

Fashion Design and Laundry Practices:

Practice-Orientated Approaches to Design for Sustainability

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Abstract

This doctoral enquiry develops practice-orientated approaches to design for sustainability. It focuses on the relationship between garment design, laundry practices and sustainability, and responds to research that evidences domestic laundering as one of the most environmentally damaging stages in a garment's lifecycle (Allwood, *et al.*, 2006; Hansen, *et al.*, 2007).

A one-year laundry study surveyed the use and laundry of sixteen garments to ascertain the relationship between garment design and laundry behaviour. The research findings revealed that laundry behaviours are complex and unpredictable, and often not directly linked to producing cleaner clothes. Laundry routines are underpinned by factors beyond cleanliness including: garment use, social auditing, garment aesthetics, life stage, cultural norms, and spatial arrangements within the household.

Through re-examining laundry as a social practice the research develops a series of design provocations to challenge the organisation of laundry practices, and by extension the frequencies and processes in which laundry is carried out. The findings highlight that understanding laundry as a social practice opens a space to reconceptualise design, laundry behaviour and sustainability. It decentres material products and attends to the embedded social dynamics that are set within a nexus of spaces, materials, thoughts, actions and emotions. This provides an alternative lens from which to view and develop design theories and practice for sustainability in fashion. The central insight from the research shows there are multiple benefits from incorporating social theory into methodologies for design for sustainability.

Keywords: fashion design, laundry practices, design for sustainability, practice theory,
resource consumption, garment use, clothes cleaning

Table of contents

List of figures.....8

Acknowledgements.....11

1 Context and landscape.....12

1.1 Overview.....13

1.2 Laundry impacts.....17

1.3 Understanding laundry.....22

1.4 Sustainability, design and fashion.....27

1.5 Preliminary research.....38

1.6 Aims and objectives.....45

2 Methodology and theoretical approach.....49

2.1 Introduction.....50

2.2 Research methodology.....52

2.3 Considerations for sustainable design.....60

2.4 Theoretical approach.....62

2.5 Research design.....69

2.6 Conclusion.....71

3 Past laundry narratives.....73

3.1 Introduction.....74

3.2 Tools and technologies.....76

| | |
|---|------------|
| 3.3 Creating cleanliness: social and moral constructs..... | 81 |
| 3.4 The laundresses and their trade..... | 85 |
| 3.5 Manual to mechanical..... | 89 |
| 3.6 Industrial to domestic..... | 93 |
| 3.7 Conclusion..... | 97 |
| 4 Present laundry practices..... | 100 |
| 4.1 Introduction..... | 101 |
| 4.2 Overview of laundry study..... | 102 |
| 4.3 A practice theory perspective..... | 109 |
| 4.4 Analysis of laundry study..... | 121 |
| 4.4.1 Laundry frequency..... | 128 |
| 4.4.2 Laundry processes..... | 141 |
| 4.5 Perception polling..... | 152 |
| 4.6 Conclusion..... | 156 |
| 5 Practice-orientated platforms for design practice..... | 160 |
| 5.1 Introduction..... | 161 |
| 5.2 Mechanisms of change..... | 162 |
| 5.3 Materials, meanings and competencies..... | 166 |
| 5.4 Summary of approach..... | 170 |
| 6 Design provocations..... | 172 |
| 6.1 Introduction..... | 173 |

| | |
|---|------------|
| 6.2 Clothes in transit, space and organization..... | 177 |
| 6.3 Households, laundry needs and laundry routines..... | 184 |
| 6.4 Shape, stretch and material memory..... | 190 |
| 6.5 Society, scents and senses of smell..... | 197 |
| 6.6 Dirt and diversion..... | 203 |
| 6.7 Material perceptions and laundry connections..... | 210 |
| 6.8 Garment typologies and laundry ideologies..... | 214 |
| 6.9 Clean social security..... | 217 |
| 6.10 Newness..... | 219 |
| 6.11 Conclusion..... | 224 |
| 7 Discussion and conclusion..... | 226 |
| 7.1 Introduction..... | 227 |
| 7.2 Research intention..... | 227 |
| 7.3 Limitations..... | 229 |
| 7.4 Discussion..... | 230 |
| 7.5 Directions for future research..... | 246 |
| 7.6 Research questions and key insights..... | 245 |
| 7.7 Contribution to knowledge..... | 251 |
| 7.8 Summary..... | 253 |
| References..... | 255 |
| Appendices..... | 268 |

| | |
|---|-----|
| Appendix 1 Participant questionnaire..... | 269 |
| Appendix 2 Participant information sheet..... | 273 |
| Appendix 3 Participant consent form..... | 274 |
| Appendix 4 Data coding keys..... | 275 |
| Appendix 5 Participant overview..... | 279 |
| Appendix 6 Laundry study visualisations..... | 311 |
| Appendix 7 Laundry discussion transcripts..... | 328 |
| Appendix 8 Research collection form..... | 391 |
| Appendix 9 Laundry polling visualisations | 392 |

List of figures

| | | |
|-------------|--|-----|
| Figure 1.1 | A whirlpool model of laundry (Shove, 2003:134)..... | 25 |
| Figure 1.2 | Approaches to design for sustainability (Bhamra, Hernandez and Mawle, 2013:107)..... | 33 |
| Figure 1.3 | Common characteristics amongst low wash garments (Rigby, 2010)..... | 39 |
| Figure 1.4 | Low wash concepts (Rigby, 2010)..... | 43 |
| Figure 1.5 | Thesis structure..... | 48 |
| Figure 2.1 | Practice-led research..... | 59 |
| Figure 2.2 | Research design..... | 70 |
| Figure 3.1 | Laundry timeline..... | 75 |
| Figure 4.1 | Laundry diaries..... | 103 |
| Figure 4.2 | Study garments..... | 104 |
| Figure 4.3 | Participant characteristics..... | 106 |
| Figure 4.4 | Data coding key..... | 108 |
| Figure 4.5 | Elements of laundry practice based on Reckwitz's (2002) construction of social practices..... | 113 |
| Figure 4.6 | Frequency of washing machine loads..... | 115 |
| Figure 4.7 | Figure 4.5 Laundry study visualisation for L1.ME and C.L1.ME..... | 123 |
| Figure 4.8 | Processes of laundry for all garments over twelve months..... | 124 |
| Figure 4.9 | L1.ME before and after it was dyed green..... | 137 |
| Figure 4.10 | Perception polling..... | 153 |

| | | |
|-------------|---|-----|
| Figure 4.11 | Findings from material perception survey..... | 154 |
| Figure 4.12 | Findings from material perception survey for black dress..... | 155 |
| Figure 5.1 | Materials, competences and meanings (adapted from Shove, Panzar and Watson, 2012)..... | 167 |
| Figure 5.2 | Proto-practices, practices and ex-practices (Shove, Pantzar and Watson, 2012:25)..... | 169 |
| Figure 6.1 | Observation themes and design provocations..... | 175 |
| Figure 6.2 | Observation themes and element groups..... | 176 |
| Figure 6.3 | The clothing house..... | 179 |
| Figure 6.4 | Clothes art..... | 181 |
| Figure 6.5 | The clothing curtain..... | 183 |
| Figure 6.6 | Co-wear communities..... | 187 |
| Figure 6.7 | Sides for sharing..... | 189 |
| Figure 6.8 | Clothes in motion..... | 193 |
| Figure 6.9 | Clothes in motion garment images..... | 194 |
| Figure 6.10 | Material impressions..... | 196 |
| Figure 6.11 | Wear and rotate..... | 200 |
| Figure 6.12 | Detachable linings..... | 202 |
| Figure 6.13 | Food for print..... | 206 |
| Figure 6.14 | Stain palette..... | 208 |
| Figure 6.15 | Stain palette 2..... | 209 |
| Figure 6.16 | Black skirt (BS) and navy cardigan (CA)..... | 211 |
| Figure 6.17 | Textual transfers..... | 213 |
| Figure 6.18 | Wool hand knit jumper (C.B3.HK) and denim skirt (C.L2.BS)..... | 214 |

| | | |
|-------------|-----------------------------------|-----|
| Figure 6.19 | Garment compilations..... | 216 |
| Figure 6.20 | Clothes cleaning communities..... | 218 |
| Figure 6.21 | Clean and serene..... | 222 |
| Figure 6.22 | Laundry charms..... | 223 |
| Figure 7.1 | Space 10 (Space10, 2015)..... | 240 |

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CHAPTER ONE

Context and landscape

Overview

Laundry impacts

Understanding laundry

Sustainability, design and fashion

Preliminary research

Aims and objectives

1.1 Overview

Clothes laundry is an everyday practice that provides us with the utility of clean clothes. Most people like clothes to be clean and smell fresh, and for many, it would be unthinkable to wear clothes that weren't. Wearing unclean clothes is often seen as a social taboo, which breaks the rules of our cultural etiquette. Yet laundry practices are simultaneously problematic since the collective use of domestic washing machines and dryers consume massive quantities of environmentally significant resources such as energy and water. As noted by David Orr (2004:13), 'whatever their particular causes, environmental problems all share one fundamental trait: with rare exceptions they are unintended, unforeseen, and sometimes ironic side effects of actions arising from other intentions'. Indeed, the environmental impacts of laundering are inadvertent and somewhat ironic: laundry can be understood as a practice of both purity and pollution.

Following this cultural and environmental challenge, my doctoral enquiry has sought to understand to what extent the design of a garment influences the user's washing behaviour, i.e. how a garment is laundered and how often. This research study responded to emerging research that evidenced home laundering as one of the most environmentally damaging stages in a garment's lifecycle (Allwood, *et al.*, 2006; Hansen, *et al.*, 2007). In previous research (during my Masters degree) I considered design based options to reduce the impacts from laundry and developed a range of eight garments that were designed with the intention to prompt changes in behaviour to resist impulses to launder. This suggested that designers could adopt certain design tactics, and embed particular characteristics into clothes that could potentially change the frequencies and processes in which clothes are laundered. A yearlong laundry study

was set up to survey the eight garment designs and to explore the hypothesis that designers can embed certain characteristics into clothes which can influence laundry behaviour.

However, I began to realise through my preliminary research findings that laundry behaviours were complex, erratic and unpredictable. There is a huge degree of variability in why people launder certain garments that is often not directly linked to producing 'clean' clothes. Designing clothes that require cleaning less often is a logical, but misinformed approach for developing sustainability strategies in fashion. Laundry routines are underpinned by factors beyond cleanliness including social auditing, garment aesthetics, cultural norms and spatial arrangements within the household. This realisation shifted the focus of the study where the analysis needed to attend to the social and cultural reasons why people launder clothing, and what people gain from laundering, besides from 'cleaner' clothing. This shift immediately broadened the scope of my doctoral enquiry, from design and user behaviour, towards the wider real world conditions that inform social behaviour and laundry practices.

To move forward I took a multidisciplinary approach, drawing from practice theory (Reckwitz, 2002; Shove, 2012), which is a subtype of cultural theory, to analyse and further understand the social elements that make up practices, and I integrated it with sustainability theory. This type of approach offers new ways to interpret laundry as a composite activity. It brings background elements to the foreground such as: changing textile preferences, increasing stocks of clothing in possession of a household, spaces in which clothes are kept before they are 'dirty' but after they have been worn, the time allocated to doing the laundry, evolving knowledge and know-how on how best to do it and personal dressing habits and routines etc. This perspective illuminates

the purposes and outputs of clothes cleaning beyond the production of clean clothes and acknowledges that resource consumption cannot be reduced to singular actions and behaviours, but is an output of a complexity of different types of coexisting and coevolving elements.

Understanding laundry as a social practice opens up a space to reconceptualise design and user behaviour. It decentres material products and attends to the embedded social dynamics that are set within a nexus of spaces, materials, thoughts, actions and feelings. This provides an alternative lens from which to view and develop design theories and practice for sustainability in fashion.

Background

In 2010 I completed an MA in Fashion and the Environment. During the MA I undertook a series of small projects that focused on garment design and the environmental impacts that emerge when clothes are laundered. This work responded to the growing body of published research that evidenced home laundering as the most environmentally damaging stage in a garment's life (Franklin Associates, 1993; Aumônier and Collins, 2002; Allwood, *et al.*, 2006; Hansen, *et al.*, 2007). In the field of fashion design there was very little in the way of research and practice that addressed this issue in comparison to developments in the detergent sector and the white goods market, with exception to Fletcher (1999; 2001; 2008:74-92). While washing and drying clothes is where the most environmental impact occurs in a garments life, there was a large gap between these challenges and solutions being explored in the fashion sector to address these issues.

The work I undertook on the MA began to explore possibilities for designing clothes to engage with laundry behaviour and potentially reduce the overall environmental impact that results from washing and drying. To save energy and water consumption from laundry, I based my research on the simple premise: if clothes are washed less and more considerately, less energy, water and chemicals are used and environmental savings are made. This idea was tied to the notion of 'lower impact laundering', i.e., reducing the amount of environmentally significant resources used such as energy and water. This included: getting more wears between washing, seeking alternative cleaning and freshening methods before using a washing machine, washing on lower temperatures, air drying instead of tumble drying and having a fuller washing load. Thus, my research considered design strategies for 'low wash' clothes, to encourage a move towards lower impact laundry practices.

My MA culminated with a design project that hypothesised a set of design strategies for 'low wash' garments (Rigby, 2010). It suggested that designers could adopt certain design tactics, and embed particular characteristics into clothes that could potentially change the frequencies and processes with which clothes are laundered. This hypothesis raised new questions. Significantly, to what extent could design influence laundry behaviour? And, in which ways could design be used to create conditions for less resource intensive laundry practices to develop? These questions provided the impetus for the PhD. The research outlined an approach for working towards sustainability in the fashion and textiles sector that supported a shift in focus from the 'hardware' of the industry (materials and manufacturing) to the 'software' (use and behaviour). My MA work formed a starting point for my PhD - I will further discuss this in section 1.5 of this chapter.

This introduction will continue to discuss the basis for focusing on garment design and laundry behaviour with reference to some significant research findings published over the last twenty years that highlight the environmental implications associated with garment use and laundry. It will outline the design gap in current approaches that seek to reduce the impacts of clothes cleaning – which mostly orientate towards developing more efficient laundry products and appliances, and leave garment design as an underexplored area of research. I will introduce the case for integrating garment care as a priority aspect of garment design and discuss my preliminary work, and how these research findings shaped the PhD in approach and the design of primary research. Additionally, I will introduce the concept of sustainability and current approaches in the field of design for sustainability. To end this introduction I will outline the aims and objectives of this research project and the key research questions it seeks to answer.

1.2 Laundry impacts

In 1999 Kate Fletcher wrote an article for *EcoDesign* journal called *Clean and Green?* The article highlighted the environmental impacts associated with clothes cleaning and identified laundering as the major cause of environmental impact in a garment's life cycle. The article discussed the large discrepancy in 'design-environment attention' in relation to the impacts that occur from laundering, and suggested that strategies to reduce environmental impact in the fashion sector overlook where the common accumulation of environmental impacts actually occur. Design consideration needed to extend to garment use and laundry behaviour, thus redistributing responsibility between the process of designing and the practices of use (Fletcher, 1999). This notion

challenged contemporary approaches to fashion and was perhaps the beginning of what was to unfold as a much broader conversation concerning design, sustainability and use. These ideas were to be substantiated in the following years with a host of new research and a slowly maturing field of scholarly investigation surrounding fashion and sustainability.

One piece of research that made a significant contribution to understanding environmental issues in the fashion industry was the *Well Dressed?* report, which was published in 2006 by the Cambridge Institute of Manufacturing (Allwood *et al*, 2006). The report laid out sustainability concerns for the UK fashion industry and was to become widely referenced in the years that followed. The research was funded by Biffaward (with 10% funding from Marks and Spencer) and formed part of a larger programme focusing on providing information on sustainable resource flows and usage in the UK. The report assessed the current way that clothes and textiles are produced and used, and relayed this information in terms of economic, environmental and social significance. Part of the report focused on the predicted environmental impact of a cotton t-shirt and a viscose blouse by using a detailed lifecycle analysis. The findings were summarised by three main indicators: climate change, waste volume, and an aggregate 'environmental index'¹. The report found that the major environmental impacts in the fashion sector are attributed to energy and toxic chemical use. Laundering clothes was found to be where the largest consumption of energy occurs in the fashion sector. Impact arises from burning fossil fuels that release CO2 emissions, which contribute to climate change and global warming during the generation of electricity for energy needed to heat the water and air in washing machines and tumble

¹ The aggregate environmental index represented the combined effect of ozone depletion, acidification (acid rain), nutrient enrichment (eutrophication) and photochemical ozone formation (smog) (Allwood *et al*, 2006:22).

dryers (Allwood *et al*, 2006). These discoveries were not new. They echoed findings from research carried out 13 years earlier in the US by Franklin Associates LTD for the American Fibre Manufacturers Association. This research detailed the resource and environmental profile of a polyester blouse using a lifecycle approach that included the three main stages: manufacture, use and disposal. The study found that well over three quarters of the total energy in the life cycle of the blouse arose from home laundering, and less than a quarter arose from manufacture (Franklin Associates, 1993).

Yet with its direct focus on the UK and robust sets of quantified data, it was arguably the *Well Dressed?* report that benchmarked a new era for research in the UK into fashion and sustainability. The research findings brought sustainability issues closer to home. Unsustainable practices were not only happening offshore during fibre manufacture, garment production, and other processes; they were happening in the UK. And what was more: a substantial proportion of environmental impacts were occurring routinely and collectively in our homes, from the inconspicuous and everyday practices of washing and drying clothes. These discoveries made a significant case for re-examining laundry practices and consumption, and called for vastly greater efforts to reduce the impacts that result from clothes cleaning overall.

Following the *Well Dressed?* report momentum began to gather in the UK for research into fashion and sustainability. In 2007, the UK Government Department for Environment, Food and Rural Affairs (Defra) set up a project called *The Sustainable Clothing Roadmap* as an industry initiative involving over 300 stakeholders, including amongst others: businesses, NGO's and educators. The aim of the project was to improve the social and environmental footprint of clothing across its lifecycle. It took a predominately top down approach – aiming to drive sustainability initiatives down

through the industry. The first stage of the project reviewed existing literature, and one of the early outputs was the report *Mapping of Evidence on Sustainable Development Impacts that Occur in the Life Cycles of Clothing*. The report gave an outline of the overall social and environmental impact of the clothing lifecycle, together with existing interventions to reduce impact and further opportunities. The report mirrored similar environmental findings to preceding research. It highlighted again that the most consumption of energy occurs during the use stage of a garment's life cycle, with roughly two thirds of energy in this stage attributed to washing, and one third attributed to drying (Maden *et al.*, 2007:47). Yet the report also documented that most initiatives to improve the sustainability profile of the fashion industry are directed towards social issues, with some 79% of initiatives working to improve labour and trade conditions, while only 21% focus on improving the sectors environmental footprint (Maden *et al.*, 2007:32). And further, most initiatives that sought to reduce environmental damage focused on reducing impact from specific production processes, not use (Maden *et al.*, 2007:iv). This really highlighted the research gaps in relation to fashion, sustainability, garment laundry and use.

