverse factors, such as financial reasons, health benefits and pro-environmental intentions (Maller, Horne & Dalton 2012).

Meanwhile, home renovations have been promoted by media since the 1990s as part of a desirable lifestyle and have been turned into a perpetual activity rather than a once occurring event (Goodsell, 2008). Once dedicated to daytime programmes, makeover shows are now part of prime-time broadcasting, claiming to transform the viewers' homes, health and family upbringing (Lewis 2008b). The narrative of such programmes are characterised by an escalating anticipation of the transformation to come. The scene, often set in artificial contexts, presents an exaggerated situation that requires resolution under the guided observation of experts (Lewis 2008a). 'Experts' in this context range from presenters, designers, trades people, decoration 'gurus' and other

individuals with relevant experience, passionate to share their proficiency. The participation of these 'experts' is often linked to the commercialisation and marketing products that come along with the lifestyle that the programme promotes. We often encounter scenes when the 'experts' support or reject a decision and the dream lifestyle that it promises by suggesting specific, often affordable, products (Medhurst 1999)

An interesting aspect of the televised and mass produced property programmes is their effect on the property market. It is estimated that ''The increasing interest in home renovation may also be attributed to reality TV series such as, Grand Designs and The Block (Johanson, 2011; Housing Industry Association (HIA) Economics Group, 2010) as well numerous lifestyle magazines'' (Judson, 2013). In specific, The Block has contributed to the boost of home renovations across Australia. According to Harvey, HIA economist, "In quarters in which The Block is aired there is, on average, a $251 million boost to quarterly renovations investment two quarters (or six months) following the airing" (Johanson 2011).

As the interest in pro- environmental products and services is rising globally (Maller, Horne & Dalton 2012), there is a potential in the promotion of sustainable practices through lifestyle television, particularly in the area of renovations. However, as Shove suggests, in order to achieve change, there needs to be a systematic overview of everyday household practices and routines which go further than the technical nature of renovation itself (Shove 2010).

The greening of lifestyle television

A series of trends, ranging from pro-environmental and ethical consumption to activist movements, are shaping suburban nations such as Australia and the US and reconstructing the model of our citizenship (Lewis 2012). Television as a symbol of suburban normality in modern nations(Ellis 1992) has recently turned on a sustainable 'face', aiming to transform 'ordinary' people towards a 'greener' and ethical lifestyle (Lewis 2012). This turn is set within broader community concerns and anxieties about our modern lifestyles, such as how our homes respond to environmental challenges (Lewis 2012). Furthermore, 'green' consumerism, often labeled as 'good' or ethical

consumption is usually linked with aspirations of class distinction while it transforms individuals to active citizens who control their (sustainable) actions(Lewis 2008d).

Within the genre of lifestyle make-over show, a new format has been introduced: the eco-makeover. Eco-makeover shows are contradictory, as despite offering a platform for debate on ethical or 'conscience consumption' and responsible citizenship they still promote highly branded products and services(Lewis 2008d). However, a rise of a new model of active citizens-consumers, who might not be environmental activists but rather individuals who want to break free from the mainstream model of disposable income and meaningless spending and understand the social impact of consumption can bring closer the meaning of responsible citizen and consumer (Soper 2004)

Discourse analysis based on Gee's Tools and Building Tasks

The methodology used in this paper is adapted by James Gee's Discourse Analysis framework. Building on a range of precursors of critical discourse analysis including Bourdieu, Foucault, Fairclough, and others, Gee proposes that analysis should focus on the binomial D/discourse. The 'small d' discourse refers to language per se and its deployment in representing and constituting particular socially contested but coherent narratives on aspects of the world. This means that with reference to any key socially distributed concept like sustainability, gender, etc., there will be a range of discourses competing to define the dominant interpretation. Institutions, e.g government, advertising, church, tabloid newspapers, television, promote or encourage particular discourses in so far as they match their desired purchase on society. According to Gee D/discourses collect around key concepts, which circulate in society, e.g. community, lifestyle, working families, and in linguistics and social context we see ways in which these key terms are interpreted. Thus, the popular recourse of politicians to 'working families' is a rhetorical flourish to align policy with an essentially fictional. It discursively constructed majority, who unsurprisingly agree with their policies.

Most narratives have a history and competing discourses with a history, which are in competition, Gee refers to as in Conversation. So in this sense there is a Conversation about causes and effects of climate change, the role of women in society, migrant rights and responsibilities, etc., all institutionally promoted and embedded with particular knowledge-power interests. Gee then suggests that beyond language, ways

of behaving, e.g. consumption practices, and acting in the world, demonstrate our affiliation with particular groups we wish to identify with. These non-linguistics affiliation moves he refers to as Discourse. This might translate for example into a particular program representing 'typical' renovators as young cashed up inner city dwellers looking to renovate to sell or budget conscious 'families' looking to maximize returns on investment.

This perspective applies especially to media representations of things like green practices. The practices and language of actors in such programs aim to reinforce particular D/discourses about the home, sustainability, and so forth. They are therefore amenable to analysis. Thus analysis is sensitive to both linguistic and non-linguistic sources seeking in particular to uncover D/discourses and where there are areas of contestation.

The Block as a sample

The paper is focused on the Australian reality programme The Block. Since its first transmission in 2003 by Channel 9, during a national property 'boom', The Block has 'set a benchmark in popularity' (Johanson 2011). As 'a unique hybrid of reality-tv, game-show, home-improvement , lifestyle programming and soap-opera', it was created as the popular mix of the nation's obsession with real estate in reality television (Allon 2008). The first season of the programme had an estimated 2.6 million viewers on average whereas the last 90 minutes of its final episode had a larger television audience than the 2000 Sydney Olympics; a phenomenon referred to as 'property pornography'(Allon 2008).

The narrative of the show, follows the televised renovations of apartments or houses, performed by a number of couples over a set period of time. Contestants aim to sell their houses at an auction, and make the maximum profit. The first three seasons ran for 11 weeks with weekly episodes, however the show became more intense later, with episodes broadcasted every weeknight and on Sundays for a period of 8 weeks. The format of the show has been recreated around the world (US Fox network, UK ITV1, TV2 Denmark, The Netherlands, Belgium, South Africa and France) (Hill 2005).

The Block as a descendant of 'aspirational television' shows originating in the UK in the 1980s and 1990s, is an excellent representative of the combination of home ownership, politics and consumer culture (Allon 2008).The paper has identified season 7, SkyHigh, as the pilot for this study. Produced in 2013, it introduced contestants to a high-rise block in Melbourne, while it was the first season to promote itself as 'the most sustainable ever'. Energy Australia became an official partner, advertising their services extensively to the viewers (Australia 2013).

Findings

Findings are clustered into themes emerged from a sample of season 7 episodes. Further research and analysis could expand the discourse analysis, focusing on a close analysis of text and further non-linguistic elements of the programme as can be seen in Giles's (2002) audience participation study. The initial reflections on this season, were sparked with the building choice and the expected accommodation. It is a paradox that the first 'Block' season to proclaim itself 'most sustainable ever' sets the expectations of whole-floor apartments, each complete with five bathrooms and 'luxury' fittings. Additionally, throughout the series there are connotations that bigger equals better. Furthermore, it was observed that the decision making process of the overall architecture of The Block was presented to the audience and contestants without any explanation or clear rationale. The decision for example to paint the exterior black, enhanced with vertical living walls, was not accompanied by an explanation of whether it would be done in favour of building performance or aesthetics. Instead contestants commented on the financial gain the building would get from its new façade. Similarly, most of the feedback received from the judges was focused on soft furnishings, colour and style rather than architectural design decisions or on pro-environmental choices.

> *"Out of all that we've learned from the judging so far is that they don't give a '***' about architectural skill, it's all about what cushion or pillow or colour you use.'* (Trixie, s7e9)

This comment reinforces Giles's point that the primary goal of lifestyle programmes is the education of taste rather than the transmission of education and skills (Giles 2002).

The broader themes that were identified are commented below:

Branding and the Lifestyle expert

In the last two decades, the roles of lifestyle experts in popular television programmes, whose aims are to teach or influence people's lifestyle choices, providing everyday expertise, are increasingly taken over by celebrity figures. These experts/celebrities, often referred to by their first names, have been characterised as 'living brands'(Lewis 2010). Such personalities, perceived as lifestyle role models, are major figures in home renovation programmes in particular. In the case of the Block, the three judges of the show include a lifestyle and design magazine editor and two interior designers, who are highly regarded by the audience and producers.

This consumer-led lifestyle advice, is reinforced by the role of branding, in the form of sponsors, products, services and the advertising during the episodes and the frequent commercial breaks, becoming the most dominant element of the series. Contestants are presented with 'gifts' of branded tools and products, ranging from food supplements to renovation products and cars, while there is an evident and unrestrained promotion on behalf of the couples to reconfirm that indeed the brands are performing as they should.

The challenges set, aiming to test the contestants ability to 'stand out' are often based on predefined products, while the winners are rewarded with branded products or services. This closely associated relationship between the products, services and ideas is seen in almost every episode where a problem is resolved after a visit to a suitable shop or application of a certain product. There is great emphasis on the act of shopping, which is presented as a primarily female responsibility, with scenes of confused women gradually reassured by retail owners who offer their homewares as a resolution.

The energy sponsor of the programme, which awards the star ratings, keeps a high profile in terms of marketing, with their logos visible in every possible occasion, however, the process under which the star ratings were awarded remains invisible to the audience. Scott Cam, the host, often compliments the participants for achieving a star:

"Let me tell you that you're all winners today because Energy Australia has awarded you

another star" (Cam, 2013, episode 19).

"Congratulations and if you can earn the 8 stars you'll be truly eco-warriors."

(Cam, episode 25).

Desire for the new

Modern consumerism has been associated with a desire for the new; often linked with a craving for new products or services which in their turn contain and amplify this artificial 'need' (Campbell 1992). Campbell provides three definitions to the term: "There is, first, the new as the fresh or newly created; second, the new as improved or innovative; and third, the new as the unfamiliar or novel" Similarly, 'old' at the other end represents the worn-out, tired or deteriorated (Campbell 1992).

In the context of The Block, we encounter all three variations of the 'new'. Initially, the concept of The Block, as an adaptive reuse, introduces the idea of the 'new' as improved and upcycled. Throughout the series, particularly on behalf of the judges, there is a repetitive projection that quality is synonymous with brand new (and expensive) products and fittings:

"You can't go for second best quality around this area" (New as improved, new as freshly created)

Similarly, the contestants are playing in the same tone, stating that:

"I need something that no one's done before" (*Trixie*, s7e1, New as novel)

"Madi and Jarrod are good at delivering 'new'. I haven't seen that lamp before, I haven't

seen that range hood before, it's really clever design" (Neale Whitaker, s7e31, New as

innovative).

Campbell states that people often 'prefer the new to the familiar and hence desire new products'(Campbell 1992). We observe that this often happens during judgement days, when comments are made for styling or design elements that are considered familiar, therefore depreciated:

"..I think...it's a little bit of...we've seen a lot of this...and maybe we're expecting something a little more mature and a bit different" (Shaynna Blaze, s7e12, commenting on a bedroom setting).

" I felt like I've seen everything before and that's because I had" Neale Whitaker, s7e12*)*

The embrace of re-use or extension of the lifecycle of materials, defined as the 'improved' has the potential to address sustainable practices in home renovations .However, in The Block, very rarely such an act is given much attention and in some cases it is considered as a 'shabby' or unprofessional option:

"This guy's got amazing [..] old jetty timber and real industrial stuff.. Our chief concern is to tie in a timber to what we've got going to the house already. [..] I think will respond with the buyer a bit more"(Matt, s7e29*, collecting timber at a yard)*

"Because we've been decorating a home apartment, we've not been able to use these recycled products" (Trixie, s7e27*, buying recycled products to sell at their marker stall).*

An interesting point is when contestants prefer to recreate the 'used' effect for a new mesh to make it appear as 'old' rather than use already rusty material. This act brings up issues of implied authenticity and questions about the perception of the appreciation of the real as opposed to imitation and how this influences the experience of space.

Sustainability = profitability

The importance of 'economic value attached to styling' at The Block was highlighted from season 1 (Allon 2008). This has also been apparent in season 7, particularly from the judges:

"Houses across the street go for $5 million dollars. [..] so [..] they have a massive responsibility to produce high-end, boutique apartments, in an apartment building that's never been done before. These are expensive places and they need to really bring the best that they've got." (Shaynna Blaze, s7e6).

"It felt expensive in terms of the finishes and it has a sense of cool [..]" Neale Whitaker, s7e24*).*

However, season 7 had an important add-on value: sustainability. Characterised as the 'most sustainable ever', the series joined up with a major energy provider, who supported the contestants to achieve an 8 star rating When the rating was introduced in episode 8, the contestants were very excited:

" I think it's a great selling point, that's the way buildings should go, the 8 stars" (Bec, s7e7)

Labelled as a 'development for the future', sustainable development brings many benefits to developers: it offers buyers an association with progressive thinking, it adds value to the property and it improves public image. Furthermore, buyers, particularly those who are environmentally aware, are willing to pay more for houses with 'green features (Kellenberg 2004; Mandell & Wilhelmsson 2011). There have been efforts to create various measures for sustainable development. However it is often difficult to interpret these indicators (Partidario, Vicente & Belchior 2010). In season 7 it appears that the Australian building code rating system is the one that is used, although this is never explicitly mentioned. This rating system works well in the context of The Block as it emphasizes the 'sweetspot' between sustainability and profitability and notably cautions that once costs exceed benefits, higher star ratings are wasteful. The Centre of International Economics(CIE) report suggests that the optimal star rating is generally around 5 in terms of profitability of the development(Economics 2010) , while The Block supported the creation of the first 8 star rated building in Melbourne

Conclusions

This paper investigated how home renovations are represented in lifestyle television shows and in particular if and how they promote sustainable practices and waste in through an investigation of the episodes of series 7 of The Block. As discussed in the findings, three broad themes were identified as indicators of those issues: Branding, the desire for the 'new' and the suggestion that sustainability equals profit for renovated properties.

An important aspect to consider before commenting on The Block's representation of home renovations is the concept of house and home. "Whereas a house is [..] a physical shelter [..] a home is a place of protected intimacy" (Bachelard 1994). Recently, this interpretation has been promoted by real estate agents in particular, who don't sell just houses but homes (Allon 2008).

In search of evidence for representations of sustainable practices in televised home renovations, we encountered the concept that sustainability often equals 'bonus selling points'. The Block provided the audience, participants and potential buyers with the vision of an 8 star rated building; the only one in Melbourne at the time of broadcasting. However, as evidenced in the CIE report, although high star ratings are highly desirable, particularly as a description of economic efficiency, at ratings over 5 stars costs magnify and benefits decline noticeably. Additionally energy savings for existing buildings, such as The Block, would be substantially more expensive to incorporate (Economics 2010). As the show's principal target is the maximum profit, sustainability seems to become another bonus point for them to construct a desired-and new- image of a home. Therefore, renovation in this case did not relate to the practice of (sustainable) homemaking but to the addition of value (Allon 2008).

Ultimately, modern lifestyles are often associated with un-sustainable practices such as overconsumption and waste (Partidario, Vicente & Belchior 2010). We have related consumption with the branding of materials and services as well as the desire for the acquisition of new things. Waste in "The Block" is represented not just by the rubble remains of the gutted building but in the symbolic aspect of loss or remains of economic, emotional and ethical principles of social practices. Waste as the leftovers of overconsumption, effort and control.

References

Van Abel, B, Evers, L, Klaassen, R & Troxler, P 2011, *Open Design Now: Why Design Cannot remain exclusive*, Creative Commons Netherlands, The Netherlands Institue for Design and Fashion, Waag Society, Amsterdam.

Abreu, MI, Oliveira, R & Lopes, J 2017, 'Attitudes and Practices of Homeowners in the Decision-making Process for Building Energy Renovation', *Procedia Engineering*, vol. 172, The Author(s), pp. 52–59, viewed <http://dx.doi.org/10.1016/j.proeng.2017.02.016>.