As the UK Sustainable Clothing Roadmap project developed, a number of 'action areas' were identified with potential for improvement and continued research. Given the scale of impact from laundering one of these action areas was 'clothes cleaning' and a task group was convened of people who made up a microcosm of the clothes cleaning supply chain as a whole. Insights from the task group were collated and subsequently in May 2009 Defra published the report *Reducing the Environmental Impact of Clothes Cleaning*. The report took a fact based lifecycle approach and aimed to identify and assess the most effective and practical options for stakeholders to reduce the

environmental impact of clothes cleaning (Bain *et al.*, 2009). It concentrated on areas for development mainly outside of consumer behaviour and concluded with a variety of mainly top down industry-aligned strategies to reduce impact. These strategies focused on specific processes, and included encouraging

- reduced washing temperatures at 30°C;
- broader use of compact detergents;
- line drying;
- acquisition of more efficient washing machines with increased spin speed to reduce drying burdens and increased control of cycle settings;
- research into the benefits of easy care textiles.

Subsequently, WRAP (2012:5) published a further report that identified laundry as one of five key areas in which there are opportunities to save money and resources for both businesses and users. They recommended: washing clothes less often, washing at lower temperatures, using larger wash loads and tumble drying less often.

In the UK these studies have added to a wider awareness in the fashion sector surrounding laundry and its associated environmental impacts. A common theme in these reports was that they placed resource consumption as the central issue to be addressed during laundry. Yet in doing so the research effectively discounted the applications of laundry beyond the immediacy of removing dirt and odour. This dominant approach for tackling environmental issues has been criticised in sociological fields for overlooking the services that practices such as laundry make possible and failing to observe that resource consumption is massively influenced by collective norms

and exists within changing sociotechnical systems which frame routines and habits (Shove, 2003). However, if laundry is understood as a socially constructed practice it is possible to begin unpacking the cultural, social and experiential needs that having clean looking and fresh smelling clothes facilitates. While these needs may not be immediately obvious and are largely invisible, they play no less an important role in influencing laundry behaviour and perpetuating patterns of resource consumption. In switching the lens of focus, different vantage points emerge for understanding how laundry practices emerge, exist and evolve. And in doing so, new directions begin to appear for promoting lower impact laundry practices. As said by Pantzar, Shove and Watson (2012:2) 'if the source of changed behaviour lies in the development of practices, understanding their emergence, persistence and disappearance is of the essence.'

1.3 Understanding laundry

Laundry is a mundane, habitual and highly routinized social practice. At the same time, it is an inconspicuous act of resource consumption that occurs in the private and domestic realm. As a collective activity, it annually uses up massive quantities of finite resources such as energy and water, and in the process, contributes towards greenhouse gas emissions, global warming and climate change. Beyond resource consumption, laundering can also be linked to solid and hazardous waste generation, air and water pollution including eutrophication, toxicity impacts and biodiversity loss (Bain *et al.*, 2009:6). However, this has not always been the case - the increase in environmental impact is largely consequential to the enormous rise in volumes of

clothes that are washed, and frequency at which they are washed. A report published by the Department of Energy and Climate Change shows that between 1970 and 2014 the amount of energy used to do the laundry has more than doubled (Goodright and Wilkes, 2015:9). While wearing freshly laundered clothing everyday is a relatively new phenomenon, it has rapidly become a social norm. As such, the average household in the UK now performs 284 wash cycles per year; equivalent to 5.5 cycles a week, and those with tumble dryers perform 260 drying loads per year (Owen, 2012:11). This acceleration in laundering routines does not reflect an increase in the amount of clothes that get dirty but rather, changes across a broad spectrum of social, technological and cultural areas where expectations and conventions have shifted.

Drawing on knowledge from other scholarly fields enables laundry to be understood in different contexts. For example in anthropological fields, laundry has been understood as a symbolic representation of social order (Douglas, 1984), a demonstration of female purity (Klepp, 2005), and a gendered and technologically innovative occupation (Moras and Shehan, 2006). With particular relevance to this research, borrowing from sociological theories helps to build a more complete understanding of laundry as a social practice, including how and why laundry routines evolve and transform. British Sociologist Elizabeth Shove makes a significant contribution to understanding laundry in her book *Comfort, Cleanliness and Convenience: The Social Organization of Normality*, published in 2003. The book brings together the sociology of consumption and technology, and explores the evolution of some environmentally significant, yet socially banal practices. Shove's (2003) explicit focus on the dynamics of habits and routines, and changes in normality, helps to explain why there has been an upsurge in washing frequency and volume, and helps to

demystify laundry behaviour. It highlights the complex cultural settings that laundry practices exist within, and places focus on elements of laundry practices that other research studies have not. Here it will be useful to briefly discuss how laundry can be understood from a social perspective to highlight how laundry practices are constructed.

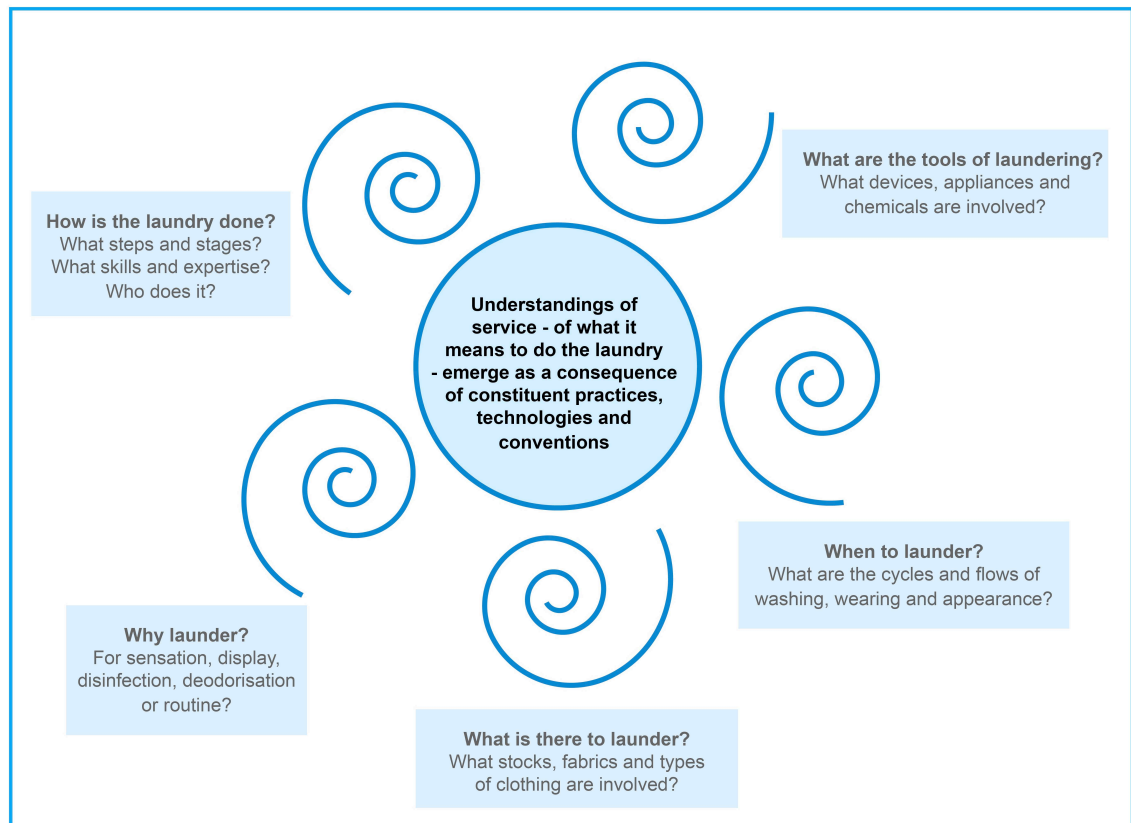
In discussing laundry, Shove begins 'backstage', exploring the backdrop of laundry and scrutinises it from different angles. She investigates why people wash, what they wash, and when and how they do it. Shove (2003:118) maintains that carrying out laundry is contingent to many different elements, and that these elements exist within the arrangement of various independent but related sociotechnical systems. In brief, she concludes that laundry can be conceptualised as a 'system of systems' and writes

I argue that meanings of washing well change as a result of interaction between the various elements and components involved (for example, fabrics, washing machines, detergents, reasons for washing, stocks of clothing and so forth). In other words, I take the enterprise of laundering to be a co-production involving those who do the washing, their values and ambitions, the conventions and standards of the day and the tools and technologies they use.

As shown below in Figure 1.1 and as illustrated by Shove (2003:134), central to this concept are understandings of what laundry is as a service, i.e. what appropriately clean clothing or properly laundered clothing is, and the processes by which it is achieved. Shove contends that this is not static but develops and changes as a consequence of surrounding co-dependent elements, for example the appliances and products available to do it, decisions on when to launder, modern conventions, types of clothes in use, volumes and stocks of clothes, the meanings it offers etc. The spirals in Figure 1 that

represent these elements show that answers develop interdependently at different speeds, and act to collectively influence how laundry is understood. These relationships will be discussed and further explored in chapter three.

Figure 1.1 A whirlpool model of laundry (Shove, 2003:134)



As I have discussed, when laundry is understood in a one-dimensional sense as a process for removing dirt and odour, strategies to reduce environmental impact overlook some of the major elements that shape laundry practices and influence laundry behaviour. In focusing exclusively on the consequences of laundering in terms of environmental impact, such as the consumption of finite resources, carbon emissions and their contribution towards global warming and climate change, attention bypasses the nuanced details of human behaviour and the reasons why laundry routines evolve

in environmentally significant (or insignificant) ways (Shove, 2003). Thus, the way in which laundry is conceptualised bears great influence over the tactics taken that seek to reduce impact, and by extension approaches towards design for sustainability.

Shove's understanding of laundry as a system of systems takes into account the core reasons for change by attending to what it means to have clean clothes, what tools are used for laundering, when laundry is done, what is laundered, and why and how laundry is done. From the perspective of a fashion designer, this is useful for understanding how laundry routines are constructed, and which elements act to influence and transform laundry practices. Further, it offers a framework to investigate how designers might design differently, in attempt to guide laundry practices towards more sustainable directions.

In this research I will interpret laundry as a social practice. Understanding laundry as a social practice offers the benefits of grasping the mechanisms behind laundry, and helps to make sense of the massive increases in domestic resource consumption over the past few decades (Goodright and Wilkes, 2015:9). It also redistributes attention between the structuring of laundry behaviour and routines, and environmental impacts. Bringing a social theory approach to consumption adds a layer of insight into how patterns of consumption develop, evolve and change. As said by Warde (2005) 'consumption occurs as items are appropriated in the course of engaging in particular practices.' Social theories therefore make a large contribution to the theoretical context of this thesis.

In considering ways to reduce the impact of clothes cleaning, Shove's 'system of systems' analysis highlights the lack of attention given to some of the core elements that influence laundry. For example, Defra's (2009) list of best options for reducing

impact focused mainly on promoting more efficient washing products and appliances (broader use of compact detergents and washing machines with increased spins speeds), and more efficient ways of doing laundry (reducing wash temperatures to 30°C and line drying rather than tumble drying), but did not address what is washed, when clothes are washed and why they are washed. This research addresses these gaps by focusing on what is washed (garments) in relation to when and how frequently laundry is carried out.

1.4 Sustainability, design and fashion

This research has been developed in context to the profound challenges and risks posed by climate change. Here I will briefly discuss these issues and the modern concept of sustainability that has emerged. Further, I will outline the connections between design and sustainability before focusing in on the field of fashion design and where this research is positioned within the field.

The anthropocene

We are living in period that has recently been described by scientists and scholars as an anthropocene era: an epoch defined by the alteration of the planet's climate and ecosystems caused by human activity (IPCC, 2014; Crutzen and Stoermer, 2000). The scale of impacts to land and atmosphere by human activity is colossal and the global environment has been significantly affected by the release of carbon dioxide emissions caused by the burning of fossil fuels to generate energy (Crutzen and Stoermer, 2000:17). The well-reported effects of a changing climate are devastating,

unpredictable and threatening to our ecosystems that sustain life (IPCC, 2014). As the global population continues to soar (United Nations, 2015), demand for energy, water and other environmentally significant resources will further intensify. At the same time, inequality gaps between wealthy countries in the economically developed world and poor countries in the developing world have broadened (Pickett and Wilkinson, 2009). Whilst environmental, social and economic shocks have become the norm they are also inextricably interrelated (The Rockefeller Foundation, 2014; Klein, 2014; Jackson, 2009).

Worldwide dialogues are taking place concerning these complex global challenges faced for environmental and societal sustainability. These discourses describe international efforts striving to achieve reductions in climate change and the associated risks. In December 2015, the United Nations Climate Change Conference (also known as COP21 or CMP11) negotiated the Paris Agreement in which the first ever universal and legally binding global climate deal was agreed between 195 countries (European Commission, 2015). The Paris Agreement is a global action plan which takes effect in 2020 and aims to limit global warming to below 2°C to avoid dangerous climate change (*ibid.*). Whilst the Paris Agreement benchmarks a significant turning point for collaborative international action on climate change, it is also criticised for not committing to firm actions and setting targets that are inadequate in relation to the scale of immediate and long term risks posed by climate change (Milman, 2015). What is clear from these on-going discussions is that transition and adaption to a low carbon economy with minimal output of greenhouse gas emissions is critical.

Sustainability

Sustainability is a complex and multifaceted concept that has been discussed in different periods, contexts and across different areas of study. Here I will briefly discuss the evolution of the term as well as its use and meaning in contemporary literature and debate in response to the current anthropocene era. Caradonna (2014) discusses the origins of the concept tracing it back to the late 17th century in response to developing sustainable yield forestry. Whilst still a marginal idea, it developed as a concept during the Industrial Revolution, but it wasn't until the latter half of the 20th century (1970s) that sustainability developed as a more mainstream environmental programme with core elements including social, environmental and economical concerns (*ibid.*). Today, one of the most widely cited definitions of sustainability is that offered by the Brundtland Commission Report 'Our Common Future'. It describes sustainability as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987:41). Other definitions of sustainability have been more explicit, for example the 2005 World Summit on Social Development recognised three goals for sustainable development: economic development, social development and environmental protection (United Nations, 2005). These elements, described as independent yet mutually reinforcing (*ibid.*), are often referred to as the 'three pillars of sustainability' and have been reduced down to 'people, planet and profit'.

However, these definitions have been criticised because their meaning is easily reconstructed to support short-term business interests whilst the long-term ecological and environmental challenges are circumvented (Ehrenfeld and Hoffman, 2013:19-24). Many argue that it is the current growth based economic paradigm that is causing

environmental exploitation and which needs to be structurally challenged (Purdy, 2015; Jackson, 2009; Guattari, 1989; Schumacher, 1973). Whilst the 'Our Common Future' report offers a definition of sustainability and outlines many environmental and social problems, it does not challenge the dominant economic model that is criticised for creating the problems (Ehrenfeld and Hoffman, 2013:19-24). Jackson (2009) explicitly argues that the dominant neoliberal economic paradigm that supports growth, expansion and profit is underpinning many of our sustainability challenges. He discusses the quality of prosperity and how the notion of rising prosperity has become synonymous with economic growth. Yet Jackson (*ibid.* p13-16) states that continued growth is impossible as we live on a finite planet with physical limits to resources and fragile ecosystems on which we depend on for survival. He believes that we need to radically restructure our economic model based on the reality of a finite planet with rapidly depleting resources. He states (*ibid.* p.16) 'Prosperity consists in our ability to flourish as human beings – within the ecological limits of a finite planet. The challenge for our society is to create the conditions under which this is possible. It is the most urgent task of our times.'

Following a similar trajectory, Ehrenfeld and Hoffman (2013:7) offer a definition of sustainability as *sustainability-as-flourishing* - 'the possibility that humans and other life will flourish on the Earth forever'. Here sustainability is not understood as a fixed state or end goal but rather as an on-going process and property of a system. On an individual level it requires shifting from a state of 'having' to a state of 'being' and on a systemic level it challenges how we understand and position ourselves in relation to nature (*ibid.*). To recognise and work towards sustainability-as-flourishing requires developing new values beyond economic growth and material based consumption

(*ibid.*). This requires a radical and systemic restructuring in economic and social models that can work safely and healthily within natural systems. Whilst questioning economic growth is still largely considered subversive, or in the words of Jackson (2009:14) ‘...deemed to be the act of lunatics, idealists and revolutionaries’, research is being carried out into what alternative contemporary economies could look like, i.e. post-growth and circular economies (Cooper, *et al.*, 2015).

Design for sustainability

Design for sustainability is an area of contemporary research and practice that has emerged in response to the profound environmental, social and economic challenges that humanity faces. It spans a huge array of disciplines, activities and methods and has become significantly more relevant as the sustainability agenda has become recognised. Prior to 1970 there is no record of any books published in English containing the words ‘sustainable’ or ‘sustainability’ in their titles, yet since 1980 the amount of books that directly deal with sustainability and design for sustainability has proliferated (Caradonna, 2015:2).

The activity of designing, as understood within the remits of traditional design professions, is a process of inventive thinking and planning to create a product or service. Walker (2006:1) describes this as ‘... a creative stage in which the designer seeks to apply general, abstract ideas in the process of developing specific, defined artefacts.’ Papanek (1985:151) states, ‘The most important ability that a designer can bring to his work is the ability to recognize, isolate, define, and solve problems.’ Increasingly, design is being advocated as an instrumental activity in attempts to move towards a state of sustainability. As contributions to the field of design for

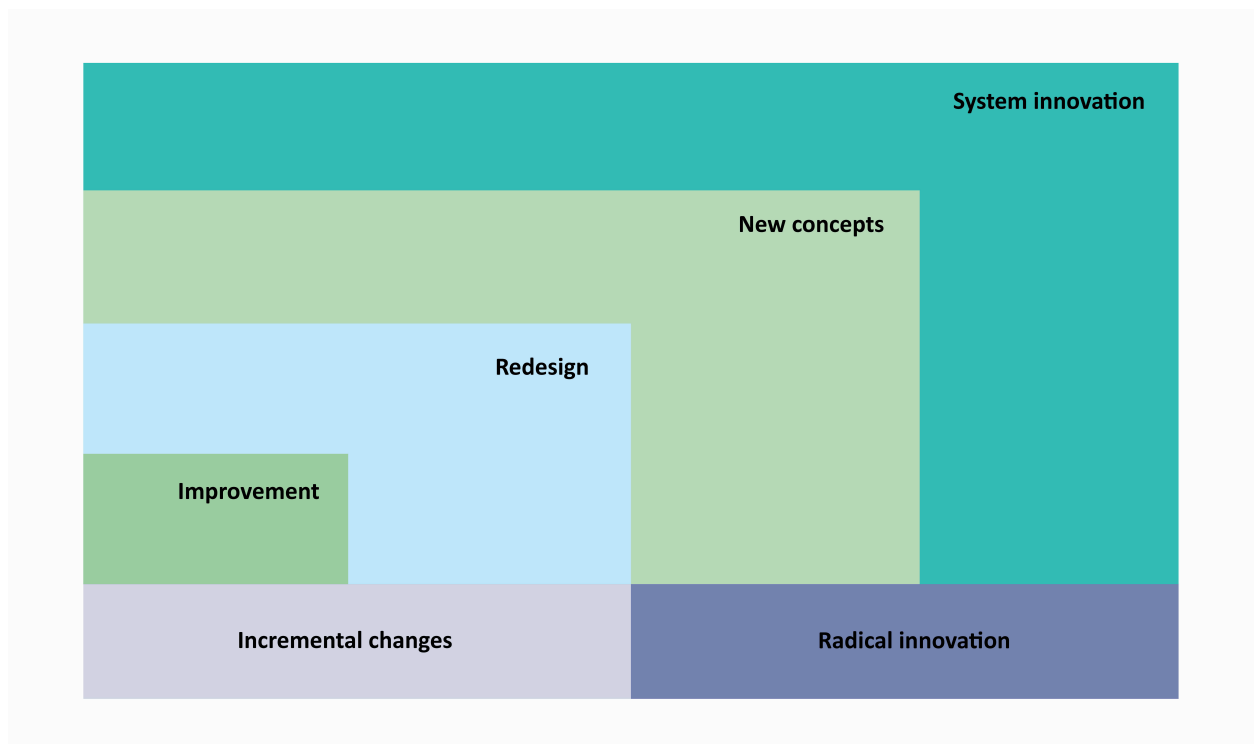
sustainability have surged, its theoretical and philosophical foundations have strengthened (Fletcher and Tham, 2015; Walker and Giard, 2013; Ehrenfeld, 2008; Bhamra and Lofthouse, 2007; Chapman and Gant, 2007; Thorpe, 2007; Walker, 2006). Thorpe (2007:13) describes sustainable design as 'theories and practices for design that cultivate ecological, economic, and cultural conditions that will support human well-being indefinitely'. Expanding on this, Walker and Giard (2013:5) describe design for sustainability as 'an endeavour that calls upon human activity to imagine, conceptualize, visualize, and effectively communicate alternative pathways for living meaningful lives while consuming far less in terms of energy and material'. Ehrenfeld (2008:73) offers an understanding of the functions of design for sustainability as, 'design is a process in which new action-producing structures are created and substituted for old ones such that routine acts change from the old, ineffective patterns to new ones that produce the desired outcomes'. In this context, Ehrenfeld describes design as tactic not for designing temporary fixes to problems, but for designing new systems that change the context that the problems exists within, thus 'dissolving' the origin of the problem. He explains, 'Here the actors take a course that changes the context (that is, the underlying system creating the problem) such that the problem disappears' (*Ibid.* p72).

Approaches to design for sustainability

I will continue this discussion looking at further theories and approaches to design and sustainability and then focus in on research and contributions that are more specific to fashion design. Bhamra, Hernandez and Mawle (2013) offer a broad overview of approaches and methods to design for sustainability and will provide a good starting point for this discussion. They describe design for sustainability as 'design with the

intention to achieve sustainable outputs', which should be realised as a systemic idea where all the life cycle stages of a product, service or system are taken into account during the design process (*ibid*, p.106). Following this definition, they offer four key approaches to design for sustainability, as illustrated in figure 1.2. These four approaches fall within the two broader categories of incremental changes and radical innovation.

Figure 1.2 Approaches to design for sustainability (Bhamra, Hernandez and Mawle, 2013:107)



To briefly summarise these approaches, *incremental changes through improvement* refer to changes or interventions in design which result in outputs with enhanced environmental and social performance of products, services and systems (*ibid*. p.107-108). For example, this includes the implementation of environmental and social regulations. In relation to laundry such an approach includes modification in the design of washing machines to reduce energy consumption, such as: shorter wash cycles, more

options for low temperature cycles and inverter control or direct drive motor which improves energy efficiency within the machine. Such approaches are often communicated to the user through energy or eco-labelling (*ibid.* p.109).

Moving up through the scale of approaches, *incremental changes through redesign* is more closely related to product life cycles where a product is initially assessed through examining each life cycle phase including: material extraction, production, assembly, distribution, use, end of life or reuse. Once a product, service or system has been evaluated, the phases in the life cycle that has the greatest negative impacts can then be identified (*ibid.* p.111). In the case of this research and as discussed in section 1.2 of this chapter, laundry practices have been widely evidenced as one of the most environmentally damaging stages in a garment life cycle (Hansen, *et al.*, 2007; Allwood, *et al.*, 2006). As such, the preliminary work for this doctoral enquiry can be described as incremental changes through redesign and will be discussed further in the next section of this chapter.

The third approach to design for sustainability that Bhamra, Hernandez and Mawle (2013:113-115) outline is *radical innovation through new concepts*. This approach moves beyond redesign and probes deeper into social realms to explore alternative ways in which needs can be met and involves developing entirely new concepts for products, services and systems. It requires designers to move more fluidly between disciplines and engage in more collaborative approaches towards design. It also raises questions about the ownership of goods and how products deliver value. For laundry, radical innovation through new concepts could relate to alternative cleaning methods that circumvent the use of traditional washing machines. Examples of this include ozone cleaning systems and polymer bead cleaning systems. Both cleaning

systems use significantly less water, energy and detergent than traditional washing machines. For example, ozone is a process that is activated in cold water and carries an electrical and chemical charge that dissolves dirt and kills bacteria. It has superior cleaning power to traditional washing machines which allows significantly less detergent usage and reduces the number of rinses required, thus saving on both energy and water. (Cardis, *et al.*, 2007). Whilst not in domestic use, these processes are currently used for industrial and professional cleaning.

The final and most innovative approach outlined to design for sustainability is *radical innovation through system innovation* (Bhamra, Hernandez and Mawle, 2013:115-117). Here design takes on a more integrated role within society and seeks to develop new ways of living and the alternative use of goods and services that transcends the current economic model of production and consumption, as discussed earlier in this section of the chapter. One example of this approach is product service systems (PSS), in which needs are taken as a basis of innovation to reimagine ways of meeting needs based on different variations of products, services and systems (*ibid.*). Whilst to achieve this type of innovation requires changes in sociotechnical systems, behaviours and values (*ibid.*) it also has the potential to move us closer towards a state of *sustainability-as-flourishing* (Ehrenfeld, 2008:73).

Fashion and sustainability

Fashion design is not excluded from the field of design for sustainability. As discussed in section 1.2 of this chapter the past decade has seen a growing body of research focused on understanding the environmental and social impacts of the fashion and textiles sector. Black and Root (2013: 519) list some major focus areas for fashion based

research in this area as: ethical business practice, labour conditions, material extraction, methods of production, global sourcing, resource consumption, (short) garment life cycles, material waste, design functions and the wider economic and cultural contexts in which fashion is understood. Centre for Sustainable Fashion (2009) further describe a series of themes for adaption towards a more sustainable fashion sector which include:

- Focus on transformation of the fashion system through: renewed debates concerning the values and goals of the sector, recognising and nurturing the power of design, collaboration and information sharing;
- Focus on human well being through: recognising cultural and social needs that fashion meets, prioritising well-being being in the supply chain, centering education on sustainability;
- Working within natural limits through: promoting supply chain transparency, developing measures and standards, working in new ways and factoring in true costs of production which have previously been absorbed in the supply chain.

Responses to these issues and themes from designers, researchers and industry have been varied spanning through the scale outlined by Bhamra, Hernandez and Mawle, (2013:107), from incremental changes to radical innovation. Whilst it is easier for larger fashion businesses and industry to work at the lower end of the scale within incremental changes, other researchers and practitioners have begun to work within the remit of radical innovation. For example, at the level of incremental change fashion businesses and industry suppliers are working with supply chain audit companies to increase the traceability and transparency of their products and production processes.

External audit companies such as Bluesign work with clothing brands such as Nike and Puma to reinforce chemical and resource standards for environmentally responsible textiles production (Bluesign, 2003). Other initiatives such as M&S's Plan A (launched in 2007) take a more integrated approach where their sustainability strategy incorporates responsible sourcing as well as reducing waste and helping communities. To help them do this Plan A outlines 100 commitments (Marks and Spencer plc, 2015).

Moving to the level of radical innovation, fashion researchers and practitioners are developing more innovative approaches for working towards sustainability in fashion. Fletcher and Grose (2012:74) emphasis the necessity of engaging with the contexts that frame unsustainable practices in order to bring about lasting change. They explain that efforts to promote sustainability in fashion are curbed by the standardised framework of the fashion sector (production systems and business models), and normalised patterns of consumer-user behaviour. They explore ideas for designing clothes 'that moves beyond minimizing the problems of unsustainability to also create (design) conditions for a new fashion system where the problems disappear altogether', and further suggest, 'Meeting this potential requires designers to think in terms of platforms that change paradigms rather than products and processes' (Fletcher and Grose, 2012:180).

Indeed, research into different contexts for fashion and alternative economies that transcend the traditional production and consumption relationship is growing. For example, the 2015 Product Lifetimes and the Environment (PLATE) conference at Nottingham Trent University saw a stream of research exploring product life times in fashion (as well as other disciplines) as contributions in the debate towards resource flows, low carbon strategies and circular economies (Cooper, *et al.*, 2015). Further, the

MISTRA Future Fashion Project, initiated by the Swedish Foundation for Strategic Environmental Research and facilitated by Textiles Environment Design (TED) also explores processes to support Swedish business in creating systemic change and progression towards circular economies for materials and products in fashion (Mistra Future Fashion, 2015).

1.5 Preliminary research

As I have discussed, the work I undertook on my MA acted as preliminary work for this doctoral investigation. In this section it will be useful to briefly summarise this work and describe how it forms the starting point for this doctoral enquiry.

The research began with a project that explored which types of garments are washed less frequently than others. To achieve this, I designed a small-scale survey to collect fifty photographs of low wash garments, described in the survey as 'regularly worn but least laundered' items of clothing. The survey resulted in a photographic catalogue of fifty low wash garments. Whilst the survey was opportunistic, the findings suggested that none of the garments had been intentionally designed as low wash garments, yet certain characteristics present in the garments induced low wash patterns of behaviour. The garment photographs were examined collectively and some common characteristics emerged amongst the set. Some of these were design based, and some reflected how the garments were used and their function. Many of the garments combined not one, but a variety of common characteristics (Rigby, 2010). The seven most common characteristics were compiled into a list, as described in figure 1.3 below.

I hypothesised that through working with the design characteristics uncovered, it may be possible to intentionally design clothes to motivate changes in laundry behaviour, and in doing so, design could be used as a point of intervention to encourage lower impact laundry behaviour.

Figure 1.3 Common characteristics amongst low wash garments (adapted from Rigby, 2010)

| Theme | Characteristics |
|----------------------------|--|
| Fibre type and qualities | 68% of the garments were made from cotton or wool, or cotton mixes or wool mixes |
| Opening details | Many of the garments had a centre front opening, or could be easily removed |
| Colour | The majority of garments were dark in colour |
| Required laundering method | Many of the garments were not suitable for machine washing |
| Use and function | The garments were worn for specific uses and had certain functions |
| Positioning on the body | Many of the garments were not worn in direct contact with skin, or layered over other garments |
| Fit of garment | Many participants described 'fit' of the garment as the reason why it was seldom laundered |

These results inspired further design practice in my MA that went about translating the themes present amongst the low wash garments into ideas for design, and thus using

the design process as tactic for problem solving. This approach expanded the remit of design, where the focus moved beyond the process of designing garments, to the process of designing to facilitate a result: lower impact laundry practices. Fletcher (2008:86) discusses this approach as *functional innovation*; a method of working that takes design processes out of the immediate equation and attends to the production of 'results with fewer resources'. In this way, design is viewed as part of a process towards the larger goal of sustainability.

The idea of using design to intervene in laundry routines was first explored in response to escalating resource consumption in 2003 by Fletcher and Earley in the 5 Ways Project (Earley and Fletcher, 2003). They developed the No Wash top, which was designed to never be laundered and responded to laundry as a cultural convention and also as a process of high energy consumption. Its design was inspired by the results of a 6-month laundry diary that found key motivators to launder were underarm odours and dirt of cuffs, elbows and front panels. The top featured areas that could be wiped clean and extra underarm ventilation. The aesthetic intended the wearer to embrace dirt as part of the garment's history and enabled the user to literally wear dirt 'like a badge'. The No Wash top conceptualised a design idea for sustainability, and challenged notions of cleanliness and 'appropriately' clean clothing.

Building on this, I also centred my research on the notion of low wash clothes. The idea was to develop concepts for clothes, which delayed their washing and encouraged more conscientious washing behaviour. Designing for low wash clothes expanded the parameters for potential design strategies and further acknowledged the functions of laundry as a culturally, socially and also economically significant part of day-to-day life.

During my MA, to develop a better understanding of washing behaviour and motivators to launder (and not launder), I set up a series of semi-structured interviews (Rigby, 2010). The participants were chosen from the low wash garment survey and asked to bring with them their low wash garment to discuss further. The conversations began with a discussion about the participants' general laundry habits and then focused in on common motivators for washing clothes such as cleanliness, appearance of garments and odours, and the methods and processes for washing. Some participants struggled to explain why they felt it was important to wash clothes, but gave examples of how and why some garments were laundered differently to others. One participant explained that she washed most of her clothes after every wear as a matter of routine. This was normal for her, and she stated

I absolutely love to do my laundry. It makes me feel good to clean things, and not just laundry; I love cleaning the house and my bedroom because it cleans my head when everything else is clean. If I have laundry on my mind and I know I have to clean then I can't stand to have a pile of dirty laundry around me, it's more mental.

Yet the same participant also described a particular skirt that she owned which completely broke away from her normal washing routine. The design of the skirt (material and colour) played an important role in breaking this routine, and contributed to the low wash profile of the skirt. She stated

I don't wash them as often as other garments because this skirt is dry-clean only, but not only that the reason I don't wash it that often is because it doesn't need to be cleaned as often. The fabrics are sturdy and durable and they are black so they don't get dirty, and you can just get a lot of wear without looking a state. I think sometimes I even go five months without washing it and I wear it a lot.

Many similar stories emerged in the conversations, suggesting that certain design elements can pivot the frequency in which particular garments are cleaned. While it is clear that laundry routines are influenced by a whole host of factors, the evidence suggested there was a strong case for developing a design strategy to enhance low wash design characteristics (*ibid.*). The findings from the semi-structured interviews acted to further substantiate and develop themes on which a tentative design strategy could be based.

My MA culminated in a design project that suggested designs for low wash clothes. These designs were demonstrated in a range of eight garments, as visualised in figure 1.4, and which were collectively based around the themes identified in low wash garments. Each garment had washing instructions printed on the external material to emphasise the low wash concept.

Moving forward

I realised that to move forward with the idea of low wash garments required developing an expanded and more complete understanding of laundry behaviour, and significantly, ascertaining to what extent design influences the frequency and processes of laundry. From this starting point, this doctoral enquiry focuses on the relationship between garment design and laundry behaviour. It approaches laundry from a social perspective to help make sense of why routines change and how laundry behaviour develops in environmentally provocative ways. As will be discussed in chapter two and four, the garment designs developed during my MA formed part of a one-year laundry study carried out in this research.

Figure 1.4 Low wash garment designs

| Description | Garment made |
|--|---|
| <p>A cream three quarter length sleeve top made from merino wool jersey for everyday use, designed to be more odour resistant than conventional jersey materials such as cotton, cool machine wash or hand wash.</p> |  |
| <p>A navy blue sleeveless shirt with a centre front opening made from waxed cotton, dirt resistant and designed for versatile everyday and occasion use, sponge clean only.</p> |  |
| <p>A black skirt short in length with a concealed pocket and elasticated waistband, made from wool tweed and lining with silk habotai, designed for everyday use, hand wash only.</p> |  |
| <p>A black three quarter length dress with cotton funnel neck, made from duchess silk satin and lining with silk habotai, low cut underarm and designed for formal and occasional use, dry clean only.</p> |  |

| | |
|---|---|
| <p>A navy blue and black wrap around cardigan made from boiled wool jersey with a ribbon made from duchess silk satin, raglan sleeves, designed for comfort and informal use, hand wash only.</p> |  |
| <p>A navy blue apron with adjustable popper fastening, made from wax cotton, designed for protective wear and as a fashion piece, sponge clean only.</p> |  |
| <p>A pair of navy blue trousers, dropped crotch point and relaxed fit on waist, made from merino wool serge and half silk habotai lining, designed for smart and casual wear, hand wash only.</p> |  |
| <p>A chunky cream hand knit tank top made from soft Wensleydale wool, for everyday use, low cut under the arms and designed to be sturdy, loose fitting and breathable, hand wash only.</p> |  |

1.6 Aims and objectives

The two key aims of this research are:

- to critically examine garment design in relationship to laundry practices and resource consumption
- to identify methods and creative opportunities for designers to respond to and engage with laundry practices in ways that reduce environmental impacts. This second aim will provide broader lessons to inform new design knowledge to contribute towards understanding and developing fashion in support of sustainability goals.