ABS 2016, '2016 Census QuickStats', *2016 Census QuickStats*, viewed 9 July, 2019, <https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/4GADE?opendocument>.

ABS 2019a, 'Greater Adelaide statistics', *Adelaide Region Summary*, viewed 9 July, 2019, <https://itt.abs.gov.au/itt/r.jsp?RegionSummary&region=4GADE&dataset=ABS_REGIONAL_ASGS2016&geoconcept=ASGS_2016&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS2016&datasetLGA=ABS_REGIONAL_LGA2018&regionLGA=LGA_2018&regionASGS=ASGS_2016>.

ABS 2019b, 'Houshold and Family Projections, Australia 2016 to 2041', *Households and Family Projections*, pp. 2–5, viewed 1 May, 2020, <https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3236.0Main Features42016 to 2041?opendocument&tabname=Summary&prodno=3236.0&issue=2016 to 2041&num=&view=>.

Adelaide, C of 2019, 'Carbon Neutral Adelaide | City of Adelaide', *Carbon Neutral Adelaide*, viewed 9 July, 2019, <https://www.cityofadelaide.com.au/about-adelaide/our-sustainable-city/carbon-neutral-adelaide/>.

Adelaide, CN 2019, 'Make your home / building more energy efficient | Carbon Neutral Adelaide', *Make your home/building more energy efficient*, viewed 9 July, 2019, <https://www.carbonneutraladelaide.com.au/take-action/energy-efficiency>.

Adloff, F, Gerund, K & Kaldewey, D 2015, 'Locations, Translations, and Presentifications of Tacit Knowledge. An Introduction', in F Adloff, K Gedrund & D Kaldewey (eds), *Revealing Tacit Knowledge: Embodiment and Explication*, Bielefeld, Germany, pp. 7–18.

Aggeli, A & Melles, G 2015, 'Greening " The Block ": Sustainability in mainstream lifestyle TV', *UnMaking Waste*, Adelaide, pp. 1–11.

Allon, F 2013, 'Ethical consumption begins at home. Green renovations , eco-homes and sustainable home improvement', in T Lewis & E Potter (eds), *Ethical Consumption: A Critical Introduction*, Taylor & Francis.

Allon, F 2012, *Home as Investment*, *International Encyclopedia of Housing and Home*, Elsevier Ltd., viewed <http://dx.doi.org/10.1016/B978-0-08-047163-1.00304-0>.

Allon, F 2008, *Renovation Nation: Our Obsession with Home*, UNSW Press.

Appadurai, A 1986, *The Social Life of Things: Commodities from a Cultural Perspective*, Cambridge University Press.

Ástmarsson, B, Jensen, PA & Maslesa, E 2013, 'Sustainable renovation of residential buildings and the landlord/tenant dilemma', *Energy Policy*, vol. 63, Elsevier, pp. 355–362, viewed <http://dx.doi.org/10.1016/j.enpol.2013.08.046>.

Aune, M 2007, 'Energy comes home', *Energy Policy*, vol. 35, no. 11, pp. 5457–5465.

Australia, E 2013, 'The Block Sky High's sustainable living focus a perfect fit for EnergyAustralia http://www.energyaustralia.com.au/about-us/media-centre/current-news/the-block'.

Australia Population 2018, 'Population of Australia 2018', *Australia Population 2018*, pp. 2–3, viewed 5 October, 2018, <http://www.population.net.au/>.

Australian Bureau of Statistics 2018, '2016 Census QuickStats - Stonnington', *2016 Census QuickStats*, viewed 22 March, 2019, <http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA26350>.

Avelino, F 2017, 'Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability', *Environmental Policy and Governance*, vol. 27, no. 6, pp. 505–520.

Baban, F 2013, 'Cosmopolitanism Reinvented: Neoliberal Globalization and Thomas Friedman', in G Fridell & M Konings (eds), *Age of Icons. Exploring Philanthrocapitalism in the Contemporary World*, University of Toronto Press, Toronto, Buffalo, London, pp. 132–154.

Bachelard, G 1994, *Poetics of Space*, Beacon Press, Boston.

Backhaus, J 2010, 'Intermediaries as Innovating Actors in the Transition to a Sustainable Energy System', *Central European Journal of Public Policy*, vol. 4, no. 1, pp. 86–108, viewed <http://www.cejpp.eu/index.php/ojs/article/view/47>.

Barnes, J 2019, 'The local embedding of low carbon technologies and the agency of user-side intermediaries', *Journal of Cleaner Production*, vol. 209, Elsevier Ltd, pp. 769–781, viewed <https://doi.org/10.1016/j.jclepro.2018.10.258>.

Barnett, C, Cloke, P, Clarke, N & Malpass, A 2005, 'Consuming Ethics: Articulating the Subjects and Spaces of Ethical Consumption', *Antipode*, vol. 37, no. 1, pp. 23–45, viewed <http://onlinelibrary.wiley.com.globalproxy.cvt.dk/doi/10.1111/j.0066-4812.2005.00472.x/pdf>.

Barnett, C, Cloke, P, Clarke, N & Malpass, A 2010, *Globalizing responsibility: The political Rationalities of Ethical Consumption*, John Wiley & Sons.

Barr, S & Gilg, A 2006, 'Sustainable lifestyles: Framing environmental action in and around the home', *Geoforum*, vol. 37, no. 6, pp. 906–920, viewed 7 December, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S0016718506000583>.

Bartiaux, F, Gram-Hanssen, K, Fonseca, P, Ozoliņa, L & Christensen, TH 2014, 'A practice–theory approach to homeowners' energy retrofits in four European areas', *Building Research & Information*, vol. 42, no. 4, pp. 525–538, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.900253>.

Bassett, C, Fotopoulou, A & Howland, K 2013, *Expertise: A Scoping Study*, *http://www.communitiesandculture.org/files/2013/04/Sussex-scoping-report.pdf*, viewed <http://www.academia.edu/download/31125063/Sussex-scoping-report.pdf>.

Bate, B 2017, 'Understanding the influence tenure has on meanings of home and homemaking practices', *Geography Compass*, vol. 12, no. 1, pp. 1–15.

Baum, Scott; Hassan, R 1999, 'Home owners, home renovation andrResidential mobility', *Journal of Sociology*, vol. 35, no. 1, Australia, pp. 109–117.

Bauman, Z 2005, *Liquid life*, Polity Press.

Baxter, R & Brickell, K 2014, 'For Home UnMaking', *Home Cultures*, vol. 11, no. 2, pp. 133–143, viewed <http://dx.doi.org/10.2752/175174214X13891916944553>.

Bell, D & Hollows, J 2005, 'Making sense of ordinary lifestyles', *Ordinary Lifestyles : Popular Media, Consumption and Taste*, McGraw-Hill Education, pp. 1–20, viewed <http://search.ebscohost.com/login.aspx?direct=true&db=e000xww&AN=233850&lang=es>.

Bell, D & Hollows, J 2007, *Ordinary lifestyles:Popular media, consumption and taste*, Berkshire.

Belot, H 2017, 'Budget 2017.Six charts that tell you about housing affordability in Australia', *ABC news*, pp. 1–4, viewed 14 March, 2020, <https://www.abc.net.au/news/story-streams/federal-budget-2017/2017-05-07/housing-affordability-australia-statistics-federal-budget-2017/8502106>.

Berger, R 2015, 'Now I see it, now I don't: researcher's position and reflexivity in qualitative research', *Qualitative Research*, vol. 15, no. 2, pp. 219–234.

Berker, T, Hartmann, M, Punie, E & Ward, K 2006, *Domestication of media and technology*, Open University Press.

Bessant, JC & Johnson, G 2013, '"Dream on": Declining Homeownership Among Young People in Australia?', *Housing, Theory and Society*, vol. 30, no. 2, pp. 177–192.

Bille, M, Bjerregaard, P & Flohr, T 2015, 'Emotion , Space and Society Staging atmospheres : Materiality , culture , and the texture of the in-between', *Emotion, Space and Society*, vol. 15, Elsevier Ltd, pp. 31–38, viewed <http://dx.doi.org/10.1016/j.emospa.2014.11.002>.

Bird, E 2010, 'From Fan Practice to Mediated Moments: The Value of Practice Theory in the Understanding of Media Audiences', in B Bräuchler & P Postill (eds), *Theorising Media And Practice*, Berghahn Books, Incorporated, pp. 85–104, viewed <http://books.google.com/books?id=IbycR6djcEEC&pgis=1>.

Bjögvinsson, E, Ehn, P & Hillgren, P-A 2012, 'Design Things and Design Thinking: Contemporary Participatory Design Challenges', *Design Issues*, vol. 28, no. 3, pp. 101–116.

Blismas, N & Wakefield, R 2009, 'Drivers, constraints and the future of offsite manufacture in Australia', *Construction Innovation*, vol. 9, no. 1, pp. 72–83.

Blomberg, J & Karasti, H 2012, 'Ethnography: Positioning ethnography within participatory design', *Routledge International Handbook of Participatory Design*, no. July, pp. 86–116.

Blunt, A 2003, 'Collective memory and productive nostalgia: Anglo-Indian homemaking at McCluskieganj', *Environment and Planning D: Society and Space*, vol. 21, no. 6, pp. 717–738.

Blunt, A & Dowling, R 2006, *Home*, Routledge.

Böhme, G 2013, 'The art of the stage set as a a paradigm for an aesthetics of atmospheres', *Ambiances*, no. February 2013, pp. 0–8, viewed <https://journals.openedition.org/ambiances/315>.

Bolton, S 2018, 'The Visual Thinking Method. Tools and approaches for repidly decoding design research data', in PA Rodgers & J Lee (eds), *The Routledge companion to Design Research*, Routledge.

Bonini, T 2011, 'The media as "home-making" tools: Life story of a Filipino migrant in Milan', *Media, Culture and Society*, vol. 33, no. 6, pp. 869–883.

Bonner, F 2005, 'Whose Lifestyle Is It Anyway ?', in D Bell & J Hollows (eds), *Ordinary Lifestyles: Popular media, Consumption and Taste*, McGraw University Press.

Bott, R 2008, 'Smart living:Lifestyle media and popular expertise review', *Continuum: Journal of Media & Cultural Studies*, pp. 1–5.

Bourdieu, P 1984, *Distinction: A Social Critique of the Judgement of Taste*, Routledge Kegan & Paul.

Bourdieu, P 1990, *In other words: Essays towards a reflexive sociology*, Stanford University Press, Stanford.

Boyd, R 2002, *The Australian Ugliness*, The Text Publishing Company.

Bradbury, M, Peterson, MN & Liu, J 2014, 'Long-term dynamics of household size and their environmental implications', *Population and Environment*, vol. 36, no. 1, pp. 73–84.

Brand, R & Karvonen, A 2007, 'The ecosystem of expertise: complementary knowledges for sustainable development', *Sustainability: Science, Practice and Policy*, vol. 3, no. 1, pp. 21–31, viewed <https://www.tandfonline.com/doi/full/10.1080/15487733.2007.11907989>.

Brandt, E, Binder, T & Sanders, EB-N 2012, 'Tools and techniques. Ways to engage telling, making and enacting', in J Simonsen & T Roberson (eds), *Routledge International Handbook of Participatory Design*, Routledge, pp. 145–181.

Bratteteig, T, Bødker, K, Dittrich, Y, Mogensen, PH & Simonsen, J 2012, 'Methods. Organising principles and general guidelines for Participatory Design Projects', in J Simonsen & T Robertson (eds), *Routledge International Handbook of Participatory Design*, Routledge.

Brauchler, B & Postill, J 2010, *Theorising Media and Practice*, Berghahn Books.

Bräuchler, B & Postill, P 2010, *Theorizing Media and Practice*, Berghahn Books, Incorporated.

Brayham, A 2015, 'Never stop improving: The complexity and contradictions of DIY home renovating as a serious leisure pursuit', *Loisir et Societe/ Society and leisure*, vol. 38, no. 1, Routledge, pp. 88–99, viewed <http://dx.doi.org/10.1080/07053436.2015.1006962>.

Van Breda, J, Musango, J & Brent, A 2016, 'Undertaking individual transdisciplinary PhD research for sustainable development:Case studies from South Africa', *International Journal of Sustainability in Higher Education*, vol. 17, no. 2, pp. 150–166.

van den Brom, P, Meijer, A & Visscher, H 2018, 'Performance gaps in energy consumption: household groups and building characteristics', *Building Research and Information*, vol. 46, no. 1, Taylor & Francis, pp. 54–70, viewed <https://doi.org/10.1080/09613218.2017.1312897>.

Brown, T 2011, 'Change by Design', *J ournal of Product Innovation and Management*, vol. 28, pp. 381–383.

Brown, T & Wyatt, J 2010, 'Design thinking for social innovation', *Development Outreach*, vol. 12, no. 1, pp. 29–43.

Buchanan, K, Russo, R & Anderson, B 2015, 'The question of energy reduction: The problem(s) with feedback', *Energy Policy*, vol. 77, Elsevier, pp. 89–96, viewed <http://dx.doi.org/10.1016/j.enpol.2014.12.008>.

Buchanan, R 2001, 'Design Research and the New Learning', *Design Issues*, vol. 17, no. 4, pp. 3–23.

Budge, K 2016, 'Teaching art and design: Communicating creative practice through embodied and tacit knowledge', *Arts and Humanities in Higher Education*, vol. 15, no. 3–4, pp. 432–445.

BuildSearch 2019, 'Average House siezes', *BuildSearch, Perth Home Builder Broker*, viewed 4 April, 2019, <https://buildsearch.com.au/house-size>.

Burgess, J 2012, 'YouTube and the formalisation of amateur media', in D Hunter, R Lobato, M Richardson & J Thomas (eds), *Amateur Media:Social, Cultural & Legal Prespectives*, Routledge.

Burke, T & Hulse, K 2015, *Spatial disadvantage: why is Australia different?*, viewed <http://www.ahuri.edu.au/publications/download/ahuri_myrp704_rp5>.

Burke, T & Ralston, L 2015, *The Australian household : Material consumption and the low carbon society*, viewed <CRC for Low Carbon Living>.

Burr, V 2015, 'Social constructionism', *International Encyclopedia of the Social and Behavioral Sciences*, 2nd ed., Elsevier, pp. 222–227, viewed <http://dx.doi.org/10.1016/B978-0-08-097086-8.24049-X>.

Bush, RE, Bale, CSE, Powell, M, Gouldson, A, Taylor, PG & Gale, WF 2017, 'The role of intermediaries in low carbon transitions e Empowering innovations to unlock district heating in the UK', *Journal of Cleaner Production*, vol. 148, no. April 2013, Elsevier Ltd, pp. 137–147, viewed <http://dx.doi.org/10.1016/j.jclepro.2017.01.129>.

Callaghan, JO 2017, 'Architecture as Commodity , Architects as Cultural Intermediaries : A Case Study', *Architecture and Culture*, vol. 5, no. 2, Routledge, pp. 221–240, viewed <http://doi.org/10.1080/20507828.2017.1325109>.

Campbell, C 2005, 'The Craft Consumer: Culture, Craft and Consumption in a Postmodern Society', *Journal of Consumer Culture*, vol. 5, no. 1, pp. 23–42.

Campbell, C 2015, 'The Curse of the New. How the accelerating pursuit of the new is driving hyper-consumption', in KM Ekström (ed.), *Waste Management and Sustainable Consumption: Reflections on Consumer Waste*, Routledge, Abingdon, Oxon ; New York, pp. 29–51.

Campbell, C 1992, 'The desire for the new: its nature and social location as presented in theories of fashion and modern consumption', *Consuming technologies*, Routledge, London, pp. 48–66.

Carew, AL & Wickson, F 2010, 'The TD Wheel : A heuristic to shape , support and evaluate transdisciplinary research', *Futures*, vol. 42, no. 10, Elsevier Ltd, pp. 1146–1155, viewed <http://dx.doi.org/10.1016/j.futures.2010.04.025>.