To meet these aims the following objectives were set:

- to survey the use and laundering of garments in relation to their design. Eight garments that each incorporate specific design characteristics that aim to deter laundry impulses, developed in a previous research project, were surveyed for their use and laundering during a twelve-month laundry study
- to assess to what extent garment design influenced the evolution of laundry practices, both historically and within the research carried out in this doctoral enquiry
- to situate the role of design amongst other elements that define laundering practices and influence laundry behaviour
- to use social practice theory to explore alternative approaches to sustainable design theory and practice in the wider field of fashion design.

Research questions

The five key questions that this research seeks to answer are:

- To what extent does the design of clothing influence laundry practices?
- What part has the design of clothing played in the evolution and development of laundry practices?
- In which ways could design be used to rearrange laundry practices and create conditions for less resource intensive laundry practices to develop?
- How can social practice theory be used to help develop different directions for sustainable design theory and practice in the field of fashion design?
- How does this research contribute towards ways of understanding, developing, practicing and teaching fashion in support of sustainability goals?

Thesis in outline

Chapters 1 and 2 set the scene for this research study. They identify the context and focus of this enquiry, offer a summary of the challenges that this research responds to and methods in which this is done. More specifically, in chapter 2 I discuss the methodological and theoretical approach taken, and provide a rationale for using a practice theory approach which offers a distinctly social orientation to the thesis, research and conclusions for design.

In chapters 3 and 4 I investigate laundry practices in depth. In chapter 3 I provide a historical narrative of clothes cleaning to explore how laundry practices have evolved and developed throughout history and the elements that have contributed towards some of the major changes. In chapter 4 I describe the laundry practices

recorded in the one-year laundry study carried in this research and discuss key themes that emerged to influence the way clothes were worn and washed during the year.

Chapters 5 and 6 build on the investigatory work undertaken in chapter 3 and 4 and I develop a theoretical platform from which to explore and suggest new approaches to the study of sustainability in fashion design. I outline a set of design provocations that highlight elements of laundry practices and possible points of intervention in which design could be used to challenge the way in which laundry practices are structured.

Chapter 7 is reflective and provides a discussion and set of conclusions for the research overall. It outlines key findings and summarises the contribution to knowledge that this research makes to the field of fashion design for sustainability.

Thesis structure

The four main sections of this thesis include: setting the scene, investigation, incitement and reflection, as illustrated in figure 1.5

Figure 1.5 Thesis structure



CHAPTER TWO

Methodology and theoretical approach

Introduction

Research methodology

Considerations for sustainable design

Theoretical approach

Research design

Conclusion

2.1 Introduction

In this research I set out to explore to what extent the design of a garment influences the user's washing behaviour; i.e. how and how often a garment is laundered. To meet this aim, I employed a range of research methods to examine the mundane details of washing routines, and to probe for non-obvious connections between the design of a garment and the user's every day washing habits. As such, this research draws into focus the relationship between the materiality of garments and the behavioural aspects of laundering.

It is worth noting here that my research methodology developed as the research activities were carried out and analysed. I began to realise through my preliminary research findings that laundry behaviours were complex, erratic and unpredictable. There is a huge degree of variability in why people launder certain garments that is often not directly linked to producing 'clean' clothes. I found that the background motivators to launder clothes were difficult to pin down and articulate. People were not directly conscious of what motivated their laundry decisions beyond their immediate environment and further, behaviours seemed to be post-rationalised. These early findings starkly suggested that the relationship between what people wash and why they wash, is anything but linear. And thus garment design and laundry behaviour share a turbulent relationship. Designing clothes that require cleaning less often is a haphazard approach for sustainability goals in fashion if laundry routines are underpinned by factors other than the physical condition of a garment.

This realisation expanded the focus of the study, shifting away from the reasons why people launder clothing, to what people gain from laundering, besides from 'cleaner'

clothing. This shift immediately broadened the scope of this doctoral enquiry, from design and user behaviour, towards the wider real world conditions that inform social behaviour and practices. Within this dynamic, I needed to find a way to re-contextualise design in relation to these broader issues. I began searching for ways to draw from this complicated scenario and to move forward in new directions with design and theory.

It became apparent that my research approach and methodology needed to unfold in a way that was reflective and responsive to this shifted understanding. It needed to allow space for turning corners and exploring laundering (and sustainability) through different contact points. The potential for design and innovation for laundry and sustainability goals rested in a new conceptualisation of the relationship between design, behaviour and use, and design practice and theory. Yet I was unsure how to go about exploring this within the parameters of traditional design and practice based methodologies.

To move forward, I decided to take a multidisciplinary approach, drawing from practice theory (a subtype of cultural theory) to analyse behaviour, actions and social practices. My intention was to use this approach to help me re-contextualise the dynamics between design and laundry behaviour, theory and practice, and sustainability. I anticipated that this would be challenging, but also necessary for breaking through theoretical barriers imposed by existing approaches for design for sustainability. I have discussed this further on in the chapter, drawing from Kate Fletcher's paper 'Durability, Fashion, Sustainability: the Processes and Practices of Use' (2012).

I envisioned that carrying out this research would be useful for evaluating new approaches for design for sustainability, decentring material products and bringing human actions, patterns of use, behaviour and sociality into the foreground. I expected that the outcomes of this research would be relevant to fashion researchers and academics with interest in design strategies for sustainability, and particularly those with an interest in the relationship between garment use, laundry and resource consumption.

This chapter begins by outlining how research can be conducted through practice, and how this research can be considered as practice-led. It details the flow and exchange between theory and practice, and describes how practice is harnessed as a form of social enquiry to explore the relationship between garment design and laundering behaviour. This chapter continues to describe some of the methodological challenges for design and sustainability. It then turns to discuss the principles of practice theory, and how practice theory provides a useful theoretical lens to rethink the relationship between laundering and resource consumption, how laundry practices are organised and the implications for design. Finally, this chapter lays out the overall research design employed. Further details of individual research methods are discussed in chapter four.

2.2 Research methodology

This research can be located within the tradition of the Arts, as a subset of the Humanities (Archer, 1995). The key primary research activities in this enquiry include a one-year laundry study involving sixteen participants, two semi-structured discussion

groups and an experimental garment laundry survey, which are discussed in chapter four. The findings from these activities are reflected on in chapters four and five and used as a basis to develop a set of design provocations for sustainable design, which are outlined in chapter six. The overall research design is discussed at the end of this chapter.

The exchange between design practice and theory acts as an essential process in this research methodology. Before further discussing the design of this methodology, and the rationale for using it, I will first describe the form that creative practice takes within this research, and how it can be substantiated as a research activity. As outlined, this research focuses on the relationship between garment design and laundering behaviour. In order to do this, a range of different garments was produced for surveying in a one-year laundry study. The design of these garments were based on creative design practice undertaken in the preliminary research, outlined in the introduction and conducted prior to this doctoral enquiry. I was both the designer and the maker of these garments (in the preliminary study, and during this research). Thus, a body of practical design work was produced to lead this research enquiry. Such an approach is often referred to as practice-led research. I will continue with a discussion about how practical activity can be defined and understood as research, how it can be substantiated as a mode of inquiry, and how this research aligns with a practice-led approach.

Research through practice

The relationship between creative practice and research has been subject to some debate, largely orientated around how practitioner activity can be validated as research.

To add some clarity to the discussion, in 1993 Christopher Frayling outlined a three-pronged approach to research through art and practice, derived from Herbert Read (Frayling, 1993:5). He suggested that: research could be done *into (or about)* practice, research could be done *through* practice or research could be done *for* practice. Later, in 1995, Bruce Archer developed the three-part discussion on which forms of creative practice, and under which circumstances, they can qualify as research.

Building on the three-part scheme, Archer (1995) suggested that the different approaches to research and practice could be defined by how the practitioner activity relates to the research enquiry. Research *about* practice involves investigation of the working methods and theoretical perspectives of other practitioners. It may involve, for example, researching the history of art or design. Research *for* practice involves investigation for expanding or developing practitioner activity, and aims to advance other practitioner methods or materials. Research *through* practice involves using practice for investigation, and as Archer (*ibid.*, p.11) explains, is widely employed within agriculture, education, engineering, medicine and business. For any of these approaches to be considered as academic research, Archer (*ibid.*, p.10) states that they must follow the basic premise that, 'research is a systematic enquiry whose goal is communicable knowledge'. Each approach must be legitimised through observing the relevant research tradition that the enquiry is located within.

To illustrate how creative practice within research can be substantiated, Archer discusses the functions of two dominant research traditions - the Sciences and the Humanities. He refers to a post-Popperian view of scientific research derived from Karl Poppers critique of the traditional scientific approach. This method emphasises an open-minded and broad approach to conjecture at the start of research, an objective,

empirical and inductive approach to analysis, and on conclusion a sturdy position against refutation. In comparison, the Arts, as a subset of the Humanities, takes a mainly subjective stance based within differing frameworks of values. The rationale behind arts based research hinges on the ideology of the investigator, and thus must be declared within a theoretical position to provide grounding for its logic, and to be understood and recognised by others (*ibid.*, p.6-10).

Research *about* practice can be conducted within various disciplines that may coincide with categories of the Humanities or the Sciences. The same applies to research *for* practice. For both of these approaches, Archer states that so long as the research is conducted according to the principles of its field, they can be validated as research. However, when research is carried out *through* practice, Archer describes a more involved relationship between research and practice. He states, 'There are circumstances where the best or only way to shed light on a proposition, a principle, a material, a process or a function is to attempt to construct something, or to enact something, calculated to explore, embody or test it' (*ibid.*, p.11).

The circumstances that Archer describes to characterise research through practice share similarities to the role that practice takes within this research. Enquiry is led through practice, and is surveyed through people in context to everyday life in the 'real world'. Practical work, in the form of garments, is used to gain insights into user laundry behaviours associated with specific design characteristics. Thus, I will use Archer's account of research through practice to qualify the role that practice takes as a research activity within this doctoral enquiry. However, it is prudent to mention that there is a caveat associated with research through practice, which is also relevant to this research. While research through practice must adhere to accepted frameworks of

research, there is one defining feature that distinguishes it from other categories of research. In most science traditions, the enquiry process does not influence the phenomenon under investigation; the investigator remains objective to avoid biasing the analysis. When research is carried out through practice, the investigator is consciously involved with the phenomenon being studied, and takes action 'in and on the real world' in order to test hypotheses and further understanding (*ibid.*, p.11).

Consequently, the research through practice enquiry is almost always subjective and situation specific, and calls for a degree of caution when validating. Archer (*ibid.*, p.11-12) explains that situation specific enquiry affects the extent to which the research findings can be generalised. Thus, research through practice must be carefully contextualised and the findings can only be validated by the extent to which findings can be generalised. While this requires an additional level of theoretical rigour from the investigator or practitioner, Archer (*ibid.*, p.12) suggests that research through practice can lead to valuable and unique insights, which can provide novel hypotheses for testing in more generalizable research conditions.

Both limitations and advantages of research through practice have implications for how this research can be validated. For example, the research may provide novel insights and hypotheses for sustainable design, which could be further generalised through subsequent research studies, but the direct findings and analysis of the practice-led activity will always remain specific to the circumstances of the study. I will further discuss the extent to which this research can be generalised in the next section of this chapter and again in chapter seven, but for now, it is sufficient to conclude that the practical led activity carried out in this doctoral enquiry qualifies as research activity, providing that it adheres to the criteria of research, which according to Archer

(*ibid.*, p.13), must be ‘knowledge directed, systematically conducted, unambiguously expressed. Its data and methods must be transparent and its knowledge and outcome transmissible.’ Now that a rationale has been provided for research through practice, I will further discuss how this research can be described as practice-led, and explain how practice is used to generate both tacit and explicit outcomes.

Practice-Led Research

Practice-led research has emerged as an increasingly common mode of enquiry, especially within the Arts. The roots of practice-led research stem from what Archer (*ibid.*) describes as research through practice, and it shares similar requirements for validation, though has developed as a mode of enquiry within its own right with various defining characteristics. It is worth considering these characteristics and how this research aligns.

In 2007, Mottram, Rust and Till were commissioned by the Arts and Humanities Research Council to map the landscape of practice-led research in Art, Design and Architecture (ADA), and consider the questions that arose from it. They found that there was a great variety in meaning that can be deduced from practice-led research, depending on discipline, location, person and the nature of the enquiry (*ibid.*, p.10). Consequently, they found that existing definitions of practice-led research were somewhat vague and did not clearly represent practice-led research activity. In an attempt to provide a more accurate definition, they offered a basic understanding of practice-led research as, ‘research in which the professional and/ or creative practices of art, design or architecture play an instrumental part in the inquiry’ (*ibid.*, p.11). A key feature of practice-led research is that the knowledge and understanding associated

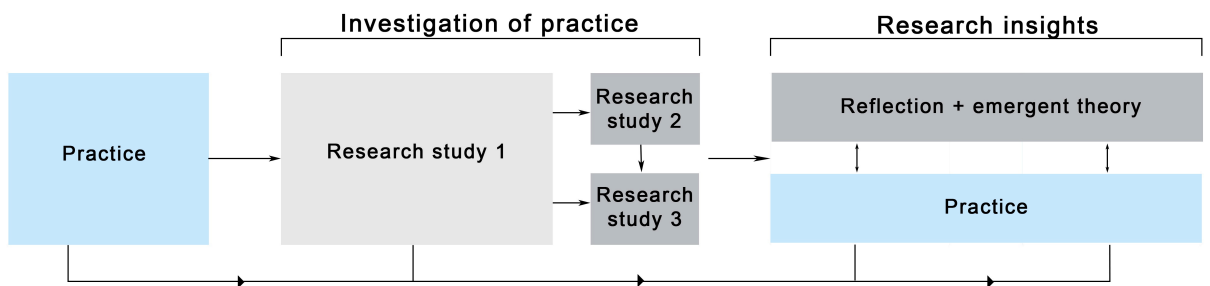
with and/ or derived from the creative practice, is more significant than the creative practice itself (*ibid.*, p.12). Therefore, when practice is employed as research, there must be an explicit understanding of how the practice contributes to the enquiry, and thus practice-led research can be distinguished through that explicit understanding (*ibid.*, p.11). As such, a central issue for practice-led research within design, and more specifically within this research methodology, is how knowledge and understanding is elicited from practice, and how interpretations are rationalised and appropriated. It is therefore important that I describe the flow and exchange between creative practice and theory, and the contribution that practice makes to this research enquiry.

In this research structure, creative practice manifests in two phases, as illustrated in figure 2.1. In the first phase, sixteen garments are made (the designs of these garments were developed in previous research as discussed in chapter one) and surveyed during a one-year laundry study involving sixteen research participants. In this initial study, the garments are an essential part of the enquiry, acting as probes to investigate use and washing behaviours that are prompted with particular garment types and designs. As is typical with practice-led research, and noted earlier by Archer, this is a situation specific enquiry, and thus the use and washing behaviours recorded during the study are unique to the participants and garments involved. Insights from the study are reflected from the participants' individual practices; their routines, preferences, motivations, background understanding, emotional states and 'ways of doing', in context with their everyday life. These insights feed back into the research design to inform two further clusters of research – two semi structured discussion groups and an experimental laundry survey. In this sense, there is a reciprocal relationship between the practical and theoretical elements of the research, where

exchanges take place between the knowledge embodied in the garments' design, the specific washing behaviours associated with each participant and garment, and the accumulated insights elicited from the studies. The second phase of creative practice takes the form of a set of design provocations which are informed through reflection and emergent theory, and adds another component to the research design, offering an interpretive reconstruction of the knowledge generated.

The practical components of this research afford specific insights into patterns of use and laundry behaviours. It is through this explicit exchange that practice contributes to this enquiry, and thus can be validated as practice-led research. This relationship is visualised below in figure 2.1.

Figure 2.1 Practice-led research



2.3 Considerations for sustainable design

I have described this research methodology as practice-led, and it falls within the tradition of the Arts. It also sits within the maturing field of design for sustainability. Within this field, leading theorists and researchers have discussed how design can be harnessed to not only reduce the problems of unsustainable products and behaviours, but to create new conditions for sustainability to grow (Fletcher and Grose, 2012).

For sustainable design theory and practice in fashion, Kate Fletcher (2012) advocates a turning point from a singular focus on products (clothes) and user-object relationships, to a more pluralistic focus on the social practices that underpin user behaviour and how clothes are used. Fletcher illustrates this contention with reference to durability as a strategy for sustainability. Although durability (recognised as longer lasting products and materials) is not the focus of this research, there are some highly relevant methodological implications that emerge from Fletcher's discussion relating to whether sustainability strategies can be designed *into* clothes, or if they emerge as an *outcome* of how clothes are used. This raises questions concerning to what extent designed products can motivate changes in use, and to what extent sustainability can be fostered via material design strategies. It is therefore necessary to consider the methodological approach that this research takes in context to these theoretical issues, and further, what kind of assumptions can be made about this research for the goal of sustainability. Fletcher's (*ibid.*) account of durability as a strategy for sustainability provides a useful basis for this discussion.

Fletcher (*ibid.*) notes that design strategies for sustainability often rely on material products as a medium to change behaviour and patterns of use. For example,

the notion of durability is commonly employed as a strategy to extend periods of consumer use, increase garment lifespans, and reduce material consumption and waste. Yet, Fletcher highlights a caveat with such material based strategies, in that clothing use and consumption patterns are motivated by many different types of elements besides from material products, a great deal of which are intangible and exist in 'social and experiential' realms. Directing design attention towards products and product-user relationships is of little value for sustainability if it does not translate into autonomous changes in behaviour and use. Further, focusing on materiality, and enhancing the material properties of a garment, would suggest that durability could be designed *into* products. Fletcher contests this, and with supporting empirical evidence from her on-going social practice research project Local Wisdom, suggests that durability may be facilitated by design and materiality, but it is essentially determined by an 'ideology of use'. Here, Fletcher draws attention to the social dimensions that motivate and influence the practices of use, and refers to the concept of 'user-ship' to describe a space from which durability emerges through the medium of performance and satisfying fashion practices (*ibid.*, p.233-235). In this respect, sustainability strategies cannot be designed *into* clothes; but rather, emerge as an *outcome* through performance and ways of doing and using. Thus, Fletcher (*ibid.* p.236) states, 'durability is user-based rather than product-based, though played out in material form'.

So, Fletcher (*ibid.*) has outlined a theoretical point of departure for design for durability, from materials and user-object relationships, towards a more integrated understanding of user-ship and the social practices that influence use. This point of departure recognises that material based clothing consumption does not occur as an isolated phenomenon, and is deeply intertwined with social behaviours. It purports

that the way clothes are used form part of a material manifestation of social behaviour, and occurs as part of, and as an output of, wider cultural and social practices. Thus, following Fletcher's discussion, sustainability strategies that aspire to change behaviour, whether this be extending the length of time that a garment is used during it's lifespan, or, as in the case of this research, challenging how and how often a garment is laundered, must attend to the realm of user behaviour, and the wider social practices that influence and facilitate patterns of use (this is further discussed and realised through a set of design provocations outlined in chapter six).

Taking this into account, I will continue to discuss my theoretical approach, and how my methodology navigates the theoretical departure for sustainable design theory, from an individualistic focus to a more pluralistic approach that considers the organisation of social practices from which laundering behaviours emerge.

2.4 Theoretical approach

Following Archer's (1995) account of research through practice, research conducted within the Arts is mainly subjective and must be supported and substantiated through an account of its theoretical position. Declaring the theoretical position provides a context for the research offers a rationale for the ideology of the researcher and, significantly, clarifies the epistemological basis. This enables an audience to comprehend and recognise the research findings within relevant theoretical and scholarly discourses. I will continue with an outline of the theoretical position of this research, and how it navigates the theoretical departure for sustainable design theory, from an individualistic material based focus to a more pluralistic approach that

considers the organisation of social practices from which laundering behaviours emerge. I will discuss how practice theory, which is a form of cultural theory, provides a useful theoretical foundation for analysing laundry practices, and has been applied as a theoretical framework to investigate design based strategies to reduce the environmental impact of clothes cleaning. Drawing from theories of practice enables this methodology to transcend the dualisms encountered with sustainable design theory.

Practice theory

In the sociology of consumption, practice theory has been applied to analyse facets of consumption, including forms of environmentally significant yet everyday resource consumption that emerge from routine and mundane social practices. Using the principles of practice theory as theoretical backdrop for this doctoral research provides a different stance from which to approach sustainable design in both theory and practice. It suggests that resource consumption can be analysed as a social practice, which emerges from the conditions surrounding everyday life and human actions. This provides a space for grouping together and analysing the elements that form practices, including objects (garments) and the way in which they are used (laundered) within an inclusive dynamic.

Andreas Reckwitz has been widely referenced in proving the first comprehensive theoretical mapping of practice theory in his paper 'Toward a Theory of Social Practices: A Development in Culturalist Theorizing', published in 2002. At this point, the principles of practice theory had already been applied to science studies, gender studies and organizational studies and has since provided useful application in many other

disciplines including: anthropology, cultural studies, design studies, environment and sustainability research, geography, social policy and sociology (Halkier, Katz-Gerro and Martens, 2011:3). Reckwitz's (2002) widely cited account provides a useful basis from which to discuss the characteristics of practice theory, and the theoretical position of this methodology.

Reckwitz (*ibid.*) suggests two fundamental points of departure for practice theory that separate it from other forms of social theory. The first departure is that it is a strand of cultural theory. The way in which cultural theory differs from other social theories is the way in which it interprets and explains action and social order. The two classical models of social theory from which cultural theory can be distinguished are the *homo economicus* model, which accounts for actions through individual purposes and intentions (purpose-orientated theory), and the *homo sociologicus* model, which explains action through the interpretation of collective norms and values (norm-orientated theory).

In contrast, cultural theories emerged from the twentieth-century culturalist revolution, and are rooted by structuralism, semiotics, phenomenology and hermeneutics. From a structuralist perspective, Eagleton (2008:82) explains that the units of any given system only have meaning via credit to their relation to one another, thus meanings are relational and not substantial. Following this trajectory, cultural theories attend to the collective symbolic structures of knowledge, suggesting that actions emerge from relational, cognitive and shared understandings. In Reckwitz's (*op.cit.*, p.245-246) words, 'cultural theories consists in explaining and understanding actions by reconstructing the symbolic structures of knowledge which enable and constrain the agents to interpret the world according to the certain forms, and to

behave in corresponding ways.’ In this sense, actions seek to explain and define each other and do not occur as isolated events; they are embedded in tacit knowledge and cannot be decentred from the wider symbolic organization of reality. This notion of relational and symbolic organization is what sets cultural theories apart from other social theories.

Thus, Reckwitz (*ibid.*, p.246) notes that practice theory can be considered as a form of cultural theory, since it shares common conceptions that account for action and social order that have a fundamentally different origin to that of the purpose-orientated and norm-orientated theories of action. However, since all cultural theories emerge from the same epistemological trajectory, Reckwitz continues to outline a second theoretical point of departure for practice theory.

This second fundamental point of departure for practice theory recognises that the conception of ‘the social’ has different locations and origins to that of other cultural theories. The location or place of the social denotes what can be considered as the ‘smallest unit’ of social theory and social analysis, and therefore affects what type of claims that can be made. Reckwitz (2002) highlights four subtypes of cultural theory that include: culturalist mentalism, culturalist textualism, intersubjectivism and practice theory. Each of these subtypes of cultural theory share a common ground in that they relate the social to ‘symbolic and cognitive structures of knowledge’ (*ibid.*, p.247). Yet, Reckwitz notes, for each subtype, the place of the social is different. Culturalist mentalism locates the social in the human mind, as the place where structures of knowledge and meaning reside. In contrast, for culturalist textualism the social is situated outside the mind, in sequences of signs, symbols, discourse, communication or texts. Intersubjectivism offers another perspective, in which the social is located in

interactions, existing in a 'constellation of symbolic interactions between agents' (*ibid.*, p.249).

All of these subtypes of cultural theory provide a negative background space for practice theory that, by point of differentiation, locates the social in practice, and takes practice as the 'smallest unit' of social theory. Reckwitz (*ibid.*, p.249-250) defines a practice as

... a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. A practice – a way of cooking, of consuming, of working, of investigating, of taking care of oneself or of others, etc.

Taking a practice theory approach places practice at the core of sociality, from which actions and behaviours can be analysed. Reckwitz (*ibid.*, p.250) makes the analogy of practices forming a 'block', within which practices act as intersections for other practices. In this sense, practices can be seen to collaborate with each other, and are also interdependent on each other, and thus cannot be separated. According to Reckwitz, a practice can also be thought of as a pattern made up of many different types of routinized actions. For example, clothes cleaning can be understood as a practice that is 'filled out' by numerous elements and actions, which together reproduce the practice. In the process of reproducing the practice, some of these actions result in resource consumption (from this perspective, consumption occurs to facilitate the performance or reproduction of a practice). People are intrinsic elements in practices, and can be thought of as 'carriers' of practice, or many simultaneously occurring practices, and therefore become the carriers of 'routinized ways of

understanding, knowing and desiring' (*ibid.*, p.250). Thus, practices are innately social, as they are comprised of types of behaviour and understanding.

Body, mind, things, knowledge, discourse, structure, process and agent

As Reckwitz (*ibid.*) continues to outline an ideal type of practice theory, he suggests that the elements that form practices can be broadly blocked into complexes of: body, mind, things, knowledge, discourse, structure/ process and the agent. While these complexes will be discussed in greater detail in Chapter five, it is necessary to provide a brief summary of how elements form practices, in order to provide a rationale for the approach taken in this methodology.

Taking a practice theory approach calls for a specific perspective on each of these elements, and particularly, a unique way of conceptualising the body. For example, according to Reckwitz, the body can be thought of as a site of performance, from which routinized activities take place. Reckwitz (*ibid.*, p.251) states, 'a practice can be understood as the regular, skilful 'performance' of (human) bodies'. Yet the body does not merely facilitate the performance of actions, Reckwitz (*ibid.*, p.251) explains, 'routinized actions are themselves bodily performances', and thus bodily performances can be thought of as sets of routinized activities that form part of practices. In a similar way, the mind (as part of the body) can be conceived as performing sets of mental activities, which consist in routinized ways of knowing, understanding, feeling, deciding, interpreting, desiring etc. Thus, as an individual carries out a practice, they simultaneously 'take over' both the bodily and the mental routines that together form part of the practice. In practice theory, these routines do

not belong to the individual, but are part of and integral to the 'social' practice (*ibid.*, p.252).

Just as body and mind are inseparable from practice, so too are the use of 'things' or 'objects'. For practices that involve the use of certain objects, bodily and mental routines are shaped by the utility and requirements of these objects. For example, in the case of clothes cleaning, the many different types of objects that may be involved (stocks of clothes, laundry baskets, detergents, washing machines, tumble dryers etc.) will set the 'material' scene for the necessary bodily and mental activities.

In practice theory, when certain objects become elements of practices, Reckwitz (*ibid.*, p.253) states, 'subject-subject relations cannot claim any priority over subject-object relations, as far as the production and reproduction of social order(liness) is concerned'. This is because every element and action that configures a practice is interdependent and interconnected to every other element, and therefore there is a resolute stability between elements. This democratic dynamic between elements extends to the specific forms of knowledge contained within a practice, as well as discourse, the structure of routinized activities and the agent. It is this mutual stability that reproduces the social, and thus for practice theory, the social can also said to be located in all of these elements, as a unique configuration of practice. If the social is the point from which analysis can be made, then all elements have an equal status or priority.

If clothes cleaning is considered as a practice, it can be thought of as a block of elements consisting of complexes of: body, mind, things, knowledge, discourse, structure/ process and the agent. Each of these elements is indispensable to the formation of laundry practices and exist in relationship to each other. They are

dependent on each other to reproduce the practice and thus produce the desired outcome. Taking a practice theory approach brings background elements to the foreground. It is from this point that practice theory becomes useful for offering a way to interpret laundry as a composite activity, and to understand the (intangible) purposes and outputs of clothes cleaning, beyond the production of clean clothes. It acknowledges that the resource consumption which is incurred through the continual washing and drying of clothes cannot be reduced to singular actions and behaviours, but is an output of a complexity of different types of coexisting and coevolving elements.

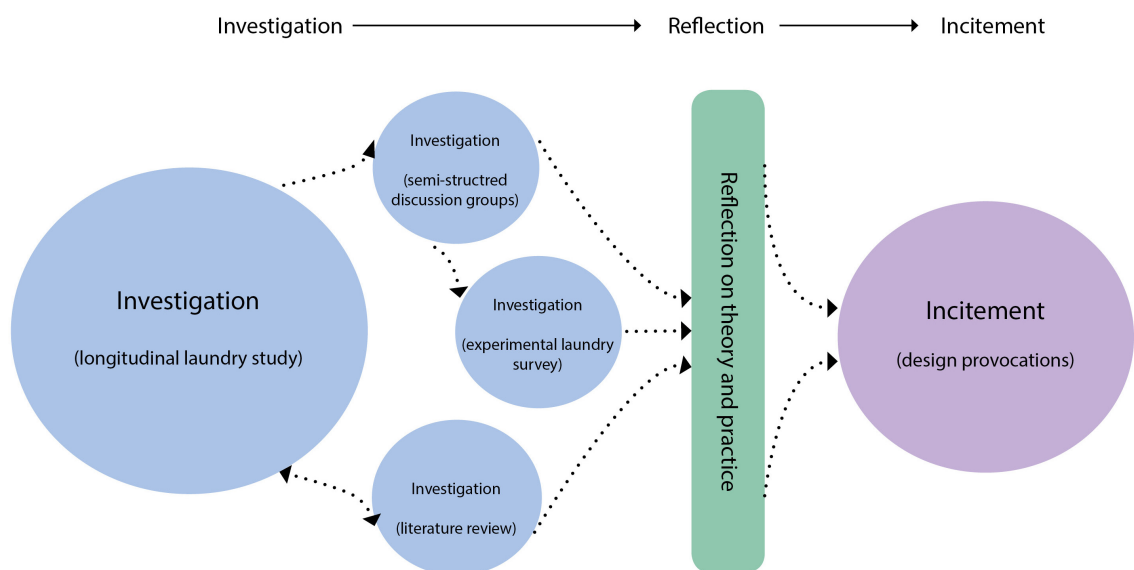
So, understanding laundry as a practice opens a space to reconceptualise the relationship between design and user behaviour within a multi-dimensional setting. It suggests that garment design, laundering behaviour and resource consumption cannot be explained as a linear combination of variable inputs. Thus it decentres material products and, to paraphrase Reckwitz (*ibid.*, p.258), attends to the 'embeddedness' of the mental activities of understanding and knowing in a complex of 'doings'. This sets a new scene from which to develop design theories for sustainability.

2.5 Research design

Now that I have described the methodological and theoretical context, I will outline the overall research design, as visualised in figure 2.2. It is comprised of three key phases that include investigation, reflection and incitement. The four blue circles represent different processes of investigation, research and data gathering. The largest blue circle presents the one-year (longitudinal) laundry study that further informs the two smaller

research phases (in chapter four). The lower small blue circle represents the literature review (in chapter three) on laundry practices, which played an important role in understanding change and evolution within laundry practices and helped inform processes of reflection from the longitudinal laundry study. All processes of investigation lead into reflection of theory and practice, as represented by the green rectangle (in chapters four and five). The lilac circle represents a series of design provocations that are developed as incitement for design for sustainability (in chapter six). Final conclusions and reflections are made in chapter seven.

Figure 2.2 Research design



2.6 Conclusion

This research engages with creative practice on different levels. Archer (*op.cit*) describes three modes in which creative practice can be recognised as research, which are outlined as: research *about* practice, research *for* practice and research *through* practice. In the first instance, this research examines existing approaches to fashion in the field of sustainable design, thus it shares similarities with research about practice. Secondly, this research explores ways to expand and develop approaches to fashion in the field of sustainable design, and so can be understood as research for practice. Most significantly, this research can be understood as research through practice as designed garments are appropriated as laundry probes to provide insights into laundry practices. According to Archer (*op.cit.*, p.10) these approaches must be legitimised through observing the relevant research tradition that the enquiry is located within.

Further to this, Mottram, Rust and Till (*op.cit.*, p.12) note that a key feature of practice-led research is when the knowledge and understanding elicited from creative practice is of more value than the creative practice itself. In this doctoral enquiry, the designed garments that make up the creative practice in this research are appropriated as laundry probes to offer insights into patterns of clothing use and laundry practices. These insights are both fundamental to this enquiry and of greater significance than the garments themselves. Thus, this research can be described as practice-led.

The theoretical field that this research falls into is sustainable design. Fletcher (2012) outlines a point of departure for sustainable design from an individualistic material based focus to a more pluralistic approach that considers aspects of sociality in relation to clothing use. In exploring laundry as a social practice this research adopts a

sociological approach and turns to theories of practice (Reckwitz, 2002; Shove, 2012) as part theoretical setting and part methodological approach. Through re-examining laundry as a social practice it is possible to uncover some of the meanings that are reproduced through laundering routines and behaviour. My intention is to use theories of practice to better connect design practice with design theory.

CHAPTER THREE

Past laundry narratives

Introduction

Tools and technologies

Creating cleanliness: social and moral constructs

The laundresses and their trade

Manual to mechanical

Industrial to domestic

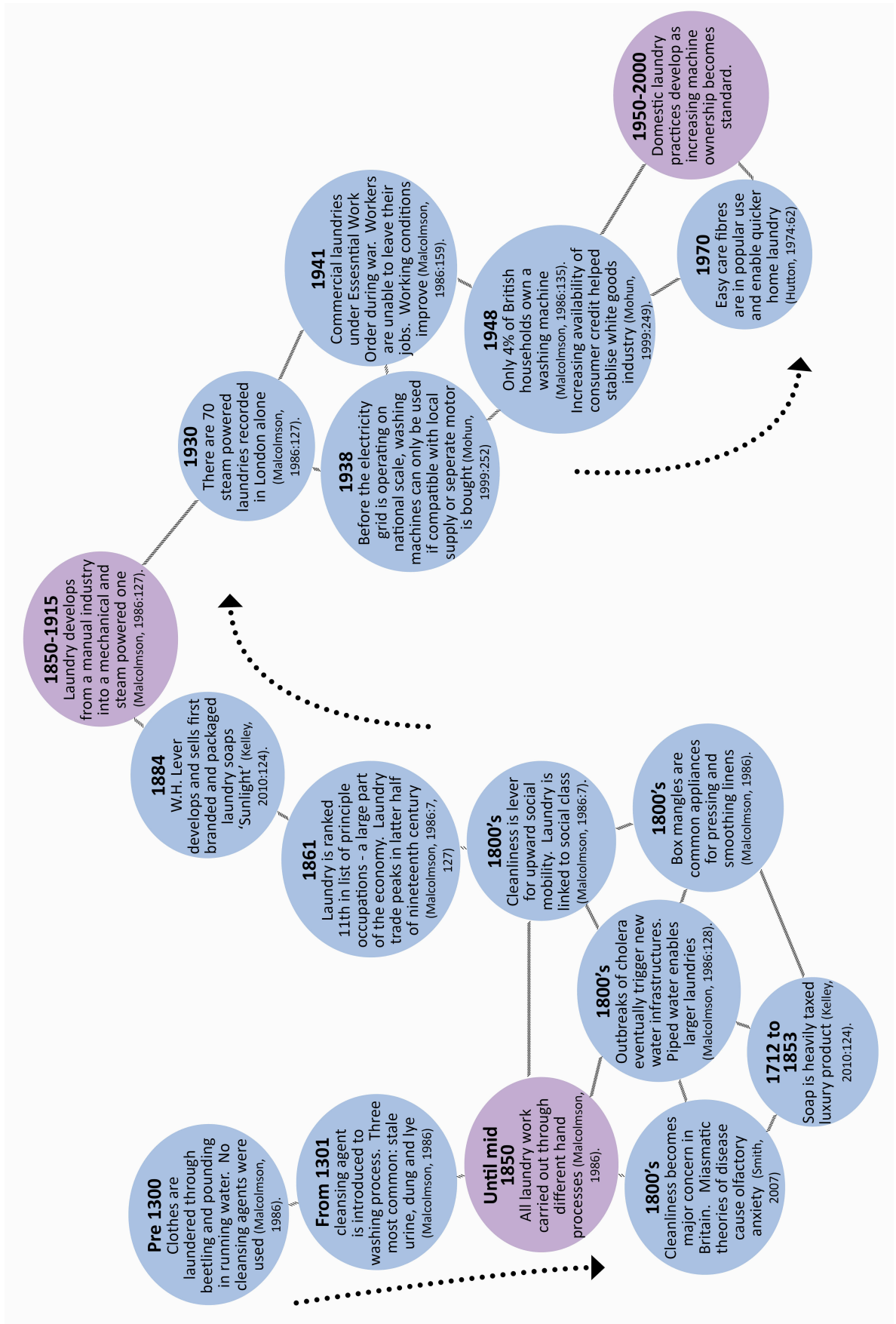
Conclusion

3.1 Introduction

Understanding why, when and how laundry practices have evolved in environmentally challenging directions is vital when exploring approaches and opportunities to reduce impact. Unquestionably, the increase in washing machine loads that are now carried out is a central factor but this has not occurred in isolation: many elements have contributed to this, not least the transformation of laundering from a manual task to a mechanised industry. In considering laundry as a practice, here it is helpful to analyse the historic trajectory of laundering as a point from which to explore junctures of change and evolution. This will help to reveal the larger context that modern day laundry practices are set within including how routines and norms are not only embodied and represented in laundry practices, but also how they are perpetuated by practices. This historical narrative will also explore themes of interconnectivity between co-evolving aspects of laundry practices and how elements from laundry practices overlap and become parts of other practices. Key stages within this trajectory are represented in figure 3.1.