Carfagna, LB, Dubois, EA, Fitzmaurice, C, Ouimette, MY, Schor, JB, Willis, M & Laidley, T 2014, 'An emerging eco-habitus: The reconfiguration of high cultural capital practices among ethical consumers', *Journal of Consumer Culture*, vol. 14, no. 2, pp. 158–178.

Cellier, JM, Eyrolle, H & Mariné, C 1997, 'Expertise in dynamic environments', *Ergonomics*, vol. 40, no. 1, pp. 28–50.

Chambers, D 2016, *Changing Media, Homes and Households. Cultures, technologies and meanings*, Routledge, Oxon and New York.

Cherry, C, Hopfe, C, MacGillivray, B & Pidgeon, N 2017, 'Homes as machines: Exploring expert and public imaginaries of low carbon housing futures in the United Kingdom', *Energy Research and Social Science*, vol. 23, Elsevier Ltd, pp. 36–45, viewed <http://dx.doi.org/10.1016/j.erss.2016.10.011>.

Chetty, M, Banks, R, Harper, R, Regan, T, Sellen, A, Gkantsidis, C, Karagiannis, T & Key, P 2010, 'Who's hogging the bandwidth', *CHI 2010:At Home with Computing*, Atlanta.

Christensen, CL 2016, 'The mediatization of health expertise: Health programmes on Danish public service television', *Critical Studies in Television*, vol. 11, no. 2, pp. 204–216.

Christensen, TH & Røpke, I 2010, 'Can practice theory inspire studies on ICTs in everyday life ?', in B Brauchler & P Postill (eds), *Theorising Media and Practice*, Berghahn Books, New York, pp. 233–256.

Chu, CL 2017, 'Constructing a new domestic discourse: The modern home in architectural journals and mass-market texts in early twentieth-century China', *Journal of Architecture*, vol. 22, no. 6, pp. 1066–1091.

Chwialkowska, A 2019, 'How Sustainability Influencers Drive Green Lifestyle Adoption on Social Media : the Process of Green Lifestyle Adoption Explained Through the Lenses of the Minority Influence Model', *Management of Sustainable Development*, vol. 11, no. 1, pp. 33–42.

Clark, LS 2013, *The Parent App: Understanding Families in the Digital Age*, University Press, Oxford.

ClimateWorks Australia 2013, *Tracking progress towards a low carbon economy: Buildings*, viewed

<http://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_tracking_progress _discussion_paper_nov2012.pdf>.

Clune, S, Morrissey, J & Moore, T 2012, 'Size matters: House size and thermal efficiency as policy strategies to reduce net emissions of new developments', *Energy Policy*, vol. 48, Elsevier, pp. 657–667, viewed <http://dx.doi.org/10.1016/j.enpol.2012.05.072>.

Collingridge, DS & Gantt, EE 2008, 'The quality of qualitative research', *American Journal of Medical Quality*, vol. 23, no. 5, pp. 389–395.

Collins, R 2015, 'Keeping it in the family? Re-focusing household sustainability', *Geoforum*, vol. 60, Elsevier Ltd, pp. 22–32, viewed <http://dx.doi.org/10.1016/j.geoforum.2015.01.006>.

Commonwealth Research 2018, *Australian home size hits 20-year low*, *CommSec Home Size Trends Report*.

Coolen, HCCH 2012, *Qualitative methods in housing research*, *International Encyclopedia of Housing and Home*, Elsevier Ltd., viewed <http://dx.doi.org/10.1016/B978-0-08-047163-1.00663-9>.

Corner, J 1998, 'Meaning , Genre and Context The Problematics of "Public Knowledge" in the New Audience Studies', *Studying Media: Problems of theory and Method*, Edinburg University Press, Edinburg, pp. 108–134.

Couldry, N 2012, 'Media as practice', *Media, society, world, social theory and digital media practice*, Polity Press, pp. 33–58.

Couldry, N 2008, 'Mediatization or mediation ? Alternative understandings of the emergent space of digital storytelling', *New Media & Society*, vol. 10, no. 3, pp. 373–391.

Couldry, N 2010, 'Theorising media as practice', in B Bräuchler & P Postill (eds), *Theorising Media and Practice*, Berghahn Books, Incorporated, pp. 35–54.

Courtois, C, Mechant, P, Paulussen, S & De Marez, L 2012, 'The triple articulation of media technologies in teenage media consumption', *New Media and Society*, vol. 14, no. 3, pp. 401–420.

Courtois, C & Verdegem, P 2012, 'The Triple Articulation of Media Technologies in Audiovisual Media Consumption', *Television & New Media*, vol. 14, no. 5, pp. 421–439.

Cox, R 2016, 'What are Homes Made of ? Building Materials , DIY and the Homeyness of Homes WHAT ARE HOMES MADE OF ? BUILDING MATERIALS , DIY AND THE HOMEYNESS OF', *Home Cultures*, vol. 13, no. 1, Routledge, pp. 63–82, viewed <http://dx.doi.org/10.1080/17406315.2016.1122966>.

Crabtree, BF & Miller, WL 1999, *Doing qualitative research*, 2nd ed., SAGE Publications, Inc.

Craig, G 2010, 'Everyday Epiphanies: Environmental Networks in Eco-Makeover Lifestyle Television', *Environmental Communication: A Journal of Nature and Culture*, vol. 4, no. 2, pp. 172–189.

Craig, G 2019, *Media, Sustainability and Everyday Life*, *Media, Sustainability and Everyday Life*, Palgrave macmillan.

Crang, M & Hughes, A 2015, 'Editorial: Globalizing ethical consumption', *Geoforum*, vol. 67, pp. 131–134.

Crocker, R 2016, *Somebody else's problem. Consumerism, sustainability & Design*, Greenleaf Publishing Limited, Sheffield.

Crosbie, T & Baker, K 2010, 'Energy-efficiency interventions in housing: Learning from the inhabitants', *Building Research and Information*, vol. 38, no. 1, pp. 70–79.

Cross, N 1982, 'Design as a Dicipline - Designerly ways of knowing', *Design Studies*, vol. 3, no. 4, pp. 221–227.

Cross, N 2006, *Designerly Ways of Knowing*, Springer, London.

Crotty M. 1998, 'Constructionism: The making of meaning.', *The foundations of social research. Meaning and perspective in the research process*, SAGE Publications, pp. 42–65.

Crotty, M 1998, *The Foundations of Social Research: Meaning and Perspective in the Research Process*, SAGE Publications, London, Thousand Oaks, New Delhi.

Czarniawksa-Joerges, B 2007, *Shadowing, and other techniques for doing fieldwork in modern societies*, Copenhagen Business School Press.

Dalton, T 2018, 'Another Suburbaan Transition? Responding to Climate Change in the Australian suburbs', *Urban Sustainability Transitions: Australian cases- International perspectives*, Springer, Singapore, pp. 193–212.

Darby, S 2010, 'Smart metering: What potential for householder engagement?', *Building Research and Information*, vol. 38, no. 5, pp. 442–457.

Darnton, A, Verplanken, B, White, P & Whitmarsh, L 2011, *Habits, Routines and Sustainable Lifestyles Summary Report.*, London.

Davies, P & Osmani, M 2011, 'Low carbon housing refurbishment challenges and incentives: Architects' perspectives', *Building and Environment*, vol. 46, no. 8, Elsevier Ltd, pp. 1691–1698, viewed <http://linkinghub.elsevier.com/retrieve/pii/S036013231100059X>.

Davison, A 2011, 'A Domestic Twist on the Eco-Efficiency turn', in R Lane & A Gorman-Murray (eds), *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd., pp. 34–49.

Dayaratne, R & Kellett, P 2008, 'Housing and home-making in low-income urban settlements: Sri Lanka and Colombia', *Journal of Housing and the Built Environment*, vol. 23, no. 1, pp. 53–70.

Dean, M 2010, *Governmentality:power and rule in modern society*, 2nd editio., SAGE, Los Angeles, London.

Denzin, NK & Lincoln, YS 2000, 'Introduction. The Discipline and Practice of Qualitative Research', *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc, Thousand Oaks, London, New Delhi.

Department of Industry, Science, E and R 2020, 'Individuals and Households', pp. 2–4, viewed <https://publications.industry.gov.au/publications/climate-change/climate-change/individuals-and-households.html#:~:text=Australia's households are responsible for,to emissions through electricity consumption.>.

Dietz, T, Gardner, GT, Gilligan, J, Stern, PC & Vandenbergh, MP 2009, 'Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions.', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 106, no. 44, pp. 18452–18456.

Dinesh, D 2017, 'Why micro-influencers are a social marketing imperative for 2017', *Industry Insights*, pp. 14–15, viewed <econtentmag.com>.

Dingle, T 2000, 'Necessity the Mother of Invention, or Do-it-youself', in P Troy (ed.), *A History of European Housing in Australia*, Cambridge university press, Cambridge, pp. 55–76.

Douglas, M 1991, 'The Idea of a Home: A Kind of Space', *Social Research*, vol. 58, no. 1, pp. 287–307.

Dowling, R, Mcguirk, P & Bulkeley, H 2014, 'Demonstrating retrofitting Perspectives from Australian local government', in M Hodson & S Marvin (eds), *Retrofitting Cities: Priorities, Governance and Experimentation*, Taylor and Francis.

Dowling, R & Mee, K 2007, 'Home and Homemaking in Contemporary Australia', *Housing, Theory and Society*, vol. 24, no. 3, pp. 161–165, viewed 2 January, 2015, <http://www.tandfonline.com/doi/abs/10.1080/14036090701434276>.

Dowling, R & Power, E 2011, 'Beyond McMansions and Green Homes: Thinking Household Sustainability Through Materialities of Homeyness', in R Lane & A Gorman-Murray (eds), *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd.

Dowling, R, Power, E, Dowling, R & Power, E 2012, 'Sizing Home , Doing Family in Sydney , Australia Sizing Home , Doing Family in Sydney ', *Housing studies*, vol. 27, no. 5, pp. 605–619.

Doyle, R & Davies, AR 2013, 'Towards sustainable household consumption: Exploring a practice oriented, participatory backcasting approach for sustainable home heating practices in Ireland', *Journal of Cleaner Production*, vol. 48, Elsevier Ltd, pp. 260–271, viewed <http://dx.doi.org/10.1016/j.jclepro.2012.12.015>.

Dupuis, A & Throns, DC 1998, 'Home, home ownership and the search for ontological security', *Journal of Consumer Research*, vol. 25, pp. 78–90, viewed <http://amr.aom.org/content/23/3/393.short%5Cnhttp://www.researchgate.net/publication/50313187_Not_So_Different_After_All_A_Cross-Discipline_View_of_Trust/file/e0b495224ede519d7a.pdf>.

Duyvendak, JW 2011, *The Politics of Home. Belonging and Nostalgia in Western Europe and the United States*, 1st editio., Palgrave Macmillan, Amsterdam.

Eames, M, Dixon, T, May, T & Hunt, M 2013, 'City futures: exploring urban retrofit and sustainable transitions', *Building Research & Information*, vol. 41, no. 5, pp. 504–516, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2013.805063%5Cnhttp://dx.doi.org/10.1080/09613218.2013.805063>.

Economics, B of R and E 2014, *2014 Australian Energy Update*, viewed <bree.gov.au>.

Economics, C for I 2010, *Energy-efficiency: building code star-ratings.What's optimal, what's not*, Canberra.

Ellis, J 1992, *Visible Fictions: Cinema, Television, Video*, Routledge, New York, New York, USA.

Ellsworth-Krebs, K 2016, 'The history of home making and expectations of "normal" life today', *DEMAND centre conference*, pp. 1–12.

Emmison, M, Smith, P & Mayall, M 2012, *Researching the visual*, 2nd ed., SAGE Research Methods.

Eon, C, Morrison, GM & Byrne, J 2017, 'Unraveling everyday heating practices in residential homes', *Energy Procedia*, vol. 121, Elsevier B.V., pp. 198–205, viewed <http://dx.doi.org/10.1016/j.egypro.2017.08.018>.

Fang, ML, Woolrych, R, Sixsmith, J, Canham, S, Battersby, L & Sixsmith, A 2016, 'Place-making with older persons : Establishing sense-of-place through participatory community mapping workshops', *Social Science & Medicine*, vol. 168, Elsevier Ltd, pp. 223–229, viewed <http://dx.doi.org/10.1016/j.socscimed.2016.07.007>.

Faruqui, A, Sergici, S & Sharif, A 2010, 'The impact of informational feedback on energy consumption-A survey of the experimental evidence', *Energy*, vol. 35, no. 4, Elsevier Ltd, pp. 1598–1608, viewed <http://dx.doi.org/10.1016/j.energy.2009.07.042>.

Fawcett, T 2013, 'Exploring the time dimension of low carbon retrofit: owner-occupied housing', *Building Research & Information*, vol. 42, no. 4, pp. 477–488, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2013.804769>.

Fawcett, T & Killip, G 2014, 'Anatomy of low carbon retrofits: evidence from owner-occupied Superhomes', *Building Research & Information*, vol. 42, no. 4, pp. 434–445, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.893162>.

Featherstone, M 1987, 'Lifestyle and Consumer Culture', *Theory, Culture & Society*, vol. 4, pp. 55–70.

Fincher, R & Gooder, H 2007, 'At home with diversity in medium-density housing', *Housing, Theory and Society*, vol. 24, no. 3, pp. 166–182.

Flanders, J 2015, *The making of home: the 500 -year story of how our houses became our homes*, Thomas Dunne Books/ St,Martin's Press, New York.

Fontana, A & Frey, JH 2000, 'The Interview: From Structured Questions to Negotiated Text', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Foucault, M 1991, 'Governmentality', in G Burchcell, C Gordon & P Miller (eds), *The Foucault Effect:studies in governmentality, with two lectures by an an interview with Michel Foucault*, University of Chicago Press, pp. 87–104.

Fridell, G & Konings, M 2013, *Age of Icons : Exploring Philanthrocapitalism in the Contemporary World*, University of Toronto Press.

Fuist, TN, Mogford, E & Das, A 2018, 'Lifestyle Movements as Social Networks : The Connections between Everyday Politics and Larger Collective Action in an Indian Feminist Movement', *Sociological Perspectives*, vol. 61, no. 6, pp. 894–910.

Gabriel, M & Watson, P 2013, 'From Modern Housing to Sustainable Suburbia: How Occupants and their Dwellings are Adapting to Reduce Home Energy Consumption', *Housing, Theory and Society*, vol. 30, no. 3, pp. 219–236.

Gabriel, M & Watson, P 2012, 'Supporting Sustainable Home Improvement in the Private Rental Sector: The View of Investors', *Urban Policy and Research*, vol. 30, no. March 2015, pp. 309–325.

Galiotto, N, Heiselberg, P & Knudstrup, M 2015, 'The Integrated Renovation Process : application to family homes', *Engineering Sustainability*, vol. 168, no. ES6, pp. 245–257.

Gallant, K, Arai, S & Smale, B 2013, 'Celebrating, challenging and re-envisioning serious leisure', *Leisure/ Loisir*, vol. 37, no. 2, pp. 91–109.

Galletta, A 2013, *Mastering the Semi-Structured Interview and Beyond. From Research Design to Analysis and Publications*, New York University Press, New York and London.

Galvin, R & Sunikka-Blank, M 2016, 'Schatzkian practice theory and energy consumption research: Time for some philosophical spring cleaning?', *Energy Research and Social Science*, vol. 22, Elsevier Ltd, pp. 63–68, viewed <http://dx.doi.org/10.1016/j.erss.2016.08.021>.

Gaskell, G 2000, 'Individual and Group Interviewing', in MW Bauer & G Gaskell (eds), *Qualitative Researching with Text, Image and Sound*, pp. 39–56.

Gatt, C & Ingold, T n.d., 'From Description to Correspondence: Anthropology in Real Time', in W Gunn, T Otto & C Smith, Rachel (eds), *Design Anthropology: Theory and Practice*, Bloomsbury, pp. 139–158.

du Gay, P 1997, *Production of Culture/Cultures of Production*, Sage, Open University Press, London.