Before I proceed, it should be noted that laundering in Britain was historically influenced by wealth and prosperity. Britain was a nation divided by class and the gaps between rich and poor were vast – the majority of Britain formed the working classes (Colley, 1992). Yet it is the laundry habits of the rich, the middle and upper classes that have been much better documented than those of the working classes. Proportionally, the middle and upper classes reflected a small percentage of the population – meaning that most documentation was given to a very small percentage of society, and very little to the most widespread laundry practices.

Figure 3.1 Laundry timeline



3.2 Tools and technologies

The nineteenth and twentieth centuries have seen some major changes in the tools, devices and technologies used for washing clothes. The industrial revolution benchmarks the period in which laundering went from being back breaking, heavy and arduous manual work with technologically unsophisticated equipment to a very different type practice with the use of piped and heated water, mechanized washing machines, soap and detergent, and drying and ironing devices. By the early twentieth century the majority of laundries would have been using some kind of mechanized equipment (Malcolmson, 1986:8). Here I'll start by briefly tracing how tools and technologies used to do the laundry have evolved from medieval periods to Victorian and Edwardian periods.

Early laundry practices

During the medieval period methods of laundry included trampling, pounding and beetling clothes. Beetling describes the use of wooden bat (or beetle) to pummel clothes against a hard surface, usually next to running water such as a stream. These methods required no cleansing agent and no energy (other than human energy). Dirt and grime was dislodged from clothing through the repetitive and hard forces applied, while lying clothing out in direct sunlight served as a bleaching process. Britain was not the only country that adopted these techniques for cleaning textiles and clothes – reports evidence similar practices in many other countries and cultures including: ancient Pompeii, nineteenth century Japan and Brittany (Malcolmson, 1986). These methods of laundering required no money: only time, access to water and the physical

ability to trample or pound. The skills involved were easy to teach and easy to learn and laundering existed through these processes for hundreds of years. For these reasons laundry work was an easy trade to turn to and a convenient occupation of many women looking to support their families or supplement their family income.

The Buck Wash

A more sophisticated development in clothes cleaning was the addition of a cleansing agent. The buck wash, also known as bucketing with lye, developed during the late medieval period, and continued until the nineteenth century. A variety of different cleansing agents were used for the buck wash, which were usually waste products with bleaching ability. The three most popular agents were stale urine, dung (pigeon, hen and hog dung were common) and lye, and their use in laundering were determined partly by region and partly by their value for other uses. For example, lye was most common in wood burning regions, whilst urine was more accessible in populated cities. All agents, if processed correctly, could yield good bleaching properties. The use of lye in the 'buckwash' is perhaps the best-known method and involved creating an alkaline solution from pouring water through wood ashes to create lye. Different types of wood ash produced different cleaning effects and bleaching properties (*ibid.*). Dung was steeped, stirred and strained to produce equally powerful bleaching properties, and was in widespread use as a cleansing agent until the early nineteenth century, when it became used for other purposes and its value increased. Stale urine, known for its ammonia content, was used until the middle of the nineteenth century (*ibid.*).

Soap

Soap is a relatively new addition to laundry practices as its widespread production and use have been historically restricted by monopoly and taxation. In 1638 Charles I put a royal charter on the manufacture of soap, restricting production to a small group of London soap makers (Malcolmson, 1986:132). The monopoly doubled the price of soap, deeming it unaffordable for all but the most affluent. Later, between 1712 and 1853 soap was subject to a high excise duty tax levied by the government, which reinforced its exclusivity and distinction as a class defined product. At some points the high soap taxes, like the earlier monopoly, were equal to the cost of the product itself. During the seventeenth and eighteenth centuries, for the rich and upper classes, soap gradually began to supplement the use of lye, and then replace it all together as a primary cleansing agent (*ibid.*).

It was not until the mid nineteenth century (1853) that soap tax was lifted and as production increased, so did its demand and use. In 1884 W.H. Lever developed and sold the first branded and packaged laundry soap called 'Sunlight' which was an immediate national success (Kelley, 2010:124-125). By the latter half of the nineteenth century nearly all laundry workers used soap. It had superior cleaning properties in comparison to lye and importantly, reduced the amount of washes and duration of soaking that were previously necessary. So, it was not until the late nineteenth century that soap was in widespread use and connections were made between soap, water and cleanliness. Thus, in understanding how and when laundry norms have evolved, the association between hot soapy water and fresh, pleasantly scented laundry is relatively recent.

Hand washing processes

Until laundering became mechanised in the latter part of the nineteenth century, and for well into the twentieth century too, much laundry work was carried out through different hand processes. As soap became more popular the buck wash was gradually phased out and laundry practices transformed. During this period, laundry work could be roughly separated into different processes of cleaning and ironing. In commercial laundries, laundresses would have their specialisations and work on particular tasks of either cleaning or ironing. In contrast, smaller laundries and the solo laundress generally needed to be knowledgeable on all processes, unless they offered specialist services. The key stages laundry could be broken into included: collecting soiled clothes and linens, sorting them by material and colour, marking, soaking them, washing and scrubbing them in soapy water, wringing and mangling, blueing and starching. This was all part of the cleaning process. The ironing process included: ironing, airing and drying, folding, packing and then delivering.

Tools and implements

For all the different processes and treatments that clothes moved through during the laundry process, different kinds of tools and equipment were needed. First there were the copper pots for boiling water and soaking clothes. Often these were set back into brickwork with space for a fire underneath to heat the water. After soaking, clothes and linens would be either rubbed, beaten, scrubbed or kneaded, depending on the particular item, material and nature of soiling. A 'dolly', also known as a 'peggy' or 'possing stick', were popular implements to assist with agitation in this process. There were a variety of different styles for this, the most familiar being the wooden kind that

resembled a very small wooden stall with four or five legs with a long handle. It was a rough process and often reserved for coarser materials and flatwork such as sheets, table clothes and blankets. Often men would help out with this process because it was so strenuous (Malcolmson, 1986).

After scrubbing and dollying, items would be wrung out, rinsed and then wrung out again. After this items were placed back in the coppers for boiling with hot soapy water. After boiling linens were rinsed again to remove any soap or ash residue. Before drying, particular items such as men's shirts and collars were then dipped in starch solutions and whites went through a process called blueing. Delicate and coloured materials were washed separately. It is estimated that between soaking and drying, items would be moved between containers and wrung out a minimum of six times (Malcolmson, 1986:32).

One estimate suggests that a basic wash that included one period of boiling and one rinse consumed approximately 227 litres of water (Malcolmson, 1986:25-26). In context to today, most washing machines consume a maximum of 50 litres per washing load. Laundry during the Victorian times would have consumed a huge amount of water per wash, much more so than is used today - however, the frequency of washing was much significantly lower.

During the nineteenth century, box mangles were common appliances used for pressing and smoothing linen. These were wooden frames fitted with rollers, over which sat a large wooden box filled with rocks. Damp laundry would be pressed under or fed through the rollers and the weight of the heavy box. Mangling was heavy work and often needed two people to operate the appliance, but no skill was required. A development on the box mangle was the compact mangle and the wringer mangle,

which could both wring out items and smooth clean dried laundry. The wringer mangle was common to most laundries during the later half of the nineteenth century.

Finally the laundry was ironed, which was known to require the most skill and dexterity in the laundry process. Commonly called a flatiron, these were hand-held implements consisting of a handle and solid, flat metal base. They came in many shapes and sizes, suitable for the most intricate ruffles, flounces, and frills, or heavy and coarse flatwork. The ironer needed to know how long to heat the iron for – if they heated it for too long it could scorch the item.

As noted by Malcolmson (1986:5), the Victorian and Edwardian preoccupation with hot and soapy water in laundering may have been a familiar precursor to more modern day laundry practices, but they were many alternative methods of cleaning used for much greater periods of time previous to this. Essentially, the point here is that laundry practices have transformed radically in the last few generations: more so than they have in the past thousand years. It was not only the creation and use of soap that characterized this shift in practice, but significantly, the switch from manual to mechanical, which I will discuss in section 3.5 of this chapter.

3.3 Creating cleanliness: social and moral constructs

Laundry practices are intimately connected to notions of cleanliness. Hygiene, sanitation and purity are central to concepts of cleanliness, and closely allied to dirt, or more precisely, the removal and prevention of it. These links have been renewed and reinforced in various social contexts and periods throughout British history and have, to different extents, influenced how and how often clothes cleaning is carried out. One of

the greatest shifts in attitudes towards cleanliness, and by extension laundering, occurred during the nineteenth century. Here it will be useful to examine what these shifts were, how notions of cleanliness have developed and evolved in Britain through different social phenomena, and the role they have played in shaping laundry practices.

Dirt and disease

Cleanliness became a major concern in Britain during the nineteenth century. London in particular was renowned for its obnoxious filth and overwhelming stench. Piled up horse dung, rotten vegetables and fruit, black mud mixed with human excrement, soot flakes, globs of stale chewed tobacco, animal carcasses, rags, putrid fish remains, broken glass, damp straw and fragments of discarded objects were common sights in the streets of London. The dirty and polluted conditions of London helped give rise to deadly outbreaks in disease such as typhus and later cholera. Jackson (2014) characterises this as 'the Victorian fight against filth'. A driving cause for the excess of filth and waste is linked to the sudden growth in population (Jackson, 2014). In the hundred-year period between 1801 and 1901 the population of England and Wales nearly quadrupled, soaring particularly sharply in London from a population of 1 million to 6 million (*ibid.*). The rate of population growth far exceeded the rate at which society was able to develop systems and infrastructures to manage the needs and health of so many people. The areas that suffered from the most overcrowding were the poorest areas, and thus tended to be the filthiest areas too. This pattern established a link between the conditions of Britain's poor and working class as being dirty and unsanitary, whilst the more affluent and prosperous higher classes could afford to keep themselves and their living environments clean.

Odour and olfactory vigilance

It was not just the filth and dirt that was a public problem in nineteenth century Britain: it was also the putrid stench that accompanied it. For during this period miasmatic theories of disease, that claimed diseases such as cholera were spread through foul air, were still held in widespread belief. It was not until the end of the nineteenth century that germ theory and disease transmission through bacteria was more widely accepted. This added another layer of significance and meaning to wearing clean and fresh smelling clothing. Putrid smells, including foul smelling clothing were associated with disease and were a cause of anxiety. Smith (2007:59-74) notes that this brought about an 'olfactive revolution' where odour took on a significant meaning in society - foul smells indicated danger and were linked to the unsanitary and disease ridden conditions of the working class slums. This also reinforced a type of social 'olfactory vigilance' where smell played a significant part in the construction of class identity, again helping to reinforce connections between poor and dirty, and rich and clean. The growing middle class of the nineteenth century could use odour, or lack of it, to help distinguish themselves as separate from the lower working classes. As stated by Smith (2007:66) 'who was deemed smelly and who was considered inodorate - and who got to define the meaning and value of various scents – was critical for class formation which, in turn, was linked to ideas about selfhood'.

Cleanliness, class and social mobility

Wearing clean and fresh smelling clothes became a marker of cleanliness and was a materially symbolic distinction of class. Malcolmson (1986:7) notes that during the nineteenth century, clean, fresh and neatly pressed clothing were a quality of gentility

and thus essential for those with aspirations to better their social position. Further, Malcolmson (1986:7) notes that for lower income families, any rises in household income were often followed by a disproportionate increase of expenditure on washing and mangling. This illustrates the significance of laundry as a lever for upward social mobility and alludes to the meanings laundry embodies beyond the function of simply cleaner clothing.

Whilst wearing clean and fresh clothes took on new degrees of social significance, so too did the actual process of laundering. Washing clothes was a largely public practice and observed by neighbours and the local community. How much clothing and linen was washed and how often, was also an indicator of how much linen a household owned (linen was expensive), and thus how prosperous they might be. So, laundering was also a show of status. The fewer washes a household carried out indicated they were in possession many linens – enough to last them a long time and negate the need for more frequent laundering. In a chronicle of English rural life it was recorded that the post mistress of Candleford Green in the 1890s

Still kept to the old middle class custom of one huge washing every six weeks. In her girlhood it would have been thought poor looking to have had a weekly or fortnightly washday. The better off a family was, the more change of linen its members were supposed to possess, and the less frequent the washday (Thompson, *Lark Rise*, 471, cited in Malcolmson, 1986:24).

Germ theory and laundry practices

During the nineteenth century, theories of disease also had a part of play in the evolution and transformation of laundry practices, particularly the frequency at which laundry was carried out. Germ theory, which linked many diseases to bacteria and the

presence of microorganisms in the body, became more widely accepted towards the end of the nineteenth century. As this become more recognised, it gradually shifted public understanding of dirt and cleanliness. Cox (2011:43-44) notes, bacteria were invisible and odourless which meant cleaning had to be done differently than before. There was no telling as to how clean something actually was, so no limit to the amount of cleaning required. Thus, a culture of scrupulous cleaning emerged, underpinned by anxiety related to the invisible existence of bacteria and the potential threat of disease. Most significantly for laundry practices, the presence of sickness and disease within households was linked to poor cleaning and hygienic negligence, and thus a housekeeping failure. This led to an increase in the frequency that clothes were washed. As stated by Cox (2011:44), 'This logic has created untold anxiety for housewives for over a century and been firmly grasped by manufacturers and advertisers [of cleaning products] for just as long'.

3.4 The laundresses and their trade

Until the early twentieth century laundry work provided a large amount of employment and offered livelihoods to many British working class families. In 1861, laundering ranked eleventh in the table of principle occupations in England and Wales with 167,607 people officially recorded as laundry workers, and by 1901 this figure had risen to 205,015 (Malcolmson, 1986:7).

Laundering was a casual labour market and during this period it was common for laundresses to work either independently as home workers, for small-scale laundry businesses or in the larger steam laundries that emerged in the latter half of the

nineteenth century. However, despite the significant part that laundry work played in supporting the Victorian economy, there is a disproportionately small amount of information recorded about the trade. What is clear however is that before heated and piped water, and before domestic laundry appliances, paying to have laundry done was a top priority for those households that could afford to do so, and the laundry industry had a thriving trade.

Increasing laundry demand

The laundry trade was in its prime during the latter half of the nineteenth century. There were many reasons for the increased demand of laundry workers during this period. Britain's population was growing rapidly and so were the desires of the increasingly wealthy Victorian middle classes. However, living conditions, especially in urbanised areas were extremely cramped, overcrowded and chaotic – leaving little space for washing, so where possible clothes and linens would be sent to a laundry. As Britain became wealthier overall, more services developed such as restaurants, hospitals, councils and other public and private institutions – increasing the need of laundry further. Society was also more conscious of cleanliness than they ever had been (as discussed in section 3.3) and wearing fresh and clean clothes was essential for members of the burgeoning Victorian middle classes with aspirations to enhance their social position (Malcolmson, 1986).

One answer to the increased demand for laundry services was the Bob Wash. At the start of the twentieth this was a scheme which provided households with a linen bag that could be filled with as many washable items as possible. The bag would be collected and the contents were washed and returned in a day for the price of one

shilling. The clothes were returned partially dry and it was up to the housewife to finish drying, ironing and starching (Malcolmson, 1986:7, *Marlborough Express*, 1913:3).

Married women and domestic structures

Laundry work was known for being rough, strenuous and toilsome. It demanded long hours of intensive work that were often carried out under dreadful conditions. It involved heavy lifting of linens, fetching and heating numerous buckets of water, transferring sodden textiles to various different pots and the weightily task of either wringing out linens or mangling. Despite the roughness of the trade, it was a women's occupation and was particularly appealing to married women. This was because it was easy work to acquire, required little or no training and it supplemented the household income if the husband was out of work. It was also not uncommon for households to entirely depend on the earnings from laundry work for months at a time. In the large steam laundries, especially those in London, laundry work tended to be also largely seasonal, coinciding with events such as the opening of parliament. Married women were able to return to work during laundry peaks, which often complemented the working patterns of their husbands. For example, Malcolmson (1986:12) notes that 'Gas workers' spouses did laundry work in the summer while builders' wives worked as laundresses in the winter'.

Payment for laundry work varied widely depending on the nature of the laundry (if it was a small laundry, a large steam laundry or a washerwomen going into a private home to assist), and the particular tasks of the laundress (washing, mangling, ironing or finishing). Generally pay was very low: full time washers could expect to earn two shillings to two shillings six pence per day. Ironers, who were slightly more dexterous

than washers and were paid by piece could earn from three shillings to three shillings six pence per day. Private homes might pay less, but often included meals and food scraps to take home to the laundresses' family (Malcolmson, 1986:13; Roberts, 1984: 135-142).

Migration of trade

Laundry work flourished in some areas more than others. Port towns, seaside resorts and university towns were renowned for the opportunity of seasonal laundry work. Malcolmson (1986:16-17) notes that often laundry workers were migratory and would travel to where the business was required. For example, the resort towns provided laundry work during the summer whilst popular for vacations, while the university towns provided work during term time. London, Fulham, Hammersmith and Acton in West London were known for their concentrations of small and large-scale factory laundries – close by to upper-middle class residential areas.

In the sixty-five year period between 1850 and 1915 the laundry industry underwent some major organisational changes, developing from primarily a manual industry into a mechanical and steam powered one. As the industry became mechanized, employment structures shifted from small laundry businesses and self employed laundresses to large steam factories employing hundreds of people. One such example is the Kings Cross Laundry in London, which employed as many as 1000 people and laundered up to 40,000 shirts and collars every week (Malcolmson, 1986:127).

Homeworkers

Taking laundry home to wash was massively disruptive to family life and created very unpleasant living conditions. Work would be separated out and done in stages.