Du Gay, P, Hall, S, Janes, L, Madsen, AK, Mackay, H & Negus, K (eds) 2013, *Doing cultural studies: the story of the sony walkman*, 2nd editio., Sage, Open University Press, London.

Geels, FW 2012, 'A socio-technical analysis of low-carbon transitions : introducing the multi-level perspective into transport studies', *Journal of Transport Geography*, vol. 24, Elsevier Ltd, pp. 471–482, viewed <http://dx.doi.org/10.1016/j.jtrangeo.2012.01.021>.

Geels, FW 2010, 'Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective', *Research Policy*, vol. 39, no. 4, Elsevier B.V., pp. 495–510, viewed <http://dx.doi.org/10.1016/j.respol.2010.01.022>.

Gergen, KJ 1994, *Realities and relationships:Soundings in social construction*, Harvard University Press, Cambridge, MA and London, England.

Gibson, C, Farbotko, C, Gill, N, Head, L & Waitt, G 2013, 'Household Sustainability: Challenges and Dilemmas in Everyday Life', *Journal of Cleaner Production*, vol. 112, pp. 73–81.

Gibson, C, Head, L, Gill, N & Waitt, G 2011, 'Climate change and household dynamics: Beyond consumption, unbounding sustainability', *Transactions of the Institute of British Geographers*, vol. 36, no. 1, pp. 3–8.

Gibson, JJ 2015, *The ecological approach to visual perception.*, Classic ed., Taylor & Francis, New York and Hove.

Giddens, A 1991, *Modernity and self-identity: Self and society in the Late Modern Age*, Polity Press, Cambridge.

Giddens, A 1984, *The constitution of society: Outline of the Theory of Structuration*, 2013th ed, Polity Press.

Giles, DC 2002, 'Keeping the public in their place: audience participation in lifestyle television programming', *Discourse & Society*, vol. 13, pp. 603–628.

Gillon, C 2018, 'Under Construction: How Home-making and Underlying Purchase Motivations Surface in a Housing Building Site', *Housing, Theory and Society*, vol. 35, no. 4, Routledge, pp. 455–473, viewed

<http://doi.org/10.1080/14036096.2017.1337650>.

Glanville, R 2018, 'The Sometimes Uncomfortable Marriages of Design and Research', *The Routledge companion to Design Research*, Routledge, Oxon and New York.

Glover, A 2014, 'The practices of material divestment. Extending the life of domestic durable goods', in Y Strengers & C Maller (eds), *Social Practices, Intervention and Sustainability: Beyond Behaviour Change*, Routledge, pp. 127–143.

Goodsell, TL 2008, 'Diluting the Cesspool: Families, Home Improvement, and Social Change', *Journal of Family Issues*, vol. 29, no. 4, pp. 539–565, viewed 27 November, 2014, <http://jfi.sagepub.com/cgi/doi/10.1177/0192513X07310320>.

Gorman-Murray, A & Dowling, R 2011, 'Making Home in Contemporary Australia', *Architecture Australia*, vol. 100, no. 3, pp. 45–46.

Gourlay, S 2006, 'Towards conceptual clarity for "tacit knowledge": a review of empirical studies', *Knowledge Management Research & Practice*, vol. 4, no. 1, pp. 60–69, viewed <http://www.palgrave-journals.com/doifinder/10.1057/palgrave.kmrp.8500082>.

Graf, H 2012, 'Examining Garden Blogs as a Communication System', *International Journal of Communication*, vol. 6, no. 6, pp. 2758–2779.

Gram-Hanssen, K 2014a, 'Existing buildings – Users, renovations and energy policy', *Renewable Energy*, vol. 61, Elsevier, pp. 136–140, viewed 18 October, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S0960148113002498>.

Gram-Hanssen, K 2015, 'Housing in a sustainable consumption perspective', in L. Reisch & J Thøgersen (eds), *Handbook of Research on Sustainable Consumption*, Edward Elgar Publishing Limited, pp. 178–191.

Gram-Hanssen, K 2010a, 'Residential heat comfort practices: understanding users', *Building Research & Information*, vol. 38, no. 2, pp. 175–186.

Gram-Hanssen, K 2014b, 'Retrofitting owner-occupied housing: remember the people', *Building Research & Information*, vol. 42, no. 4, pp. 393–397, viewed 15 February, 2015, <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.911572>.

Gram-Hanssen, K 2010b, 'Standby consumption in households analyzed with a practice theory approach', *Journal of Industrial Ecology*, vol. 14, no. 1, pp. 150–165.

Gram-Hanssen, K 2011, 'Understanding change and continuity in residential energy consumption', *Journal of Consumer Culture*, vol. 11, no. 1, pp. 61–78.

Gram-Hanssen, K & Bech-Danielsen, C 2004, 'House, home and identity from a consumption perspective', *Housing, Theory and Society*, vol. 21, no. 1, pp. 17–26.

Gray, D 2015, 'Explainer:what's really keeping young and first home buyers out of the housing market', *The Conversation*, viewed 3 May, 2019, <https://theconversation.com/explainer-whats-really-keeping-young-and-first-home-buyers-out-of-the-housing-market-45716>.

Grin, J, Rotmans, J & Schot, J 2010, *Transitions to sustainable development: New Directions in the study of long term transformative change*, Routledge, London.

Grindstaff, L 2014, 'DI(t)Y, Reality-Style. The Cultural Work of Ordinary Celebrity', in L Ouellette (ed.), *A Companion to Reality Television*, John Wiley & Sons, pp. 324–344.

Grindstaff, L 2012, 'Reality TV and the Production of "Ordinary Celebrity": Notes from the field', *Berkley Journal of Sociology*, vol. 56, pp. 22–40.

Grubbauer, M 2015, 'Not everything is new in DIY: Home remodelling by amateurs as urban practice', *Ephemera U6*, vol. 15, no. 1, pp. 141–162.

Guest, BG, Namey, EE & Mitchell, ML 2017, 'Qualitative Research : Defining and Designing', *Collecting Qualitative Data : A Field Manual for Applied Research*, SAGE Publications, pp. 1–40.

Guillemin, M & Gillam, L 2004, 'Ethics, reflexivity, and "Ethically important moments" in research', *Qualitative Inquiry*, vol. 10, no. 2, pp. 261–280.

Gunn, W & Løgstrup, LB 2014, 'Participant observation , anthropology methodology and design anthropology research inquiry', *Art & Humanities in Higher Education*, vol. 13, no. 4, pp. 428–442.

Gunn, W, Otto, T & Smith, Rachel, C 2013, *Design Anthropology: Theory and Practice*, Bloomsbury Publishing Plc, London, New York.

Haddon, L 2007, 'Roger Silverstone's legacies: Domestication', *New Media and Society*, vol. 9, no. 1, pp. 25–32.

Haddon, L 2016, 'The domestication of complex media repertoires', in K Sandvik, AM Thorhauge & B Valtysson (eds), *Media and the Mundane*, NORDICOM, pp. 17–30.

Haenfler, R 2019, 'Changing the world one virgin at a time : abstinence pledgers , lifestyle movements , and social change', *Social Movement Studies*, vol. 18, no. 4, Routledge, pp. 425–443, viewed <https://doi.org/10.1080/14742837.2019.1590691>.

Haenfler, R, Johnson, B & Jones, E 2012, 'Lifestyle Movements: Exploring the Intersection of Lifestyle and Social Movements', *Social Movement Studies*, vol. 11, no. 1, pp. 1–20.

Hagbert, P 2016a, '" It 's Just a Matter of Adjustment ": Residents ' Perceptions and the Potential for Low-impact Home Practices', *Housing, Theory and Society*, vol. 33, no. 3, Routledge, pp. 288–304, viewed <http://dx.doi.org/10.1080/14036096.2016.1141797>.

Hagbert, P 2016b, *A sustainable home? Reconceptualizing home in a low-impact society*, Chalmers University of Technology, Gothenburg, Doctoral Thesis, Chalmers University of Techonolgoy.

Hagbert, P & Bradley, K 2017, 'Transitions on the home front: A story of sustainable living beyond eco-efficiency', *Energy Research and Social Science*, vol. 31, no. February, pp. 240–248.

Haider, J 2016, 'The Shaping of Environmental Information in Social Media: Affordances and Technologies of Self-control', *Environmental Communication*, vol. 10, no. 4, Taylor & Francis, pp. 473–491, viewed <http://dx.doi.org/10.1080/17524032.2014.993416>.

Haines, V & Mitchell, V 2014, 'A persona-based approach to domestic energy retrofit', *Building Research & Information*, vol. 42, no. 4, pp. 462–476, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.893161>.

Haines, V, Mitchell, V, Haines, V & Mitchell, V 2014, 'A persona-based approach to domestic energy retrofit', *Building Research & Information*, vol. 42, no. 4, pp. 462–476.

Hall, A 2017, 'Trends in home ownership in Australia: a quick guide – Parliament of Australia', *Parliament of Australia*, viewed 29 March, 2019, <https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1617/Quick_Guides/TrendsHomeOwnership>.

Hall, SM 2011, 'Exploring the "ethical everyday ": An ethnography of the ethics of family consumption', *Geoforum*, vol. 42, no. 6, Elsevier Ltd, pp. 627–637, viewed <http://dx.doi.org/10.1016/j.geoforum.2011.06.009>.

Hamilton, J 2012, 'Keeping Up with the Joneses in the Great British Refurb : The Impacts and Limits of Social Learning in Eco-renovation', in S Whitmarsh, Lorraine; O'Neill & I Lorenzoni (eds), *Engaging the Public with Climate Change, Behaviour Change and Communication*, Taylor & Francis.

Hampton, S 2017, 'An ethnography of energy demand and working from home: Exploring the affective dimensions of social practice in the United Kingdom', *Energy Research and Social Science*, vol. 28, no. September 2016, Elsevier, pp. 1–10, viewed <http://dx.doi.org/10.1016/j.erss.2017.03.012>.

Hand, M & Shove, E 2007, 'Condensing practices: Ways of living with a freezer', *Journal of Consumer Culture*, vol. 7, no. 1, pp. 79–104.

Hand, M & Shove, E 2004, 'Orchestrating Concepts:Kitchen Dynamics and Regime Change in Good Housekeeping and Ideal Home 1922-2002', *Home Cultures*, vol. 1, no. 3, pp. 235–256.

Hand, M, Shove, E & Southerton, D 2007, 'Home extensions in the United Kingdom: Space, time, and practice', *Environment and Planning D: Society and Space*, vol. 25, no. 4, pp. 668–681.

Hanington, B & Martin, B 2012, *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*, Quayside Publishing Group.

Hansen, AR 2016, 'The social structure of heat consumption in Denmark: New interpretations from quantitative analysis', *Energy Research and Social Science*, vol. 11, Elsevier Ltd, pp. 109–118.

Hansen, AR, Gram-hanssen, K, Knudsen, HN, Rhiger, A, Gram-hanssen, K, Knudsen, HN, Hansen, AR, Gram-hanssen, K & Knudsen, HN 2018, 'How building design and technologies influence heat-related habits', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 83–98, viewed <https://doi.org/10.1080/09613218.2017.1335477>.

Hansen, AR, Madsen, LV, Knudsen, HN & Gram-Hanssen, K 2019, 'Gender, age, and educational differences in the importance of homely comfort in Denmark', *Energy Research and Social Science*, vol. 54, no. April, pp. 157–165.

Hartley, J 2012, 'Interaction Design, Mass Communication and the Challenge of Distributed Expertise', in Routledge (ed.), *Design and Ethics:Reflections on practice*.

Hartley, J 1999, *Uses of television*, Routledge, London and New York.

Hartman, T 2007, 'On the Ikeaization of France', *Public Culture*, vol. 19, no. 3, pp. 483–498.

Hartmann, M 2014, 'Home is where the heart is?Ontological security and the mediatization of homelessness', in K Lundby (ed.), *Mediatization of Communication*, De Gruyter Mouton, pp. 641–660.

Hartmann, M 2006, 'The triple articulation of ICTs.Media as technological objects, symbolic environments and individual texts', in T Berker (ed.), *Domestication of Media and Technology*, Open University Press, pp. 80–102.

Hawkins Gay, Muecke, S 2003, *Culture and Waste: The Creation and Destruction of Value*, Rowman & Littlefield Publishers Inc.

Hay, J 2010, 'Too Good to Fail : Managing Financial Crisis Through the Moral Economy of Realty TV', *Journal of Communication*, vol. 34, no. 4, pp. 382–402.

Head, L, Farbotko, C, Gibson, C, Gill, N & Waitt, G 2013, 'Zones of friction, zones of traction: The connected household

in climate change and sustainability policy', *Australasian Journal of Environmental Management*, vol. 20, no. 4, Taylor & Francis, pp. 351–362, viewed <http://dx.doi.org/10.1080/14486563.2013.835286>.

Head, L, Gibson, C, Gill, N, Carr, C & Waitt, G 2016, 'A meta-ethnography to synthesise household cultural research for climate change response', *Local Environment*, vol. 21, no. 12, Taylor & Francis, pp. 1467–1481.

Hepp, A 2013, *Cultures of mediatization*, Polity Press.

Hepp, A & Krotz, Frederich 2014, *Mediatised Worlds: Culture and Society in a Media Age*, A Hepp & Friedrich Krotz (eds), palgrave macmillan, Bassingstoke.

Hesmondhalgh, D 2006, 'Bourdieu , the media and cultural production', *Media, Culture & Society*, vol. 28, no. 2, pp. 211–231.

Hesmondhalgh, D 2012, 'Have amateur media enhanced the possibilities for good media work ?', in D Hunter, R Lobato, M Richardson & J Thomas (eds), *Amateur Media:Social, Cultural & Legal Prespectives*, Routledge, pp. 137–149.

Heuts, E & Versele, A 2016, 'RenoseeC : renovating with a social , ecological and economic benefit through a collective approach', *Energy Procedia*, vol. 96, The Author(s), pp. 540–550, viewed <http://dx.doi.org/10.1016/j.egypro.2016.09.097>.

Hill, A 2005, *Reality tv: Audiences and Popular Factual Television*, Routledge.

Hjarvard, S 2004, 'From bricks to bytes: The mediatization of a global toy industry', in I Bondebjerg & P Golding (eds), *European Culture and the Media: Changing Media - Changing Europe Series Volume 1*, Intellect Books, pp. 43–64.

Hjarvard, S 2008a, 'The mediatisation of Society: A Theory of the Media as Agents of Social Change', *Nordicom Review*, vol. 29, no. 2, pp. 225–242.

Hjarvard, S 2013, 'The mediatization of habitus. The social character of a new individualism', *The Mediatization of Culture and Society*, Routledge.

Hjarvard, S 2008b, 'The Mediatization of Society. A Theory of the Media as Agents of Social and Cultural Change', *Nordicom Review*, vol. 29, no. 2, pp. 102–131.

Hoffman, AJ & Henn, R 2008, 'Overcoming the Social and Psychological Barriers to Green Building', *Organization & Environment*, vol. 21, no. 4, pp. 390–419.

Horne, R 2018, *Housing Sustainability in Low carbon cities*, Routledge.

Horne, R 2017, 'Urban Low Carbon Transitions : Housing and Urban Change', *Urban Sustainability Transitions: Australian cases- International perspectives*, Springer, pp. 3–18.

Horne, R & Dalton, T 2014, 'Transition to low carbon ? An analysis of socio-technical change in housing renovation', *Urban Studies*, vol. 51, no. 16, pp. 3445–3458.

Horne, R, Maller, C & Dalton, T 2014, 'Low carbon, water-efficient house retrofits: an emergent niche?', *Building Research & Information*, vol. 42, no. 4, pp. 539–548, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.896173>.

Horne, R, Maller, C & Lane, R 2011, 'Remaking Home: The Reuse of Goods and Materials in Australian Households', *Material Geographies of Household Sustainability*, Ashgate Publishing, Ltd., pp. 89–111.