Furniture was often moved into the corner of the house and carpets were rolled up to allow space for washing, drying and ironing from Monday through to Sunday. Piled up laundry would make the house smell stale, this was followed by the smell of soap, bleach, bluing, and starch. Steam and puddles of soapy water were followed later in the week by dripping clothes and linens hung throughout the house which dampened the air. Ironing and finishing once again raised the temperature of the house as the stove would be on constantly to heat the iron (Malcolmson, 1986:22-23). Indeed, it was so unpleasant and mundane that before it became mechanised there is little documentation of the process. Portrayals of laundry workers and wash houses in pictures prior to 1850 tended to be either sexualised or in ridicule of the task, suggesting that laundresses were thought of as promiscuous and their work banal, unsophisticated and low-skill (Malcolmson, 1986:7; Sambrook, 1999:104).

3.5 Manual to mechanical

During the nineteenth century laundering underwent some radical changes as it began to shift from processes of hand laundry to mechanisation and steam aided methods.

Steam laundries were run on steam engines, making use of the steam that was generated to operate machinery, heat water and help create drying closets (Cowan, 1983:106, Malcolmson, 1989:135). Not only did this process enable large volumes of laundry to be done more quickly and efficiently than before, it effectively reconfigured

the distribution of profit that was received. In the sixty-five year period between 1850 and 1915, there had never been so many laundry methods in use: a blend of hand processes, semi-mechanised processes and fully mechanised steam laundries. As the laundry trade became commercialised in a new way, independent laundresses and small localised laundry businesses began to decline as the number of large industrialised factory laundries increased (Malcolmson, 1986:129). Understanding how these radical shifts occurred, what their impacts were and how laundry processes evolved in consequence is vital when considering how practices transform and the elements that contribute to change.

Industrial transformation

The mechanisation of the industry began gradually at first, but became rapid at the turn of the nineteenth century in. In 1881 hand laundry peaked, after which, the number of independent laundrywomen went into steady decline until 1901 and then fell rapidly thereafter (Malcolmson, 1986:127). An increasing amount of entrepreneurs set up laundry businesses as the mechanised laundry trade flourished. The processes of laundry were divided and allocated incrementally following a Fordism logic that favoured standardised mass production methods (Mohun, 1999:17). In 1902 there were 29 power laundries recorded in London, by 1912 this had grown to 46 and by 1930 this had grown again to 70 (Malcolmson, 1986:127-128). The shift from manual to mechanical had not only changed the way laundry was done, but also altered the skills and know-how required to do it, standardised what appropriately clean and pressed clothing should look like and radically transformed the everyday and domestic life of many families as laundry was moved from the home to the factory.

Class and gender

There was more to the industrialisation and mechanisation of the laundry trade than machines and services. Steam laundries were also inherently allied to the Victorian class structures (Mohun, 1999). The industry functioned on the dynamics between classes and genders. The laundries were dependent on the cheap labour of large numbers of working and under class women, and a customer base of predominately middle and upper class women. This dynamic helped to compound class distinctions between those that could afford to wear professionally cleaned and finished clothes, and those that could not afford to. Gender division was also a significant element in the social construction of steam laundries.

The tipping point

Such massive change did not occur as an isolated phenomenon. There were some much wider changes occurring in society that helped to develop the right conditions for the mechanisation and industrialisation of the laundry trade to occur. To start, the availability of readily washable materials and clothes was increasing quickly, which was mostly due to the increased use of cotton. As there were more washable materials in circulation, this enabled clothes to be washed more easily and more often. The increased use of cotton occurred in parallel with the increased use of soap, which was significant because the cotton materials in use were mainly lighter and more delicate than linen, wool and fustian materials and less suited to the former and harsher laundry methods such as 'bucking with lye' (Malcolmson, 1986:129-136).

In addition to the progression in types of materials available, there was also growth in the services that proliferated laundry needs. Railways, restaurants,

universities, seaside resorts and spa towns and steamships all helped to substantiate the industry. Another important element was the process of urbanization since industrial laundries developed around the fringes of cities and depended on large workforces of middle class women. Acton, Lewisham and Kings Cross in London were known for their steam laundries. The Kings Cross Laundry employed as many as 1000 people and laundered up to 40,000 shirts and collars every week (Malcolmson, 1986:128-136).

Resource infrastructures

Perhaps most significantly of all, the laundry trade would not have become mechanised if there were not appropriate resource infrastructures. Piped water was absolutely essential for steam laundries to operate. Laundresses and small scale laundry businesses would fetch water from a local water supply, which would invariably involve manually carrying all the required water in heavy buckets and other water carrying vessels. This would have been extremely impractical for large-scale factories to do considering the volume of water they required. The quality and availability of public water was brought to attention after London's major cholera outbreak in 1854, in which John Snow famously removed the handle of the Broad Street public pump, raising awareness about poor water sanitation. Although Snow's theory that cholera was contracted through contaminated water was not initially accepted, it did snowball efforts to improve public water infrastructures (Malcolmson, 1986:128-136).

3.6 Industrial to domestic

The decline of the industrial laundries was firmly linked to the acquisition and use of the domestic electric washing machine. Whilst pressures from unions and government legislation to increase minimum wages contributed to the closure of some of the smaller laundries, it was undoubtedly the domestic shift that placed the greatest pressure on the industry and eventually forced it into decline (Mohun, 1999:249-267).

The shift from industrial to domestic was not a simple or straightforward one. During this time, households choose between a combination of laundry methods including: the commercial laundry, the laundress or doing it themselves at home with either a washboiler or manually with a dolly. Households chose the most appropriate method based on clothing or textiles type, cost and convenience (Mohun, 1999:250).

Understanding what caused the shift is more nuanced than a linear equation of more domestic washing machines equals less industrial laundries. The rate of adoption of electric washing machines, the decline in use of industrial laundries and the development of modern domestic laundry practices was influenced by a whole host of wider cultural, technological, sociotechnical, economic and material elements and not least: electrical standardisation, economic growth, evolving household dynamics and the availability of new fashions and textiles.

Evolution and transition

In Britain the switch from industrial to domestic happened mainly after the Second World War, which was much slower in comparison to America. In 1948 only 4% of British households had a washing machine in contrast to America where as early as

1941, 52% of households had washing machine (Malcolmson, 1986:135). There were various reasons why Britain adopted electric washing machines slower than America. One reason was the popular use of the inexpensive washboiler in Britain, a copper vessel used to boil clothes that was unfamiliar in America (Mohun, 1999:250). Another reason was the slow rate in which Britain developed a dependable and standardised electricity infrastructure, since to use a domestic washing machine required a supply of electricity. By 1930 in America 70% of households were connected to a supply of electricity, in contrast to Britain where in the same year only 33% of households were connected to a supply of electricity (Mohun, 1999:252).

Before electrical standardisation, voltages and frequencies in use across Britain differed making it impossible for washing machine manufacturers to offer models that could be used nationwide. During the 1930s, washing machines could only be used if they were compatible with the local frequency and voltage of electricity in an area. If not, households would have to buy separate motors for their washing machines that were specific for their regional electricity supply (Mohun, 1999:253). For most households, this was prohibitively expensive.

However, the main reason why America was ahead of Britain in the adoption of washing machines was due to Britain's involvement in the war. Material rationing, economic adversity and a manufacturing focus on wartime supplies greatly hindered the availability of electrical washing machines until after the war had finished. More significantly than this however, the commercial laundries also played a very important part during the war and it was in Britain's interests to support the industry. Unlike some other services, laundry was not a luxury during the war, but a vital necessity. In addition to its own forces, Britain clothed and laundered for hundreds of thousands of

foreign troops. Hospitals, military barracks and other war time accommodations all needed laundry services and demand for commercial laundry services increased. In 1941 the laundry industry was recognised with the appointment of an Inter-Departmental Committee led by a director of laundry services to coordinate utilization of laundry facilities and by the extension of the Essential Work Order to the trade. Thus, wage rates were fixed and workers were unable to leave their jobs. As providing such a crucial role, the government increased wage rates and working rights, and benefits improved dramatically (Malcolmson, 1986:159).

Trade restrictions and legislations

As America led the market in washing machine manufacture, Britain enforced trade restrictions against cheap American imports to protect the home market, and thus washing machines in England were initially very expensive and out of financial reach for most households - slowing the development of home laundry practices. The Trade Boards Act 1909 was another element that affected the state of industrial laundries (Mohun, 1999:250). This legislation led to set minimum wage criteria which was legally enforceable, and was subsequently updated in the Trades Board Act 1918. Coupled with the 1930's economic depression, profits made from the industrial laundries began to decline. Yet as the number of industrial laundries began to decline, Mohun (1999:50) suggests households were not choosing between a laundry and washing machines, but rather, a variety of: the laundry, the washboiler, the laundress and doing it manually at home with a dolly and copper.

A labour of love

In the post war years, family lifestyles and household dynamics began to shift as Britain grew increasingly wealthy. Middle class wives were encouraged not to work but to stay at home and attend to the house and family upkeep. Mohun (1999:249) notes that changes in consumer culture led to the increasing availability of consumer credit, which in turn helped to establish the washing machine manufacturing industry as more households could purchase them on credit. Thus, washing machines became desirable as status symbols; they implied household prosperity and success. Home laundry practices began to evolve as an extension of successful and proper homemaking and developed meanings associated with family moral integrity and a validation of care (Malcolmson, 1986:161). Home laundering also provided control and care over public facing family cleanliness, since cleanliness has developed as a measure for social judgement (Kelley, 2010). Washing machine manufacturers marketed home laundry from the perspective that clothes could be taken better care of at home than in the commercial laundry, and thus clothes would last for longer. They also advocated that it was more hygienic to wash clothes at home than to share large washes with other families clothes in the commercial laundries – a notion that resonated with the development and understanding of germ theories (Mohun, 1999:259-260).

Fashion and textiles

Another contributing factor in the shift from industrial back to domestic laundry was what was washed; fashions, textiles and the types of clothes in use were changing quickly. The twentieth century saw some massive changes in not only fashions and styles of clothing, but also in textiles and methods of production. The development of

synthetic fibres allowed clothes to be washed and dried more quickly at home, whilst the move away from stiff collars, heavy starching and other fastidious finishing processes meant that specialist services offered by laundries were no longer in high demand (Malcolmson, 1986:158).

The ready-made clothing industry gained momentum in Britain after World War Two, and the hierarchical fashion system that underpinned class identity began to collapse. As Britain was becoming wealthier, clothes were becoming cheaper and more people could afford to buy fashion. The fashion system was changing from what was once elitist and 'closed' to something more democratic and 'open' (Majima, 2008). In 1974, an article about designing fashion at British retailer Marks and Spencer discussed some of the major design influences of the day. The first major influence was described as, 'wide choice of man-made fibres allowing easy-care clothes in lighter colours due to their washability' and the second was described as 'more efficient production ready to lower costs which allow a greater number of garments per head to be bought by more people' (Hutton, 1974:62).

3.7 Conclusion

This chapter has made three key contributions to this research study. In the first instance, from a historical perspective, it has shown how radically laundry has evolved in: how, where, when and why it was done, to the point that it is almost unrecognisable to what it once was. It has moved from being a low-technology hand practice done at home or by local laundresses with the use of a few basic implements, to a fully mechanised steam industry based on models of mass production and profit

maximisation, to a domesticized home practice imbued with concepts of successful homemaking. Of particular significance is the enormous shift in the first half of the twentieth century when laundry transformed from being an industrialised business to a domesticated home practice. Such a large-scale switch and restructuring of both business and practice is not only unusual (in the UK) but also demonstrates how new needs, meanings and values have emerged for laundry.

Secondly, through the lens of practice theory, this chapter has provided an illustrative account of how laundry can be understood as a practice, that is, a socially constructed activity that is assembled from many different kinds of co-evolving elements. Observing Shove's (2012) account of practice theory it has shown how laundry practices have developed and redeveloped through numerous meanings, materials and competences. For example, major shifts in how laundry was done were not driven by technological advancements alone. When laundry transformed into a mechanised steam industry during the latter half of the nineteenth century the technology to facilitate this change had existed for a long time previously as innovations from the industrial revolution (Mohun, 1999:15-45). The shift depended on an amalgamation of elements including: the growth in urbanisation that provided a workforce for the laundries and also the growing population of middle classes in the latter half of the nineteenth century who were eager to differentiate their social position from the working classes through their abundance of freshly laundered and perfectly finished clothing. So whilst technology facilitated the mechanisation of the laundry industry, it was catalysed by new meanings and the increased significance of wearing appropriately clean clothing. Thus, laundry has developed through a

combination of appropriate technologies, meanings, competencies and understandings – and not any one of these elements in isolation.

Finally, it can be concluded from this chapter that the key benefit in understanding laundry as a practice is that it provides a rationale for how changes in laundry practices occur. This is useful because it offers a basis from which to hypothesise and postulate new scenarios for laundering in which the dependency on large quantities of energy and water is destabilized. In other words, viewing laundry as a practice helps to distribute attention more equally across all elements that compose laundry as a practice, rather than focusing almost exclusively on innovations in the technological elements – which is the predominant approach to encouraging less environmentally intensive laundry practices.

CHAPTER FOUR

Present laundry practices

Introduction

Overview of laundry study

A practice theory perspective

Analysis of laundry study

Laundry frequency

Laundry processes

Perception polling

Conclusion

4.1 Introduction

Following on from chapter three, in this chapter I shift focus from analysing laundry and its evolution from a historical perspective to that of a contemporary practice. Here I analyse laundry practices within the setting of modern everyday life, with focus on how eight specifically designed garments influence laundry methods and frequency, and the part design plays in the organisation of laundry practices as a whole. To do this, I carried out a yearlong laundry study involving sixteen participants. Two sets of the eight garment designs were made, providing sixteen garments in total. As discussed in chapter one, these garments were designed in previous research, as part of my masters degree (Rigby, 2010).

The analysis of the study first focuses on how and how often the sixteen study garments were laundered. As a basis for comparison, it uses laundry data provided by the study participants on a similar garment the participants already owned. From this, the influence that the designed garments and their specific design characteristics had on laundry behaviours and deterring laundry impulses is analysed. Developing from this, a need is identified to develop deeper analysis around the organisation of laundry as a socially integrated practice.

This chapter further focuses on patterns of use and laundry by considering laundry as a social practice and develops analysis through a practice theory based framework. It analyses findings from the post-study focus groups (for transcripts see appendix seven) and describes the case for further research into perception. It summarises findings from the perception polling studies in section 4.5 (for data see

appendix nine) and develops foundations from which to re-contextualise the relationship between design, laundry behaviour and sustainability.

4.2 Overview of laundry study

Throughout this thesis the garments made for the laundry study are referred to as study garments. The images of the garments can be found in appendix six. Each of the eight garments was made twice, creating two sets of garments. Testing two sets of garments provided an opportunity to compare how the same garment was used and laundered between participants. Further, rather than being dependent on one location it was decided to undertake the laundry study in two locations in case there was any practical challenges or problems with either of the study groups. One set was given to a group of eight participants in Bristol and the other set was given to a group of eight participants in London. These cities were chosen for geographical convenience. Each garment was used along side a similar existing garment that the participant owned to allow a further comparison to be made between laundry routines and garment designs (see appendix six). The study lasted for twelve months, during which time the participants were asked to wear the study and comparison garments without special consideration or treatment, and to record the use and laundry of each in a diary. At the end of the laundry study two semi-structured focus groups were held with a selection of participants from the laundry study. The transcripts for these discussions can be found in appendix seven and they are referred to during the study analysis in section 4.4.

Laundry probes

Cultural Probes are often used as a research tool in design projects to enhance understanding about people and their lives. They are typically artefacts or tasks given to a person that in some way allow the user to self-report, and were developed to provoke responses from users that could help to enrich design ideas (Gaver et al., 2004). They were pioneered by members of the Computer Related Design (CRD) studio at the Royal College of Art, led by Bill Gaver, during the Presence Project - a European Union-funded research project to investigate ways that technology can be used to increase the presence of older people in their local communities (Gaver et al. 1999). In the laundry study the diaries (as shown in figure 4.1) and garments (as shown in figure 4.2) supplied to the participants acted as cultural probes, to gather information unobtrusively about how the garments were used and how laundry was performed. Developing from the idea of a cultural probe, the garments in the laundry study can also be understood as laundry probes. That is, artefacts which are specifically designed to collect information about laundry practices.

Figure 4.1 Laundry diaries

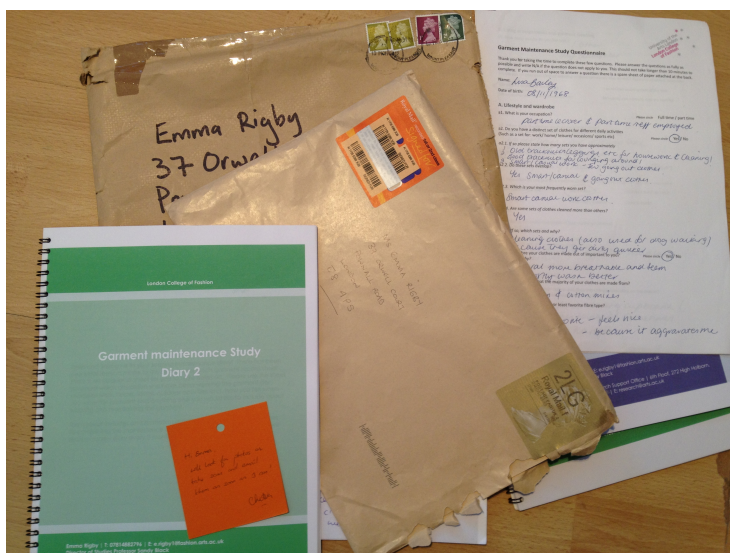


Figure 4.2 Study garments



Participants

Participants were recruited to take part in the study through adverts placed in online forums, local newsagents and through social networks. The participant selection process was sensitive and involved consideration of two chief conditions. First, the garments had to match the participants' lifestyle and be a garment they would wear often. Each garment was therefore allocated to a participant based on their lifestyle and clothing habits, which was assessed through an initial questionnaire and interview. The initial questionnaire can be found in appendix one.

Secondly, the nature of the study relies on an investment of time and commitment from the participants. Each participant had to take on the responsibility of partaking in the study for a year. To maximize the likelihood that participants would be committed to the study for the full year it was important that they entered into the study with a thorough understanding of their involvement and agreed to take part freely and willingly. Therefore, an information sheet was produced to fully explain the nature of the study (see appendix two) and a remuneration sum of £50 was offered to the participants on completion of the study as a token of gratitude for commitment to the study. Each participant signed a consent form to confirm that they fully understood the nature of the study and participated freely and willingly (see appendix three).