Howard, Z & Somerville, MM 2014, 'A comparative study of two design charrettes: implications for codesign and participatory action research', *CoDesign*, vol. 10, no. 1, pp. 46–62, viewed <http://www.tandfonline.com/doi/abs/10.1080/15710882.2014.881883>.

Hsieh, HF & Shannon, SE 2005, 'Three approaches to qualitative content analysis', *Qualitative Health Research*, vol. 15, no. 9, pp. 1277–1288.

Hub, IM 2018, 'Pros and Cons of Working with Micro-influencers', *Influencer Marketing*, viewed 26 June, 2019, <https://influencermarketinghub.com/pros-and-cons-of-working-with-micro-influencers/>.

Hulse, K & McPherson, A 2014, 'Exploring Dual Housing Tenure Status as a Household Response to Demographic, Social and Economic Change', *Housing Studies*, vol. 29, no. 8, pp. 1028–1044.

Hulse, K & Milne, E 2019, 'Engaging home renovators : opportunities and challenges for low carbon living', in P Newton, D Prasad, A Sproul & S White (eds), *Decarbonising the Built Environment: Charting the Transition*, Palgrave Macmillan, Basingstoke.

Hulse, K, Morris, A & Pawson, H 2019, 'Private Renting in a Home-owning Society: Disaster, Diversity or Deviance?', *Housing, Theory and Society*, vol. 36, no. 2, Routledge, pp. 167–188, viewed <https://doi.org/10.1080/14036096.2018.1467964>.

Hulse, K, Podkalicka, A, Milne, E, Winfree, T & Melles, G 2015, *'I'd just Google it': media and home renovation practices in Australia*, Sydney, NSW.

Hunt, J 2018, 'Prototyping the Social:Temporality and Speculative Futures at the Intersection of Design and Culture', in AJ Clarke (ed.), *Design Anthropology*, Bloomsbury Academic, pp. 87–100.

Hunter, S 2019, *Media-engaged home renovation and the transition to zero carbon homes*, Swinburne University.

413

IKEA 2019, 'IKEA kitchen guarantee', *IKEA*, viewed 5 April, 2019, <https://www.ikea.com/gb/en/customer-service/guarantees-and-warranties/kitchen-guarantee/>.

Ingold, T 2012, 'Introduction : The Perception of the User - Producer', in W Gunn & J Donovan (eds), *Design and Anthropology*, Ashgate Publishing, Ltd., pp. 19–31.

Ingram, J, Shove, E & Watson, M 2007, 'Products and Practices: Selected Concepts from Science and Technology Studies and from Social Theories of Consumption and Practice', *Design Issues*, vol. 23, no. 2, pp. 3–16.

Jacobs, JM & Merriman, P 2011, 'Practising architectures', *Social and Cultural Geography*, vol. 12, no. 03, pp. 211–222.

Janda, KB & Killip, G 2013, 'Building Expertise : Renovation as Professional Innovation', in RL Henn & AJ Hoffman (eds), *Constructing Green:The Social Structures of Sustainability*, MIT Press.

Jansson, A 2014, 'Jansson_2014_Indispensable things_on mediatization, materiality and space.pdf', in K Lundby (ed.), *Mediatization of Communication*, De Gruyter Mouton.

Jeffery, E 2016, '" I Find New Things I " d Forgotten I Needed ': Consumption , Domesticity and Home Renovation', *Hecate*, vol. 42, no. 2, pp. 85–101.

Jenkins, P & McLachlan, F 2010, 'Is there a rôle for architects in mainstream private sector house building?', *The Journal of Architecture*, vol. 15, no. 2, pp. 153–180, viewed <http://www.tandfonline.com/doi/abs/10.1080/13602361003791036>.

Johanson, S 2011, 'The Block unearths home truths about renovation spending', *Estate, Real Network, Fairfax Media*, pp. 5–8.

Jones, L 2014, 'Living-With Others , Living-With an " Eco-Home ": From Frustration to Transformation in an Eco-Development', *Journal of Environmental Policy & Planning*, vol. 16, no. 2, pp. 221–240.

Jones, PJ, Patterson, JL & Lannon, SC 2013, 'Retrofitting existing housing: how far, how much?', *Building Research & Information*, no. 12 July 2013, viewed <http://orca.cf.ac.uk/41187/>.

Joosse, S & Brydges, T 2018, 'Blogging for Sustainability: The Intermediary Role of Personal Green Blogs in Promoting Sustainability', *Environmental Communication*, vol. 12, no. 5, Taylor & Francis, pp. 686–700, viewed <https://doi.org/10.1080/17524032.2018.1474783>.

Judson, EP 2013a, *Energy-efficient renovation of owner-occupied heritage dwellings : Insights from social practices*, RMIT.

Judson, EP 2013b, *Energy-efficient renovation of owner-occupied heritage dwellings : Insights from social practices*, RMIT.

Judson, EP, Iyer-Raniga, U & Horne, R 2014, 'Greening heritage housing: understanding homeowners' renovation practices in Australia', *Journal of Housing and the Built Environment*, vol. 29, no. 1, pp. 61–78, viewed 2 January, 2015, <http://link.springer.com/10.1007/s10901-013-9340-y>.

Judson, EP & Maller, C 2014, 'Housing renovations and energy efficiency: insights from homeowners' practices', *Building Research & Information*, vol. 42, no. 4, pp. 501–511, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.894808>.

Karvonen, A 2013, 'Towards systemic domestic retrofit: a social practices approach', *Building Research & Information*, vol. 41, no. 5, pp. 563–574.

Keene, JR & Batson, CD 2010, 'Under One Roof: A Review of Research on Intergenerational Coresidence and Multigenerational Households in the United States', *Sociology Compass*, vol. 4, no. 8, pp. 642–657, viewed <http://doi.wiley.com/10.1111/j.1751-9020.2010.00306.x>.

Kellenberg, BYS 2004, 'Making Green Communities Work', *Real Estate Issues-American Society of Real Estate Councelors*, vol. 29, no. 1, pp. 24–29.

Kelly, MJ 2009, 'Retrofitting the existing UK building stock', *Building Research & Information*, vol. 37, no. March 2015, pp. 196–200.

Kennedy, J, Nansen, B, Arnold, M, Wilken, R & Gibbs, M 2015, 'Digital housekeepers and domestic expertise in the networked home', *Convergence: The International Journal of Research into New Media Technologies*, vol. 21, no. 4, pp. 408–422, viewed <http://con.sagepub.com/cgi/doi/10.1177/1354856515579848>.

Kensing, F, Simonsen, J & Bødker, K 1998, 'Participatory Design at a Radio Station', *Computer Supported Cooperative Work*, vol. 7, pp. 243–271.

Kerr, NJ 2018, *The rationale for retrofit : A multi-level, interdisciplinary perspective on the energy efficient retrofit of existing residential buildings .*, University of Leeds.

Kersten, WC, Crul, MRM, Geelen, D V., Meijer, S a. & Franken, V 2014, 'Engaging beneficiaries of sustainable renovation - exploration of design-led participatory approaches', *Journal of Cleaner Production*, vol. 106, Elsevier Ltd, pp. 690–699, viewed <http://dx.doi.org/10.1016/j.jclepro.2014.07.060>.

Khamis, S, Ang, L & Welling, R 2017, 'Self-branding," micro-celebrity" and the rise of Social Media Influencers', *Celebrity Studies*, vol. 8, no. 2, Routledge, pp. 191–208, viewed <https://doi.org/10.1080/19392397.2016.1218292>.

Killip, G, Fawcet, T & Janda, K 2014, 'Innovation in low-energy residential renovation:UK and France', *ICE Energy*, pp. 117–124.

Killip, G, Owen, A, Morgan, E & Topouzi, M 2018, 'A co-evolutionary approach to understanding construction industry innovation in renovation practices for low-carbon outcomes', *International Journal of Entrepreneurship and Innovation*, vol. 19, no. 1, pp. 9–20.

Kivimaa, P, Boon, W, Hyysalo, S & Klerkx, L 2018, 'Towards a typology of intermediaries in sustainability transitions : A systematic review and a research agenda', *Research Policy*, Elsevier, viewed <https://doi.org/10.1016/j.respol.2018.10.006>.

Kivimaa, P, Hyysalo, S, Boon, W, Klerkx, L, Martiskainen, M & Schot, J 2019, 'Passing the baton : How intermediaries advance sustainability transitions in different phases', *Environmental Innovation and Societal Transitions*, no. November 2018, Elsevier, pp. 1–16, viewed <https://doi.org/10.1016/j.eist.2019.01.001>.

Kleis Nielsen, R & Ganter, SA 2018, 'Dealing with digital intermediaries: A case study of the relations between publishers and platforms', *New Media and Society*, vol. 20, no. 4, pp. 1600–1617.

Klocker, N, Gibson, C & Borger, E 2012, 'Living together but apart: Material geographies of everyday sustainability in extended family households', *Environment and Planning A*, vol. 44, no. 9, pp. 2240–2259.

Knoblauch, H 2005, 'Focused ethnography', *Forum Qualitative Sozialforschung*, vol. 6, no. 3, viewed <http://www.qualitative-research.net/index.php/fqs/article/view/20>.

Knoblauch, H & Schnettler, B 2012, 'Videography: Analysing video data as a "focused" ethnographic and hermeneutical exercise', *Qualitative Research*, vol. 12, no. 3, pp. 334–356.

Konstantinou, T & Knaack, U 2011, 'Refurbishment of residential buildings: A design approach to energy-efficiency upgrades', *Procedia Engineering*, vol. 21, pp. 666–675, viewed <http://dx.doi.org/10.1016/j.proeng.2011.11.2063>.

Koolhaas, R 2002, 'Junkspace', *October*, vol. 100, pp. 175–190.

Krotz, F 2017, 'Explaining the mediatisation approach', *Javnost*, vol. 24, no. 2, Taylor & Francis, pp. 103–118.

Krotz, F 2014, 'Mediatized Worlds : A Discussion of the Basic Concepts', in A Hepp & F Krotz (eds), *Mediatized Worlds: Culture and Society in a Media Age*, palgrave macmillan, pp. 72–87.

Krotz, F 2007, 'The meta-process of "mediatization" as a conceptual frame', *Global Media and Communication*, vol. 3, no. 3, pp. 256–260.

Kumar, K & Makarova, E 2008, 'The portable home: The domestication of public space', *Sociological Theory*, vol. 26, no. 4, pp. 324–343.

Lane, R & Gorman-Murray, A 2010, *Material Geographies of Household Sustainability*, Routledge.

Latour, B 2005, *Reassembling the social:An introduction to Actor-Network Theory*, oxford university press.

Latour, B 1992, 'Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts'', in EB Wiebe & J Law (eds), *Shaping Technology/Building Society: Studies in Sociotechnical Change*, MIT Press, Cambridge, MA.

Lawhon, M & Murphy, JT 2011, 'Socio-technical regimes and sustainability transitions: Insights from political ecology', *Progress in Human Georgaphy*, vol. 36, no. 3, pp. 354–378.

LCL, C 2019, 'CRC Low carbon living Research', viewed 6 March, 2020, <http://www.lowcarbonlivingcrc.com.au/research>.

Leadbeater, C & Miller, P 2004, *The Pro-Am Revolution*, *Demos*, viewed <papers2://publication/uuid/6CC951F6-C76C-4854-BE1C-C5E74164AB14>.

Leary, TO 2008, 'Sustainable Housing-Northern Suburbs of Adelaide Home Occupiers Perceptions', *AIBS South Australian Conference-Climate Change: Engaging the Elements*, pp. 47–73.

Leavy, P 2014, 'Introduction', in P Leavy (ed.), *The Oxford Handbook of Qualitative Research*, Oxford University Press, pp. 1–14, viewed <http://www.patricialeavy.com/>.

Lees, L 2001, 'Towards a critical geography of architecture: the case of an ersatz Colosseum', *Ecumene*, vol. 8, no. 1, pp. 51–86.

Lees, L & Baxter, R 2011, 'A "building event" of fear: thinking through the geography of architecture', *Social & Cultural Geography*, vol. 12, no. 2, pp. 107–122, viewed <http://www.tandfonline.com/doi/abs/10.1080/14649365.2011.545138>.

Lewis, T 2015, '" One city block at a time ": Researching and cultivating green transformations', vol. 18, no. 3, pp. 347–363.

Lewis, T 2010, 'Branding, celebritization and the lifestyle expert', *Cultural Studies*, vol. 24, no. 4, pp. 580–598.

Lewis, T 2008a, 'Changing rooms, biggest losers and backyard blitzes: A history of makeover television in the United Kingdom, United States and Australia', *Continuum*, vol. 22, no. 4, pp. 447–458, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802189949>.

Lewis, T 2014, 'Life Coaches, Style Mavens, and Design Gurus. Everyday Experts on Reality Television', in L Ouellette

(ed.), *A Companion to Reality Television*, John Wiley & Sons, pp. 402–420.

Lewis, T 2011a, 'Making Over Culture? Lifestyle Television and Contemporary Pedagogies of Selfhood in Singapore', *Communication, Politics & Culture*, vol. 44, no. 1.

Lewis, T 2008b, 'Revealing the Makeover Show', *Continuum*, vol. 22, no. 4, pp. 441–446, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802190053>.

Lewis, T 2008c, *Smart living: Lifestyle media and Popular Expertise*, Peter Lang, New York.

Lewis, T 2011b, 'The Ethical Turn in Commodity Culture : Consumption , Care and the Other', *Journal of Literature, Culture and Literary Translation*, vol. 2, no. 1, pp. 1–7.

Lewis, T 2012, '"There grows the neighbourhood": Green citizenship, creativity and life politics on eco-TV', *International Journal of Cultural Studies*, vol. 15, no. 3, pp. 315–326, viewed 15 February, 2015, <http://ics.sagepub.com/cgi/doi/10.1177/1367877911433753>.

Lewis, T 2008d, 'Transforming citizens? Green politics and ethical consumption on lifestyle television', *Continuum, Journal of Media and Cultural Studies*, vol. 22, no. 2, pp. 227–240.

Lie, M & K., S 1996, *Making Technologies Our Own? Domesticating Technology into Everyday Life.*, Scandinavian University Press., Oslo.

Lin, HC, Bruning, PF & Swarna, H 2018, 'Using online opinion leaders to promote the hedonic and utilitarian value of products and services', *Business Horizons*, vol. 61, no. 3, 'Kelley School of Business, Indiana University', pp. 431–442, viewed <https://doi.org/10.1016/j.bushor.2018.01.010>.

Lincoln, YS & Guba, EG 1985, *Naturalistic inquiry*, SAGE, London.

Lincoln, YS & Guba, EG 2000, 'Paradigmatic controversies, contradictions, and emerging confluences', *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Livingstone, S 2007, 'On the material and the symbolic : Silverstone ' s double articulation of research traditions in new media studies', *New Media & Society*, vol. 9, no. 1, pp. 16–24.

Livingstone, S 2009, 'On the Mediation of Everything: ICA Presidential Address 2008', *Journal of Communication*, vol. 59, no. 1, pp. 1–18.

Livingstone, S & Das, R 2010, 'Existential Field 8 : Media , Communication and Information Technologies in the European Family. Working Report.', *Framework*, no. March 2011.

Long, TB, Young, W, Webber, P, Gouldson, A & Harwatt, H 2015, 'The impact of domestic energy efficiency retrofit schemes on householder attitudes and behaviours', *Journal of Environmental Planning and Management*, vol. 58, no. 10, Taylor & Francis, pp. 1853–1876, viewed <http://dx.doi.org/10.1080/09640568.2014.965299>.

Lunt, P & Livingstone, S 2016, 'Is "mediatization" the new paradigm for our field? A commentary on Deacon and Stanyer (2014, 2015) and Hepp, Hjarvard and Lundby (2015)', *Media, Culture and Society*, vol. 38, no. 3, pp. 462–470.

Lury, C 2004, *Brands: The Logos of the Global Economy*, Routledge.

Ma, Z, Cooper, P, Daly, D & Ledo, L 2012, 'Existing building retrofits: Methodology and state-of-the-art', *Energy and Buildings*, vol. 55, Elsevier B.V., pp. 889–902, viewed <http://dx.doi.org/10.1016/j.enbuild.2012.08.018>.

Mackay, C 2010, 'Kitchen remodelling in New Zealand-Issues of Sustainability', *Conference Proceedings of SB10 – Innovation and Transformation*, Branz, Wellington, pp. 1–11.

Mackay, M & Perkins, Harvey C 2017a, 'DIY Dreams and the Potential of Home', *Housing, Theory and Society*, Routledge, pp. 1–17, viewed <http://doi.org/10.1080/14036096.2017.1408679>.

Mackay, M & Perkins, Harvey C 2017b, 'The globalising world of DIY house improvement : interpreting a cultural and commercial phenomenon', *Housing Studies*, vol. 32, no. 6, Routledge, pp. 758–777, viewed <http://dx.doi.org/10.1080/02673037.2016.1234031>.

Mackay, M & Perkins, Harvey C. 2017, 'The globalising world of DIY house improvement: interpreting a cultural and commercial phenomenon', *Housing Studies*, vol. 32, no. 6, Routledge, pp. 758–777, viewed <http://dx.doi.org/10.1080/02673037.2016.1234031>.

Mackley, KL & Pink, S 2013, 'From Emplaced Knowing to Interdisciplinary Knowledge', *The senses and society*, vol. 8, no. 3, pp. 335–353.

Madsen, LV 2018, 'Materialities shape practices and notions of comfort in everyday life', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 71–82, viewed <https://doi.org/10.1080/09613218.2017.1326230>.

Maguire, JS & Matthews, J 2012, 'Are we all cultural intermediaries now ? An introduction to cultural intermediaries in context', *European Journal of Cultural Studies*, vol. 15, no. 5, pp. 551–562.

Maller, C, Horne, R & Dalton, T 2012, 'Green Renovations: Intersections of Daily Routines, Housing Aspirations and Narratives of Environmental Sustainability', *Housing, Theory and Society*, vol. 29, no. 3, pp. 255–275, viewed 27 November, 2014, <http://www.tandfonline.com/doi/abs/10.1080/14036096.2011.606332>.

Maller, C & Strengers, Y 2013, 'The global migration of everyday life : Investigating the practice memories of Australian migrants', *Geoforum*, vol. 44, Elsevier Ltd, pp. 243–252, viewed

<http://dx.doi.org/10.1016/j.geoforum.2012.09.002>.

Maller, CJ & Horne, RE 2011, 'Living Lightly: How does Climate Change Feature in Residential Home Improvements and What are the Implications for Policy?', *Urban Policy and Research*, vol. 29, no. 1, pp. 59–72, viewed 16 November, 2014, <http://www.tandfonline.com/doi/abs/10.1080/08111146.2011.539514>.

Mallett, S 2004, 'Understanding home: a critical review of the literature', *The Sociological Review*, vol. 52, no. 1, pp. 62–89, viewed <http://doi.wiley.com/10.1111/j.1467-954X.2004.00442.x%5Cnhttp://onlinelibrary.wiley.com/doi/10.1111/j.1467-954X.2004.00442.x/abstract>.

Mandell, S & Wilhelmsson, M 2011, 'Willingness to Pay for Sustainable Housing', *Journal of Housing Research*, vol. 20, no. 1, pp. 35–51, viewed <http://ares.metapress.com/content/r012220m66316245/fulltext.pdf>.

Mandich, G & Cuzzocrea, V 2016, '"Domesticating" the city: Family practices in public space', *Space and Culture*, vol. 19, no. 3, pp. 224–236.

Mansvelt, J 2005, *Geographies of Consumption*, SAGE Publications.

Manzini, E 2015, *Design, When Everybody Designs. An introduction to Design for Social Innovation*, MIT Press, Cambridge, MA, London, England.

Markard, J & Truffer, B 2008, 'Technological innovation systems and the multi-level perspective : Towards an integrated framework', *Research Policy*, vol. 37, pp. 596–615.

Martin, F, Lewis, T & Sinclair, J 2013, 'Lifestyle media and social transformation in Asia', *Media International Australia incorporating Culture and Policy*, vol. 147.

Marwick, A & Boyd, D 2011, 'To See and Be Seen : Celebrity Practice on Twitter', *Convergence:The international Journal of Research into New Media Technologies*, vol. 17, no. 2, pp. 139–158.

Masterbuilders 2018, 'Home renovations hit 14 year high', *MasterBuilders Australia*.

McCracken, G 1988, *Culture and Consumption: new approaches to the symbolic character of consumer goods and activities,* Indiana University Press.

Mcelroy, R 2017, 'Mediating home in an age of austerity : The values of British property television', *European Journal of Cultural Studies*, vol. 20, no. 5, pp. 525–542.

McElroy, R 2008, 'Property TV: The (re)making of home on national screens', *European Journal of Cultural Studies*, vol. 11, pp. 43–61.

Mckee, K 2012, 'Young People , Homeownership and Future Welfare', *Housing Studies*, vol. 27, no. 6, pp. 1466–1810.

McMahon, B 2001, *The architecture of east Australia:an architectural history in 432 individual representations*, Axel Menges, Stuttgard and London.

Mcmeekin, A & Southerton, D 2012, 'Sustainability transitions and final consumption : practices and socio-technical systems', *Technology Analysis & Strategic Management*, vol. 24, no. 4, pp. 345–361.

Medhurst, A 1999, 'Day for Night', *Signt and Sound*, vol. 9, no. 6, pp. 26–7.

Mee, K 2007, '"I ain't been to heaven yet? Living here, this is heaven to me": Public housing and the making of home in inner Newcastle', *Housing, Theory and Society*, vol. 24, no. 3, pp. 207–228.

Meijer, F, Itard, L & Sunikka-Blank, M 2009, 'Comparing European residential building stocks: performance, renovation and policy opportunities', *Building Research & Information*, vol. 37, no. March 2015, pp. 533–551.

Melles, G, Hulse, K, Podkalicka, A, Esther, M & Tomi, W 2017, *'Designing in' – media and communications for low carbon home renovation*, Mlebourne, viewed <http://builtbetter.org/node/5468>.

Miller, D 2001, *Consumption: Critical concepts in the social sciences*, D Miller (ed.), Volume III.

Miller, D 2012, *Consumption and its consequences*, Polity Press, Cambridge.

Miller, D 2018, 'Interior Decoration-Offline and Online', in AJ Clarke (ed.), *Design Anthropology. Object Cultures in Transition*, bloomsbury.

Miller Lane, B 2006, *Housing and Dwelling Perspectives on Modern Domestic Architecture*, Routledge.

Miranda, A 2016, 'Continuity , Change and the Circulation of Social Practices', *The Occasional Papers, Institute for Culture and Society t(OPICS)*, vol. 7, no. 1, pp. 1–20.

Mitchell, DM 2009, *Govermentality:Power and Rule in Modern society*, 2nd ed., SAGE Publications.

Mjörnell, K, Boss, A, Lindahl, M & Molnar, S 2014, 'A Tool to Evaluate Different Renovation Alternatives with Regard to Sustainability', *Sustainability*, vol. 6, no. 7, Multidisciplinary Digital Publishing Institute, pp. 4227–4245, viewed 12 February, 2015, <http://www.mdpi.com/2071-1050/6/7/4227/htm>.

Molloy, M & Larner, W 2010, 'WHO NEEDS CULTURAL INTERMEDIARIES INDEED?', *Journal of Cultural Economy*, vol. 3, no. 3, pp. 361–377.

Moore, T, de Haan, F, Horne, R & Gleeson, BJ 2017, *Urban sustainability transitions: Australian cases- International perspectives*, Springer.

Moore, T, Horne, R & Morrissey, J 2014, 'Zero emission housing: Policy development in Australia and comparisons with

the EU, UK, USA and California', *Environmental Innovation and Societal Transitions*, vol. 11, Elsevier B.V., pp. 25–45, viewed 11 December, 2014, <http://linkinghub.elsevier.com/retrieve/pii/S2210422413000932>.

Moran, J 2004, 'Housing, memory and everyday life in contemporary Britain', *Cultural Studies*, vol. 18, no. 4, pp. 607–627.

Morgan, R 2017, 'Renovation Nation:home improvement in Australia', *www. roymorgan.com*, p. 7102, viewed <http://www.roymorgan.com/findings/7102-renovation-nation-home-improvement-in-australia-201701090848>.

Morley, D 2009, 'Domesticating Dislocation in a World of " New " Technology', in C Berry, S Kim & L Spigel (eds), *Electronic Elsewheres:Media, Technology, and the Experience of Social Space*, University of Minesota Press, pp. 3–15.

Morley, D 1986, *Family Television: Cultural Power and Domestic Leisure*, Comedia, London.

Morley, D 1980, *The 'Nationwide' Audience: Structure and Decoding*, BFI, London.

Morley, D 2006, 'What's "home" Got to do with it?: Contradictory Dynamics in the Domestication of Technology and the Dislocation of Domesticity', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, Maidenhead.

Morrison, C-A 2012, 'Home and heterosexuality in Aotearoa New Zealand: The spaces and practices of DIY and home renovation', *New Zealand Geographer*, vol. 68, no. 2, pp. 121–129, viewed <http://doi.wiley.com/10.1111/j.1745-7939.2012.01226.x>.

Moseley, R 2000, 'Makeover takeover on British television', *Screen*, vol. 41, no. 3, pp. 299–334.

Moss, T, Medd, W, Guy, S & Marvin, S 2009, 'Organising Water : The Hidden Role of Intermediary Work', *Water Alternatives*, vol. 2, no. 1, pp. 16–33.

Müller, KF & Röser, J 2017, 'Media Convergence and Deconvergence', in S Sparviero, C Peil & G (Ed) Balbi (eds), *Convergence in Domestic Media Use? The Interplay of Old and New Media at Home*, palgrave macmillan, pp. 55–74.

Munro, M & Leather, P 2000, 'Nest-building or investing in the future ? Owner-occupiers ' home improvement behaviour', *Policy and Politics*, vol. 28, no. 4, pp. 511–526.

Nansen, B, Arnold, M, Gibbs, M & Davis, H 2011, 'Dwelling with media stuff: Latencies and logics of materiality in four Australian homes', *Environment and Planning D: Society and Space*, vol. 29, no. 4, pp. 693–715.

Nansen, B, Arnold, M, Gibbs, MR & Davis, H 2009, 'Domestic orchestration: Rhythms in the mediated home', *Time & Society*, vol. 18, no. 2–3, pp. 181–207.

Negus, K 2002, 'The work of cultural intermediaries and the enduring distance between production and consumption', *Cultural Studies*, vol. 16, no. 4, pp. 501–515.

Nicolini, D 2018, 'Is small the only beautiful? Making sense of "large phenomena" from a practice-based perspective', in A Hui, T Schatzki & E Shove (eds), *The Nexus of Practices: Connections, constellations and practitioners*, Routledge, pp. 98–113.

Nixon, S & Gay, P Du 2002, 'Who needs cultural intermediaries?', *Cultural Studies*, vol. 16, no. 4, pp. 495–500.

O'Reilly, K 2012, *Ethnographic methods*, 2nd ed., Routledge, Florence.

Olesen, BB 2010, 'Ethnic Objects in Domestic Interiors: Space , Atmosphere and the Making of Home', *Home Cultures*, vol. 7, no. 1, pp. 25–42.

Organo, V, Head, L & Waitt, G 2013, 'Who does the work in sustainable households? A time and gender analysis in New South Wales, Australia', *Gender, Place & Culture*, vol. 20, no. 5, pp. 559–577.

Orton-johnson, K 2014, 'DIY Citizenship, Critical Making , and Community', in M Ratto & M Boler (eds), *DIY Citizenship. Critical Making and Social Media*, MIT Press, Cambridge.

Ouellette, L & Hay, J 2008a, *Better Living Through Reality TV: Television and Post-Welfare Citizenship*, Blackwell Publishing Ltd, Oxford.

Ouellette, L & Hay, J 2008b, 'Makeover television, governmentality and the good citizen', *Continuum*, vol. 22, no. 4, pp. 471–484.

Owen, A & Mitchell, G 2015, 'Outside influence-Some effects of retrofit installers and advisors on energy behaviours in households', *Indoor and Built Environment*, vol. 24, no. 7, pp. 925–936.

Owen, A, Mitchell, G & Gouldson, A 2014, 'Unseen influence-The role of low carbon retrofit advisers and installers in the adoption and use of domestic energy technology', *Energy Policy*, vol. 73, Elsevier, pp. 169–179, viewed <http://dx.doi.org/10.1016/j.enpol.2014.06.013>.

Paduart, a., Debacker, W, De Temmerman, N, De Wilde, WP & Hendrickx, H 2011, 'Re-design for change: environmental and financial assessment of a dynamic renovation approach for residential buildings', *Sustainable Development and Planning*, vol. 150, pp. 273–284, viewed <http://library.witpress.com/viewpaper.asp?pcode=SDP11-024-1>.

Pan, W, Gibb, AF & Dainty, ARJ 2007, 'Perspective of UK housebuilders on the use of offsite modern methods of construction', *Construction Management and Economics*, vol. 25, no. 2, pp. 183–194.

Pan, W, Gibb, AGF & Dainty, ARJ 2008, 'Leading UK housebuilders' utilization of offsite construction methods', *Building Research and Information*, vol. 36, no. 1, pp. 56–67.

Parrott, KR, Beamish, JO, Emmel, JM & Lee, S-J 2008, 'Kitchen Remodeling: Exploring the Dream Kitchen Projects', *Housing and Society*, vol. 35, no. 2, pp. 25–42.

Partidario, MR, Vicente, G & Belchior, C 2010, 'Can new perspectives on sustainability drive lifestyles?', *Sustainability*, vol. 2, pp. 2849–2872.

Patterson, JJ, Lukasiewicz, A, Wallis, PJ, Rubenstein, N, Coffey, B & Gachenga, E 2013, 'Tapping Fresh Currents : Fostering Early-Career Researchers in Transdisciplinary Water Governance Research', *Water alternatives*, vol. 6, no. 2, pp. 293–312.

Payne, G & Williams, M 2005, 'Generalization in qualitative research', *Sociology*, vol. 39, no. 2, pp. 295–314.

Peil, C & Roser, J 2014, 'The Meaning of Home in the Context of Digitization, Mobilization and Mediatization', in A Hepp & F Krotz (eds), *Mediatissed Worlds: Culture and Society in a Media Age*, palgrave macmillan, Basingstoke, pp. 293–249.

Pellow, D 2014, '"Everybody thinks they can build": The architect as cultural intermediary in Ghana', *Architectural Theory Review*, vol. 19, no. 1, Taylor & Francis, pp. 56–75.

Peng, T-C 2013, 'An Institutional Economic Analysis of the Decision to Do-it-yourself in Housing Renovation', *Urban Studies*, vol. 50, no. 9, pp. 1796–1816.

Peng, T 2013, 'A microstructural analysis of housing renovation decisions in Brisbane , Australia', *New Zealand Economic Papers*, vol. 47, no. 2, pp. 158–187.

Peterson, NM, Rai Peterson, T & Liu, J 2013, *The Housing Bomb: Why Our Addiction To Houses Is Destroying The Environment And Threatening Our Society*, The Johns Hopkings University Press.

Pettifor, H, Wilson, C & Chryssochoidis, G 2015, 'The appeal of the green deal: Empirical evidence for the influence of energy efficiency policy on renovating homeowners', *Energy Policy*, vol. 79, pp. 161–176, viewed <http://www.sciencedirect.com/science/article/pii/S0301421515000166>.

Pink, S 2012, *Advances in visual methodology*, SAGE Publications, London.

Pink, S 2014a, 'Digital – visual – sensory design anthropology : Ethnography , imagination and intervention', *Arts & Humanities in Higher Education*, vol. 13, no. 4, pp. 412–427.

Pink, S 2014b, 'Digital – visual – sensory design anthropology : Ethnography , imagination and intervention', *Arts and Humanities in Higher Education*, vol. 13, no. 4, pp. 412–427.

Pink, S 2009, *Doing Sensory Ethnography*, SAGE Research Methods.

Pink, S 2013, *Doing Visual Ethnography*, 3rd ed., SAGE, London.

Pink, S 2004, *Home Truths: Gender, Domestic Objects and Everyday Life.*, BERG, Oxford and New York.

Pink, S 2011, 'Images, Senses and Applications: Engaging Visual Anthropology', *Visual Anthropology*, vol. 24, no. 5, pp. 437–454.

Pink, S 2007, 'The Visual Ethnography:Photography, Video, Cultures and Individuals', *Doing Visual Ethnography*, SAGE Research Methods, pp. 21–40.

Pink, S, Leder Mackey, K, Morosanu, R, Mitchell, V & Bhamra, T 2017, *Making Homes. Ethnography and Design*, bloomsbury academic, London and New York.

Pink, S, Mackey Leder, K, Morosanu, R, Mitchell, V, Bhamra, T & Buchli, V 2017, *Making Home: Ethnography and Design*, Bloomsbury Publishing Plc.

Pink, S & Mackley, KL 2013, 'Saturated and situated : expanding the meaning of media in the routines of everyday life', *Media, Culture & Society*, vol. 35, no. 6, pp. 677–691.

Pink, S & Mackley, KL 2012, 'Video and a sense of the invisible: Approaching domestic energy consumption through the sensory home', *Sociological Research Online*, vol. 17, no. 1.

Pink, S, Mackley, KL & Moroşanu, R 2015, 'Hanging out at home: Laundry as a thread and texture of everyday life', *International Journal of Cultural Studies*, vol. 18, no. 2, pp. 209–224.

Pink, S & Morgan, J 2013, 'Short-term ethnography: Intense routes to knowing', *Symbolic Interaction*, vol. 36, no. 3, pp. 351–361.

Pitt&Sherry & Swinburne, U 2014, *National Energy Efficient Building Project*.

Plantin, JC, Lagoze, C, Edwards, PN & Sandvig, C 2018, 'Infrastructure studies meet platform studies in the age of Google and Facebook', *New Media and Society*, vol. 20, no. 1, pp. 293–310.

Podkalicka, A 2018, 'Actor, intermediary, and context: media in home renovation and consumption practice', *Communication Research and Practice*, Routledge, pp. 1–16, viewed <https://www.tandfonline.com/doi/full/10.1080/22041451.2018.1507326>.

Podkalicka, A & Anderson, D 2020, 'Lived, Local and Everyday:Understanding Media Use in Green Home Renovation', in J Diaz-Pont, P Maeseele, A Egan, S Maitreyee & K Foxwell-norton (eds), *The Local and the Digital in*

Environmental Communication, palgrave macmillan.

Podkalicka, A & Milne, E 2017, 'Diverse media practices and economies of Australian home renovators: budgeting, self-education and documentation', *Continuum, Journal of Media and Cultural Studies*, vol. 4312, no. May, Routledge, pp. 1–12, viewed <https://www.tandfonline.com/doi/full/10.1080/10304312.2017.1281882>.

Podkalicka, A, Milne, E, Hulse, K, Winfree, T & Melles, G 2016, *Hashtag Sustainability ? Home Renovators ' Media World*, Melbourne, VIC.

Podkalicka, A, Milne, E & Kennedy, J 2018, *Grand Designs: Consumer markets and Home-making*, palgrave macmillan.

Podkalicka, A, Winfree, T, Wright, A & Mcgregor, J 2019, *Sharing Advice Online to Foster Sustainable Homes*, P Newton, D Prasad, A Sproul & S White (eds), *Decarbonising the Built Environment*, Palgrave macmillan, Singapore, viewed <http://dx.doi.org/10.1007/978-981-13-7940-6_25>.

Polanyi, M 1966, *The tacit dimension*, 2009th ed, University of Chicago Press.

Putnam, T 2004, 'The modern home and the evolution of the house', *The Journal of Architecture*, vol. 9, no. 4, pp. 419–429.

Rainborough, J 2011, *Lifestyle Media and the Formation of the Self*, Palgrave Macmillan.

Rapoport, A 1995, 'Environmental quality and Environmental quality profiles', *Thirty papers in environment behaviour research*, Urban International Press, Newcastle.

Rasmussen, T 2014, *Personal Media and Everyday Life*, palgrave macmillan.

Ratto, M, Boler, M & Deibert, R 2014, *DIY Citizenship: Critical Making and Social Media*, MIT Press.

Ravetz, J 2008, 'State of the stock — What do we know about existing buildings and their future prospects?', *Energy Policy*, vol. 36, pp. 4462–4470.

Reckwitz, A 2002a, 'The Status of the " Material " in Theories of Culture : From " Social Structure " to " Artefacts "', *Journal for the Thoery of Social Behaviour*, vol. 32, no. 2, pp. 195–217.

Reckwitz, A 2002b, 'Toward a Theory of Social Practices A Development in Culturalist Theorizing', *European Journal of Social Theory*, vol. 5, no. 2, pp. 243–263.

Redström, J 2012, 'Introduction: Defining moments', in W Gunn & J Donovan (eds), *Design and Anthropology*, Ashgate Publishing, Ltd., pp. 89–103.

Reid, L, Sutton, P & Hunter, C 2010, 'Theorizing the meso level: the household as a crucible of pro-environmental behaviour', *Progress in Human Geography*, vol. 34, no. 3, pp. 309–327.

Reid, LA & Houston, D 2013, 'Low Carbon Housing : A "Green" Wolf in Sheep's Clothing?', *Housing Studies*, vol. 28, no. January 2013, pp. 37–41.

Reimer, S & Leslie, D 2004, 'Identity , Consumption , and the Home', *Home Cultures*, vol. 1, no. 2, pp. 187–208.

Richardson, L 2000, 'Writing: A Method of Inquiry', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Risholt, B 2013, *Zero energy renovation of single family houses*, *Norwegian University of Science and Technology\rFaculty of Architecture and Fine Art\rDepartment of Architectural Design*.

Robertson, T & Simonsen, J 2012, 'Participatory Design: An introduction', in J Simonsen & T Robertson (eds), *Routledge International Handbook of Participatory Design*, Routledge.

Rogers, EM 1982, *Diffusion of Innovations*, *Elements of Diffusion*, 3rd editio., The Free Press.

Roggema, R 2014, 'The Design Charrette', *The Design Charrette ; Ways to Envision Sustainable Futures*, Springer, viewed <http://link.springer.com/10.1007/978-94-007-7031-7>.

Ronald, R, Druta, O & Godzik, M 2018, 'Japan's urban singles: negotiating alternatives to family households and standard housing pathways', *Urban Geography*, vol. 39, no. 7, Routledge, pp. 1018–1040, viewed <https://doi.org/10.1080/02723638.2018.1433924>.

Røpke, I 2009, 'Theories of practice - New inspiration for ecological economic studies on consumption', *Ecological Economics*, vol. 68, no. 10, Elsevier B.V., pp. 2490–2497, viewed <http://dx.doi.org/10.1016/j.ecolecon.2009.05.015>.

Rose, G 2016, *Visual methodologies:An introduction to researching with Visual Materials*, 4th ed., SAGE, London.

Rosenberg, BC 2012, 'Dangerous Houses', *Home Cultures*, vol. 9, no. 2, pp. 173–194.

Rosenberg, BC 2011a, 'Home improvement: Domestic taste, DIY, and the property market', *Home Cultures*, vol. 8, no. 1, pp. 5–24.

Rosenberg, BC 2008, 'Property and home-makeover television: Risk, thrift and taste', T Lewis (ed.), *Journal of Media and Cultural Studies*, vol. 22, no. 4, Taylor & Francis, pp. 505–513, viewed <http://www.tandfonline.com/doi/abs/10.1080/10304310802189980>.

Rosenberg, BC 2011b, 'The Our House DIY Club: Amateurs, leisure knowledge and lifestyle media', *International Journal of Cultural Studies*, vol. 14, pp. 173–190.

Rowlands, R & Gurney, CM 2000, 'Young peoples' perceptions of housing tenure: A case study in the socialization of tenure prejudice', *Housing, Theory and Society*, vol. 17, no. 3, pp. 121–130.

Rubenstein, R 2001, *Home Matters: Longing and Belonging, Nostalgia and Mourning inWomen's Fiction*, Palgrave, New York.

Ryan, GW & Bernard, RH 2000, 'Data Management and Analysis Methods', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, 2nd ed., SAGE Publications, Inc.

Ryan, M 2014, 'Apartment therapy, everyday modernism, and aspirational disposability', *Television and New Media*, vol. 15, no. 1, pp. 68–80.

Rybczynski, W 1997, 'Housing without architects', *Architecture*, vol. 86, no. 8, p. 78.

SA Department of Environment, W and NR 2015, *Carbon Neutral Adelaide – Foundation Report*, Adelaide, viewed <https://www.cityofadelaide.com.au/assets/FINAL_REPORT_-_CARBON_NEUTRAL_ADELAIDE_-_FOUNDATION_REPORT_-_27_November_2015.pdf>.

Salo, M, Nissinen, A, Lilja, R, Olkanen, E, Neill, MO & Uotinen, M 2016, 'Tailored advice and services to enhance sustainable household consumption in Finland', *Journal of Cleaner Production*, vol. 121, Elsevier Ltd, pp. 200–207, viewed <http://dx.doi.org/10.1016/j.jclepro.2016.01.092>.

Sanders, EB-N 2013, 'Prototyping For The Design Spaces Of The Future', in L Valentine (ed.), *Prototype: Design and Craft in the 21st Century*, Berg publishers.

Sanders, EB-N & Stappers, PJ 2008, 'Co-creation and the new landscapes of design', *CoDesign*, vol. 4, no. 1, pp. 5–18.

Sanders, EB-N & Stappers, PJ 2014, 'Probes, toolkits and prototypes: three approaches to making in codesigning', *Codesign-International Journal of Cocreation in Design and the Arts*, vol. 10, no. 1, SI, pp. 5–14.

Sanders, EBE 2002, 'From user-centered to participatory design approaches', *Design and the Social Sciences Making connections*, pp. 1–8, viewed <http://books.google.com/books?hl=en&lr=&id=cFW7ULpRjyUC&oi=fnd&pg=PA1&dq=From+User-Centered+to+Participatory+Design+Approaches&ots=ttIj0Ji8Bo&sig=K7RMPPG6r9O-1v9t9OViwV-_afE%5Cnhttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:From+User-Center>.

Sangiorgi, D & Scott, K 2018, 'Conducting Design Research in and for a complex world', in PA Rodgers & J Yee (eds), *The Routledge companion to Design Research*, Routledge, London and New York.

Sanquist, TF, Orr, H, Shui, B & Bittner, AC 2012, 'Lifestyle factors in U.S. residential electricity consumption', *Energy Policy*, vol. 42, Elsevier, pp. 354–364, viewed <http://dx.doi.org/10.1016/j.enpol.2011.11.092>.

Schäfer, M & Jaeger-erben, M 2012, 'Life Events as Windows of Opportunity for Changing Towards Sustainable Consumption Patterns ? Results from an Intervention Study', *Journal of Consumer Policy*, vol. 35, pp. 65–84.

Schatzki, T 2016, 'Practice Theory as Flat Ontology', in G Spaargaren, D Weenick & M Lamers (eds), *Practice Theory and Research: exploring the dynamics of social life*, Routledge, London and New York, pp. 28–42.

Schatzki, T 1996a, *Social practices: A Wittgensteinian approach to human activity and the social*, Cambridge university press.

Schatzki, T 1996b, *Social Practices: A wittgensteinian approach to human activity and the social*, Cambridge university press, Cambridge.

Schatzki, T 2013, 'The edge of change: On the emergence, persistence, and dissolution of practices', in E Shove & N Spurling (eds), *Sustainable Practices: Social Theory and Climate Change*, Routledge, pp. 31–46.

Schatzki, T, Cetina, KK & Savigny, E Von 2001, *The practice turn in contemporary theory*, *Scandinavian Journal of Management*, viewed <http://linkinghub.elsevier.com/retrieve/pii/S0956522103000290>.

Schön, D 1991, *The reflective practitioner: How professionals think in action*, 2nd. ed., Routledge.

Schön, DA 1988, 'Designing: Rules, types and words', *Design Studies*, vol. 9, no. 3, pp. 181–190.

Schutt, RK & Chambliss, DF 2013, 'Qualitative Data Analysis', *Making Sense of the Social World: Methods of Investigation*, pp. 320–357.

Schwandt, T 2000, 'Three epistemological stances for qualitative inquiry', in NK Denzin & YS Lincoln (eds), *Handbook of Qualitative Research*, SAGE Publications, Inc.

Scotland, J 2012, 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms', *English Language Teaching*, vol. 5, no. 9, pp. 9–16.

Senft, heresa M 2008, *Camgirls. Celebrity & Community in the age of social networks*, Peter Lang, New York.

Seyfang, G, Longhurst, N, Seyfang, G & Longhurst, N 2016, 'What influences the diffusion of grassroots innovations for sustainability? Investigating community currency niches', *Technology Analysis & Strategic Management*, vol. 28, no. 1, Taylor & Francis, pp. 1–23.

Shove, E 2010, 'Beyond the ABC: climate change policy and theories of social change', *Environment and Planning A*, vol. 42, no. 6, pp. 1273–1285, viewed 11 July, 2014, <http://www.envplan.com/abstract.cgi?id=a42282>.

Shove, E 2003, *Comfort, cleanliness and convenience: The social organization of normality*, Berg publishers, Oxford.

Shove, E 2014, 'Putting practice into policy : reconfiguring questions of consumption and climate change', *Contemporary Social Science*, vol. 9, no. 4, pp. 415–429.

Shove, E 2004, 'Social architectural and environmental convergence', in K Steemers & MA Stean, (eds), *Environmental Diversity and Architecture*, Spon Press, London and New York, pp. 19–29.

Shove, E a. & Pantzar, M 2005, 'Consumers, Producers and Practices Understanding the invention and reinvention of Nordic walking.', *Journal of Consumer Culture*, vol. 5, no. 1, pp. 43–64, viewed <http://joc.sagepub.com/cgi/content/abstract/5/1/43>.

Shove, E, Pantzar, M & Watson, M 2012, *The Dynamics of Social Practice: Everyday Life and How it Changes*, SAGE Publications, London.

Shove, E & Walker, G 2007, 'Caution! Transitions ahead:Politics, practice, and sustainable transition management', *Environment and Planning*, vol. 39, pp. 763–770.

Shove, E & Walker, G 2010, 'Governing transitions in the sustainability of everyday life.', *Research Policy*, vol. 39, no. 4, Elsevier B.V., pp. 471–476, viewed <http://dx.doi.org/10.1016/j.respol.2010.01.019>.

Shove, E, Watson, M, Hand, M & Ingram, J 2007a, 'Having and Doing: the Case of the "Restless Kitchen"', *The Design of Everyday Life*, Bloomsbury Publishing, London.

Shove, E, Watson, M, Hand, M & Ingram, J 2007b, *The Design of Everyday Life*, Berg publishers, New York, New York, USA.

Shufeldt, M & Gale, K 2007, 'Under the (Glue) Gun : Containing and Constructing Reality in Home Makeover TV', *Popular Communication*, vol. 5, no. 4, pp. 263–282.

Silverstone, R 2006, 'Domesticating Domestication.Reflections on the life of a concept', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, Maidenhead, pp. 229–248.

Silverstone, R 2005, *Media, Technology and Everyday Life in Europe:From Information to Communication*, Ashgate Publishing, Ltd., Aldershot.

Silverstone, R 1994, *Television and everyday life*, Routledge, London and New York.

Silverstone, R & Hirsch, E 1992, *Consuming technologies:Media and information in Domestic Spaces*, Routledge, London and New York.

Silverstone, R, Hirsch, E & Morley, D 1992, 'Information and communicaaaation technologies and the moral economy of the household', in R Silverstone & E Hirsch (eds), *Consuming Technologies:Media and Information in Domestic Spaces*, Routledge, London, pp. 13–28.

Simons, H 2014, 'Case Study Research: In-Depth Understanding in Context', in P Leavy (ed.), *The Oxford Handbook of Qualitative Research*, Oxford University Press, Oxford and New York, pp. 455–470, viewed <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199811755.001.0001/oxfordhb-9780199811755-e-005>.

Simons, H 2009, *Case study research in practice*, SAGE Publications.

Simpson, S, Banfill, P, Haines, V, Mallaband, B, Mitchell, V, Simpson, S, Banfill, P, Haines, V, Mallaband, B, Mitchell, V, Simpson, S, Ban, P, Haines, V, Mallaband, B & Mitchell, V 2016, 'Energy-led domestic retrofit : impact of the intervention sequence', *Building Research & Information*, vol. 44, no. 1, pp. 97–115.

Siva, JPS & London, K 2011, 'Investigating the Role of Client Learning for Successful Architect–Client Relationships on Private Single Dwelling Projects', *Architectural Engineering and Design Management*, vol. 7, no. 3, pp. 177–189.

Smith, a. 2010, 'Lifestyle television programmes and the construction of the expert host', *European Journal of Cultural Studies*, vol. 13, pp. 191–205.

Smith Maguire, J & Matthews, J 2010, 'Cultural Intermediaries and the Media', *Sociology Compass*, vol. 4, no. 7, pp. 405–416.

Smith Maguire, J & Matthews, J (eds) 2014, *The Cultural Intermediaries Reader*, Sage.

Smith, ND 2014, *Lifestyle, design process and the creative practice of do-it-yourself (DIY) as a transformative experience*, Curtin University, viewed <http://espace.library.curtin.edu.au:80/R?func=dbin-jump-full&local_base=gen01-era02&object_id=219287>.

Social, W are 2020, 'Digital 2020 in Australia:1 in 3 minutes online are spent on social', viewed 9 April, 2020, <https://wearesocial.com/au/blog/2020/02/digital-2020-in-australia-analysis>.

Soper, K 2004, 'Rethinking the "good life": the consumer as citizen', *Capitalism Nature Socialism*, vol. 15, no. March 2015, pp. 111–116, viewed <http://www.tandfonline.com/doi/abs/10.1080/1045575042000247293>.

Southerton, D 2009, 'Consuming Kitchens', *Journal of Consumer Culture*, vol. 1, no. 2, pp. 179–203.

Southerton, D 2011, 'Cultural intermediaries', *Encyclopedia of consumer culture*, SAGE Publications, pp. 388–391.

Southerton, D 2013, 'Habits, routines and temporalities of consumption: From individual behaviours to the reproduction of everyday practices', *Time & Society*, vol. 22, no. 3, pp. 335–355.

Spaargaren, G 2003, 'Sustainable consumption: A theoretical and environmental policy perspective', *Society and Natural Resources*, vol. 16, no. 8, pp. 687–701.

Spaargaren, G, Lamers, M & Weenink, D 2016, 'Using practice theory to research social life', *Practice Theory and Research: Exploring the Dynamics of Social Life*, pp. 3–27, viewed <https://ebookcentral.proquest.com/lib/lancaster/detail.action?docID=4771783>.

Spaargaren, G & Van Vliet, B 2000, 'Lifestyles, consumption and the environment: The ecological modernization of domestic consumption', *Environmental Politics*, vol. 9, no. 1, pp. 50–76.

Spigel, L 1992, *Make room for TV: Television and the Family Ideal in Postwar America*, Duke University Press, Chicago, IL.

Spinney, J, Green, N, Burningham, K, Cooper, G & Uzzell, D 2012, 'Are we sitting comfortably? Domestic imaginaries, laptop practices, and energy use', *Environment and Planning A*, vol. 44, no. 11, pp. 2629–2645.

Spurling, Nicola; Blue, S 2014, *Entities, Performances and Interventions*, *Practices, the Built Environment and Sustainability- A Thinking Note Collection*, cambridge, Copenhagen, London.

Stappers, P & Sanders, E 2010, 'Generative tools for context mapping', *Design and Emotion*, pp. 77–81.

Stebbins, RA 2001, 'Serious leisure', *Society*, vol. 38, no. 4, pp. 53–57.

Stephan, A & Crawford, R 2016, 'Size does matter:Australia's addiction to big houses is blowing the energy budget', *The Conversation*, viewed 4 April, 2019, <https://theconversation.com/size-does-matter-australias-addiction-to-big-houses-is-blowing-the-energy-budget-70271>.

Stieß, I & Dunkelberg, E 2013, 'Objectives, barriers and occasions for energy efficient refurbishment by private homeowners', *Journal of Cleaner Production*, vol. 48, Elsevier Ltd, pp. 250–259, viewed <http://dx.doi.org/10.1016/j.jclepro.2012.09.041>.

Strebel, I 2011, 'The living building: towards a geography of maintenance work', *Social & Cultural Geography*, vol. 12, no. 3, pp. 243–262.

Strengers, Y 2013, 'Energy Feedback', *Smart Energy Technologies in Everyday Life. Smart Utopia?*, Palgrave macmillan, pp. 73–93.

Strengers, Y & Maller, C (eds) 2014, *Social Practices, Intervention and Sustainability: Beyond Behaviour Change*, Routledge.

Stronach, I, Garratt, D, Pearce, C & Piper, H 2007, 'Reflexivity, the Picturing of Selves, the Forging of Method.', *Qualitative Inquiry*, vol. 13, no. 2, pp. 179–203, viewed <http://qix.sagepub.com/cgi/content/abstract/13/2/179>.

Sunikka-blank, M & Galvin, R 2016, 'Irrational homeowners ? How aesthetics and heritage values influence thermal retrofit decisions in the United Kingdom', *Energy research & Social Science*, vol. 11, Elsevier Ltd, pp. 97–108.

Sunikka-Blank, M & Galvin, R 2012, 'Introducing the prebound effect: the gap between performance and actual energy consumption', *Building Reserach and Information*, no. 40:3, pp. 260–273.

Sunikka-blank, M, Galvin, R & Behar, C 2018, 'Harnessing social class , taste and gender for more effective policies', *Building Research & Information*, vol. 46, no. 1, Taylor & Francis, pp. 114–126, viewed <https://doi.org/10.1080/09613218.2017.1356129>.

Swan, W & Brown, P 2013, *Retrofitting the Built Environment*, 1st editio., Wiley-Blackwell.

Thomsen, a & Flier, K Van Der 2008, 'Replacement or reuse? The choice between demolition and life cycle extension from a sustainable viewpoint', *ENHR International Research Conference Shrinking Cities, Sprawling Suburbs, Changing Country sides,* Dublin, Ireland, viewed <http://repository.tudelft.nl/assets/uuid:a670a506-74e6-4c4e-b7b6-71107fb9778d/219624.pdf>.

Thomsen, A & Van der Flier, K 2009, 'Replacement or renovation of dwellings: the relevance of a more sustainable approach', *Building Research & Information*, vol. 37, no. March 2015, pp. 649–659.

Thuvander, L, Femenías, P, Mjörnell, K & Meiling, P 2012, 'Unveiling the Process of Sustainable Renovation', *Sustainability*, vol. 4, no. 12, Molecular Diversity Preservation International, pp. 1188–1213, viewed 5 August, 2014, <http://www.mdpi.com/2071-1050/4/6/1188/htm>.

Tjørring, L & Gausset, Q 2019, 'Drivers for retrofit : a sociocultural approach to houses and inhabitants', *Building Research & Information*, vol. 47, no. 4, Routledge, pp. 394–403.

Toffler, A 1980, *The third wave*, Collins, London.

Toole, S, Klocker, N & Head, L 2016, 'Re-thinking climate change adaptation and capacities at the household scale', *Climatic Change*, vol. 135, no. 2, pp. 203–209.

Trachte, S & Deherde, A 2010, *Advanced and Sustainable Housing Renovation. A guide for designers and planners*.

Tracy, SJ 2010, 'Qualitative quality: Eight a"big-tent" criteria for excellent qualitative research', *Qualitative Inquiry*, vol. 16, no. 10, pp. 837–851.

Troy, P 2000, 'Suburbs of acquiescence, suburbs of protest', *Housing Studies*, vol. 15, no. 5, pp. 717–738.

Tweed, C 2013, 'Socio-technical issues in dwelling retrofit', *Building Research & Information*, vol. 41, no. 5, pp. 551–

562, viewed <http://dx.doi.org/10.1080/09613218.2013.815047>.

Vashisht, R 2016, '5 Home Brands Showing Influencer Marketing How It's Done', *Influence*, viewed <https://influence.bloglovin.com/5-home-brands-showing-influencer-marketing-how-its-done-dcbad8524723>.

Vlasova, L & Gram-Hanssen, K 2014, 'Incorporating inhabitants' everyday practices into domestic retrofits', *Building Research & Information*, vol. 42, no. 4, pp. 512–524, viewed <http://www.tandfonline.com/doi/abs/10.1080/09613218.2014.907682>.

Wahlen, S & Laamanen, M 2015, 'Consumption, lifestyle and social movements', *International Journal of Consumer Studies*, vol. 39, no. 5, pp. 397–403.

Wakely, M 2005, 'Home in the imagination', *Griffith Review*, no. 2, pp. 58–64.

Wakkary, RON, Desjardins, A, Hauser, S & Maestri, L 2013, 'A Sustainable Design Fiction : Green Practices', *Computer-Human Interactions*, vol. 20, no. 4, pp. 1–34.

Wallis, R 2017, 'Myths and imaginaries: depictions of lifestyle migration in Country Style magazine', *Rural Society*, vol. 26, no. 1, Taylor & Francis, pp. 18–29, viewed <http://dx.doi.org/10.1080/10371656.2017.1285471>.

Wang, X, Chen, D & Ren, Z 2010, 'Assessment of climate change impact on residential building heating and cooling energy requirement in Australia', *Building and Environment*, vol. 45, Elsevier Ltd, pp. 1663–1682, viewed <http://dx.doi.org/10.1016/j.buildenv.2010.01.022>.

Ward, K 2006, 'The bald guy just ate an orange.Domestication, work and home.', in T Berker (ed.), *Domestication of Media and Technology*, McGraw-Hill Education, pp. 145–164.

Warde, A 2014, 'After taste: Culture, consumption and theories of practice', *Journal of Consumer Culture*, vol. 14, no. 3, pp. 279–303.

Warde, A 2005, 'Consumption and Theories of Practice', *Journal of Consumer Culture*, vol. 5, no. 2, pp. 131–153.

Watson, M & Shove, E 2008, 'Product, competence, project and practice: DIY and the dynamics of craft consumption', *Journal of Consumer Culture*, vol. 8, no. 1, UK, pp. 69–89, viewed <http://dx.doi.org/10.1177/1469540507085726>.

Weiss, J, Dunkelberg, E & Vogelpohl, T 2012, 'Improving policy instruments to better tap into homeowner refurbishment potential: Lessons learned from a case study in Germany', *Energy Policy*, vol. 44, Elsevier, pp. 406–415, viewed <http://dx.doi.org/10.1016/j.enpol.2012.02.006>.

Welch, D & Warde, A 2015, 'Theories of practice and sustainable consumption', *Handbook of Research on Sustainable Consumption*, Edward Elgar Publishing, Cheltenham, UK, pp. 84–100, viewed <http://www.elgaronline.com/view/9781783471263.00013.xml>.

West, A 2008, 'Dream Home (Land): Anxious Fantasies of Settlement in Home - improvement Television', *New Zealand Journal of Media Studies*, vol. 11, no. 2, pp. 27–37.

White, M 2014, 'House Hunters, Real Estate Television, and Everyday Cosmopolitanism', in L Ouellette (ed.), *A Companion to Reality Television*, John Wiley & Sons, Inc, pp. 386–401.

Whitmarsh, L & O'Neill, S 2010, 'Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours', *Journal of Environmental Psychology*, vol. 30, no. 3, Elsevier Ltd, pp. 305–314, viewed <http://dx.doi.org/10.1016/j.jenvp.2010.01.003>.

Wiesel, I, Pinnegar, S & Freestone, R 2013, 'Supersized Australian Dream: Investment, Lifestyle and Neighbourhood Perceptions among "Knockdown-Rebuild" Owners in Sydney', *Housing, Theory and Society*, vol. 30, no. 3, pp. 312–329.

De Wilde, M & Spaargaren, G 2019, 'Designing trust: how strategic intermediaries choreograph homeowners' low-carbon retrofit experience', *Building Research and Information*, vol. 47, no. 4, pp. 362–374.

Willand, N & Horne, R 2013, 'Low Carbon Residential Refurbishments in Australia : Progress and Prospects', *State of Australian Cities 6 proceedings*, Melbourne.

Willand, N, Maller, C & Ridley, I 2019, 'Addressing health and equity in residential low carbon transitions – Insights from a pragmatic retrofit evaluation in Australia', *Energy Research and Social Science*, vol. 53, no. March, pp. 68–84.

Willand, N, Moore, T, Hunter, S, Stanley, H & Horne, R 2012, *Drivers of Demand for Zero and Towards Zero Emissions*, Melbourne.

Williams, K & Dair, C 2007, 'What is stopping Sustainable Building in England? Barriers Experienced Sustainable Developments', vol. 147, no. September 2006, pp. 135–147.

Van Willinger, J 2002, *Applied Anthropology: An Introduction*, Greenwood Publishing Group, Inc.

Wilson, C, Chryssochoidis, G & Pettifor, H 2013, *Understanding Homeowners' Renovation Decisions: Findings of the VERD Project*, UKERC Working Paper Series.

Wilson, C, Crane, L & Chryssochoidis, G 2015, 'Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy', *Energy Research & Social Science*, vol. 7, Elsevier Ltd, pp. 12–22, viewed <http://linkinghub.elsevier.com/retrieve/pii/S2214629615000298>.

Wittmayer, JM, Avelino, F, Steenbergen, F Van & Loorbach, D 2017, 'Actor roles in transition: Insights from sociological

perspectives', *Environmental Innovation and Societal Transitions*, vol. 24, Elsevier B.V., pp. 45–56, viewed <http://dx.doi.org/10.1016/j.eist.2016.10.003>.

Xiao, Y, Milgram, P & Doyle, DJ 1996, 'Capturing and modeling Planning Expertise in Anesthesiology_Results of a Field study', in CE Zsambok & G Klein (eds), *Naturalistic Decision Making*, Taylor & Francis group, pp. 363–378.

Yates, J 2012, 'Structural Sustainability of Homeownership in Australia', *Challenges of the Housing Economy: An International Perspective*, pp. 108–127.

YouHome 2019, 'The process of renovating or building a home', viewed 29 March, 2019, <http://www.yourhome.gov.au/introduction/how-use-your-home>.

YourHome 2019, 'YourHome', *YourHome home page*, viewed 29 March, 2019, <http://www.yourhome.gov.au/>.

Yu, M, Wiedmann, T, Crawford, R & Tait, C 2017, 'The Carbon Footprint of Australia's Construction Sector', *Procedia Engineering*, vol. 180, The Author(s), pp. 211–220, viewed <http://dx.doi.org/10.1016/j.proeng.2017.04.180>.

Zhang, H, Mao, Z & Zhang, W 2015, 'Design Charrette as Methodology for Post-Disaster Participatory Reconstruction: Observations from a Case Study in Fukushima, Japan', *Sustainability*, vol. 7, no. 6, pp. 6593–6609, viewed <http://www.mdpi.com/2071-1050/7/6/6593>.

Zimmerman, HM 2015, *Branding Environmentalism for TV : The Rise and Fall of Planet Green*, University of Minnesota.

Zukin, S & Kosta, E 2004, 'Bourdieu Off-Broadway : Managing Distinction on a Shopping Block in the East Village', no. June, pp. 101–114.