Figure 4.3 describes some of the key demographic information from the participants involved. The participants' age range was from 20 to 43 and their lifestyles, household types and occupations varied. This was as expected in finding participants with lifestyles appropriate to the use of the different types and styles of the garments in the study. A more detailed overview of each participant involved in the study can be found in appendix five which outlines: which study garment they were given, what their

comparison garment was, and an overview of their lifestyle and current laundry routines. This is also further discussed in section 4.3 (elements of laundry practices) where their existing laundry routines are compared alongside a broader UK average to provide a context for the laundry study.

Figure 4.3 Participant characteristics





| Participant code | Location | Age | Occupation | Household type | Lifestyle |
|------------------|----------|-----|---|--|------------------------------------|
| L1 | London | 27 | Architecture student | Cohabits with 2 others in rented flatshare | Sports, active, arts, culture |
| L2 | London | 25 | Full time call center supervisor | Cohabits with partner in rented flat | Social, busy |
| L3 | London | 26 | Full time interior designer | Cohabits with 2 others in rented flatshare | Social, arts, culture |
| L4 | London | 35 | Part time software project manager | Cohabits with partner and child in self-owned flat | Sports, social, family life |
| L5 | London | 37 | Full time music teacher | Cohabits in rented flat with husband | Social, culture, arts |
| L6 | London | 30 | Part time ceramist and part time freelance art ceramist | Cohabits with partner and flatmate in self-owned flat | Arts, culture, social |
| L7 | London | 35 | Part time freelance writer | Cohabits with partner and 3 children in self-owned house | Arts, culture, social, family life |
| L8 | London | 40 | Freelance photographer | Cohabits with partner in self-owned flat | Social, arts, culture |
| B1 | Bristol | 32 | Freelance and temporary contracts in sports and arts | Cohabits with partner in self-owned flat | Sports, active, arts and culture |
| B2 | Bristol | 30 | Full time midwife | Cohabits with 3 others in rented shared house | Sports, active, social |
| B3 | Bristol | 29 | Part time administration | Cohabits with partner and 2 children in self-owned house | Social, active, busy, family life |
| B4 | Bristol | 43 | Part time fashion lecturer, self-employed designer | Cohabits in rented flat with daughter | Social, busy, arts, family life |
| B5 | Bristol | 29 | Full time taxidermist artist | Cohabits with parents their owned house | Social, arts, culture, sports |
| B6 | Bristol | 33 | Full time textiles technician | Cohabits with partner in rented flat | Social, arts, culture |
| B7 | Bristol | 27 | Full time occupational therapy student | Cohabits with 3 others in rented house | Social |
| B8 | Bristol | 20 | Part time sales assistant | Cohabits with partner in rented flat | Social, sports |

Data coding and research ethics

In the interest of research ethics the collection, storage, disclosure and use of participant data is in compliance with the Data Protection Act 1998. The identity and involvement of each participant in the study has been anonymised through the use of the data-coding key. All research has been conducted in line with the principles of non-maleficence and beneficence, and is compliant with the University of the Arts London code of practice on research ethics.

A coding system was created for certain data based on five key variables, including: each study garment, each comparison garment, each participant, each period of the study (four periods in total) and symbol code for each study garment style, as shown in figure 4.4. The codes are based on acronyms, with reference to their meaning and can be broken down or built accordingly to refer to a participant or a garment the participant has been using. For example, L1 is a participant code and infers that the participant lives in London, while B1 infers the participant lives in Bristol. ME infers the merino top, while BS refers to the black skirt. When 'C' is placed at the beginning of a code it infers a comparison garment. Therefore, the code C.L1.ME means the comparison garment for the merino top belonging to participant 1 in London. The complete coding keys for the laundry study can be found in appendix four.

Figure 4.4 Data coding key

| Visual |  |  |  |  | Period | | | |
|-------------------------|---|---|---|---|---------------------------|---------------------------|---------------------------|---------------------------|
| | | | | | Apr May Jun 2011 | Jul Aug Sep 2011 | Oct Nov Dec 2011 | Jan Feb Mar 2012 |
| Garment Description | Merino top | Black skirt | Handknit vest | Trousers | | | | |
| Garment Code | L1.ME | L2.BS | L3.HK | L4.TR | | | | |
| Comparison garment code | C.L1.ME | C.L2.BS | C.L3.HK | C.L4.TR | | | | |
| Participant Code | L1 | L2 | L3 | L4 | | | | |
| | | | | | Full code | Comparison garment | Full code | Comparison garment |
| | A | A | A | A | L1.ME.A | C.L1.ME.A | L4.TR.A | C.L4.TR.A |
| | B | B | B | B | L1.ME.B | C.L1.ME.B | L4.TR.B | C.L4.TR.B |
| | C | C | C | C | L1.ME.C | C.L1.ME.C | L4.TR.C | C.L4.TR.C |
| | D | D | D | D | L1.ME.D | C.L1.ME.D | L4.TR.D | C.L4.TR.D |

4.3 A practice theory perspective

This section begins by briefly returning to look at practice theory, what a practice is, and further maps out the elements that form laundry practices. It navigates through existing elements of practice for the participants involved in the study (as outlined in appendix five) and discusses how these elements come together for the performance of different laundry practices. This provides a context for analysing the garments kept under study and helps to better understand stories of habit, routine and behaviour recorded in the garment laundry diaries. Furthermore, breaking laundry practices down into different elements also gives a clearer insight into how the study garments instigated particular laundry practices, and the extent to which these practices led to a lower consumption of resources.

Practice theory

Practice theory is discussed across a range of disciplines and theoretical contexts related to social sciences, including sociology, anthropology, ethnography and cultural theory. As a form of social theory that has been developed by various authors including: Bourdieu, Gibbons, Schatzki, Taylor and Shove. To briefly recap, cultural sociologist Andreas Reckwitz (2002:249) has identified the key elements of practice theory, which separate it from other forms of social and cultural theory. He defines a practice as

... a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. A practice – a way of cooking, of consuming, of working, of investigating, of taking care of oneself or of others, etc.

Reckwitz's definition affirms practice as a socially constructed activity, which as well as physical things, depends upon and integrates norms, values and routines. His understanding of practice theory is widely used in current social research, and is well established as a device to understand social activity. Reckwitz's account of practice theory has therefore been selected as the most suitable interpretation to use in this research. Using practice theory in the laundry study adds an extremely useful layer to aid analysis, and allows the study garments, and the design features they encompass, to be understood as one of many elements that facilitate laundry practice. This helps to increase understanding of the plethora of elements that constitute laundry practice beyond the participants, and expands understanding of the role of design within laundry practice and resource consumption.

Practice theory and design

Structures for using practice theory in design research have been outlined and expanded by various authors. Most research in this area seeks to increase understanding of the sociological elements of practice and its relationship with design. Guy Julier (2007) in his paper 'Design Practice within a Theory of Practice' builds on the 'Practice Orientated Product Design' (POPD) manifesto, which was part of a project led by Elizabeth Shove, Professor of Sociology at Lancaster University. Julier maps out the complexity of activities that surround social practices, and their dependencies on other practices, and argues that designers can use practice theory to enhance their role as designers. This is demonstrated through a primary study of teenagers' use of iPods to chart the connection between social behaviour and practices. Julier documented from

the iPod study that beyond the physical use of iPods, there is an inherent form of social use, and iPods facilitate social behaviour. Therefore, it is possible that relationships between practices can be changed through interventions in products, environments, services, systems, or through background understandings that influence how they are carried out (Julier, 2007). The most exciting conclusion that designers can draw from Julier's work is that if social behaviour was changed by the use of objects, products can be designed with the purpose of influencing behaviour.

Practice theory and pro-environmental behaviour

Using practice theory to encourage pro-environmental behaviour change has been explored in research by Tom Hargreaves (2011). Hargreaves uses practice theory to show how behaviour can be successfully changed in the initiative 'Environmental Champions', and argues that conventional methods of pro-environmental behaviour change are restricted by individualist approaches that fail to acknowledge the collective dependencies practices share with each other. He highlights the importance of understanding the web of complex elements that surround social practices to promote pro-environmental behaviour change, which can expand and enhance the potential for change. Individualistic approaches reduce the scope of understanding for what is concerned in behaviour change interventions, which has often been a cause of disappointment in the past. Hargreaves (2011) uses practice theory to offer a more integrative, inclusive and overall successful approach towards pro-environmental behaviour change. Applying practice theory as an approach to design, or as a design intervention to encourage pro-environmental behaviour is a little explored area, yet holds massive possibility for large-scale change.

Adopting a practice theory approach

The analysis of this study takes a practice theory approach and understands laundry as a practice made up of routines and habitual behaviours, which further consist of many interconnected elements. These elements can be blocked into: body, mind, things, knowledge, discourse, process and agent (Reckwitz, 2002:249-250). The participants in the study acted as *agents*. They *carried* and *carried out* social practices and took over the bodily and mind based patterns that constitute part of the performance of laundry practice. To carry out laundry practices also includes using things in a particular way. All of these things, or *objects*, are necessary components of laundry practices. In this study, these *objects* included the garments (and their design attributes), laundry appliances and products (washing machines, detergents, softeners, tumble driers, irons) and the resources needed for certain objects to operate (energy, water, chemicals) (Reckwitz, 2002).

Breaking down laundry routines into key components reveals the contingencies and interconnections between the elements that form laundry practices. In using Reckwitz's (2002) construction of social practices, the existing elements that make up laundry practices break into bodily routines of behaviour, mind based routines, the use of objects and the structures of different routines coming together. Figure 4.5 gives a more descriptive account of these elements.

Figure 4.5 Elements of laundry practice based on Reckwitz's (2002) construction of social practices

| Blocks | Elements | Examples |
|------------------------|--|--|
| Body, mind, agent | Bodily routines | The actions of putting clothes in the laundry basket, sorting clothes to launder, putting on a machine wash load, setting a wash cycle, hand washing, hanging clothes to dry, ironing, putting clothes away etc. |
| Mind, knowledge, agent | Mind based routines | Mind based routines of deciding when to do the laundry, when to wash particular garments, how to wash garments and which machine settings to use, choosing a detergent, deciding how to dry clothes etc. These routines are based on knowledge, interpretation, feelings, attitudes, conventions and socio-cultural constructs etc. that are connected to many other elements. |
| Things | The use of objects | The objects that are used in laundry such as clothes, and appliances and products like washing machines tumble dryers, clotheshorses, irons, and of course the resources needed to power them such as energy and water. |
| Process | Structures (of different routines coming together) | The structuring of certain mind based routines with bodily routines and the use of objects. The organisation of routines coming together and sequences of interconnected elements that form practices. These structures are not stable – they can shift in small or large ways, slowly or quickly when other elements change. |

Elements of laundry practices

An understanding of the participants' existing laundry behaviour and the elements that formed them was gained through discussions and questionnaires completed by each participant, and are described more fully for each participant in appendix five.

Understanding the existing elements of practice for each participant provides a platform to analyse how the study garments influenced the performance of laundry

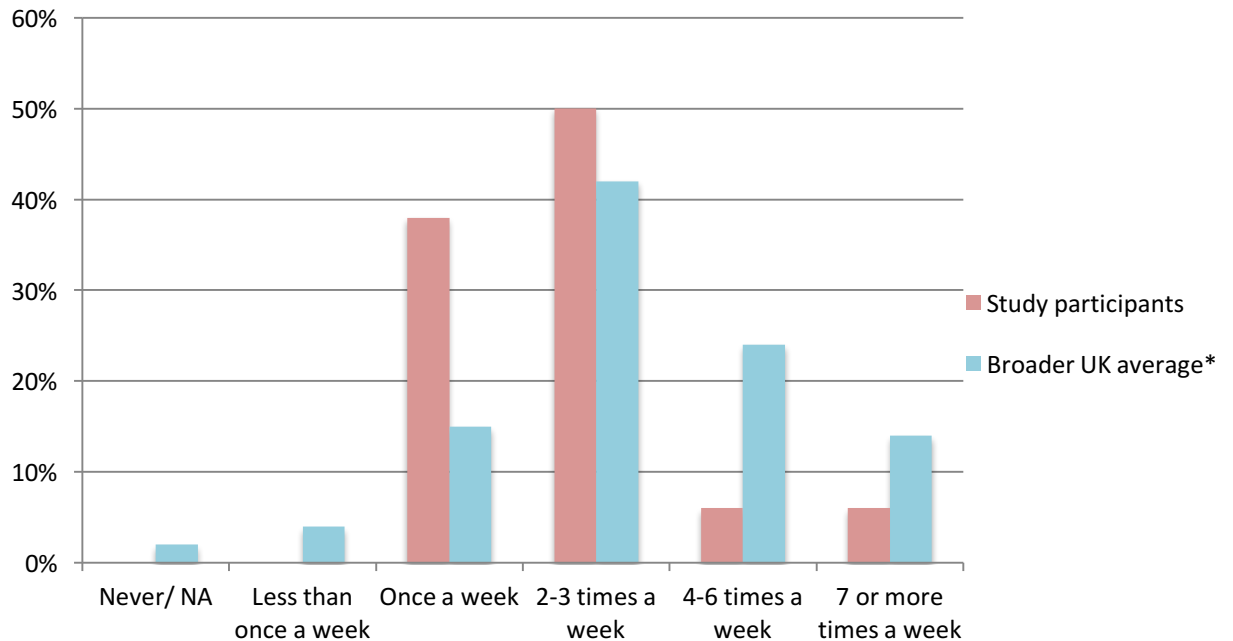
against existing laundry routines. Furthermore, to contextualise the existing elements of laundry practice within a wider population of people, these behaviours are compared to findings from a previous study (Caines, 2011) for the well recognised market research firm Mintel. The study provides laundry statistics from a broader base of 1,500 Internet users aged sixteen and above.

Appliances and frequency of washing machine loads

Nearly all participants had a washing machine in their homes, except B1 who used the laundrette. But less than half of the participants (seven out of sixteen) had a tumble dryer and all had an iron except L1. This is a fairly normal picture in the UK. As Caines' (2011) study shows, the rate of tumble dryer ownership in households is much lower in comparison to washing machines: in 2011 eighty-seven per cent of households had washing machines, while only forty-four per cent had separate tumble driers. Seventy-five per cent of households had irons (Caines, 2011).

Putting on a washing machine load two or three times a week was most common for half the participants, and less than half (six out of sixteen) put on a load once a week. One participant put the machine on four to six times a week, and one participant put the machine on seven times a week. These frequency habits are not dissimilar to the broader UK averages shown in Figure 4.6 yet the participants in the study overall put on fewer washing loads per week.

Figure 4.6 Frequency of washing machine loads of study participants in comparison to broader UK average (the broader UK average is based on a sample of 1,500 Internet users aged sixteen +, Caines, 2011).



Laundry responsibilities and correlation to frequency of washing loads

The participants in the study took varying positions of responsibility for the laundry.

Two participants were responsible for their own laundry only, six took lead responsibility for their laundry and that of other household members, five shared laundry responsibility with other household members, and three took lead responsibility for their own laundry and sometimes shared loads with others. The responsibility each participant took for their laundry and that of others was largely framed by the relationship between the participant and other household members, if they were spouse, family, parent to or just flatmates. L4 Commented ‘we don’t really talk about the laundry it’s just a job that needs to be done and I do it. We have a

washing basket at the top of the stairs and everybody puts their clothes in there, normally at the end of each day'.

Yet the laundry responsibility for others and the number of people living in a household had little correlation between frequencies of machine wash loads. For example participant B3 took lead responsibility for her household of four and put on two to three washing loads a week, participant B7 was responsible for solely her laundry and also put on two to three washing loads a week, while participant B4 took lead responsibility for her household of two and put on seven washing loads a week. Perhaps owing to the relatively small size of the sample this does not reflect the average habits of a larger population, in which the main influence of washing machine usage is the number of people living in a household (Caines, 2011).

Sorting laundry, temperature and use of detergents and other products

The chief way of sorting laundry was by separating colours from whites, and then by material. L3 commented 'I mainly separate by colours, whites are always washed separately but I also have many delicate garments made from cashmere and silk so these are also cleaned separately by hand or a cold machine wash'. Towels and sheets tended to be treated as separate wash loads not to be mixed with clothes, delicate garments or those unsuitable for machine washing would be put on a cold or gentle machine cycle, hand washed or dry-cleaned. Nearly all participants used the same wash cycle for most of their washing, and for more than half using short cycles was the norm. In the case of thirteen participants the machine temperature was most commonly set on warm between 30°C and 40°C, for one participant it was most commonly set between 40°C and 50°C and for two participants washing at less than 30°C was the

norm. Hot washes of 60°C or higher were less frequent for all participants and used mainly for towels, bedding, whites and heavily soiled garments. These routines on sorting laundry, machine temperature and cycle setting are not dissimilar to those of a larger population. Statistics show that separating light and dark colours is the norm in sorting laundry, 56% of people use low wash temperatures for most of their washing and 27% use short cycles for most of their washing (Caines, 2011).

Half of the participants used detergents only when laundering clothes and half used softeners and other products such as whiteners. Most were the decision makers in terms of deciding which products to buy, except B5 who lived with her parents so would use the products her mother bought, and for L2 sometimes her partner would buy the detergent. L2 would buy small and concentrated liquid detergents while her partner bought supermarket own brand powder.

Drying and ironing

Even though seven participants had a tumble dryer, all but one preferred to air dry. L7 was the only participant who would tumble dry everything if suitable. For the rest of participants, drying clothes outdoors was preferred over drying clothes indoors, but lack of outdoor space (for some participants) and unsuitable weather was often prohibitive. When drying clothes indoors, most participants used clotheshorses and space in airing cupboards, over the bathtub, and over radiators (two participants would use radiators to dry clothes even when cold). Keeping the room that clothes are dried in well ventilated with fresh air was important for nearly all participants.

For most participants (eleven) ironing was done rarely or done only for garments that really needed to be, while two participants never ironed and three ironed most

things. B7 commented 'I never iron unless I have to, for my work clothes I do', L2 commented 'I don't like ironing; that's why I hang my clothes to dry very carefully without any wrinkles' and B4 commented 'I used to iron everything but gave it up!!' These ironing norms echoed those of a larger population in which 64% of people only iron items that really need ironing (Caines, 2011).

Working patterns and time allocation

Lifestyle and working patterns had a large influence on when the washing was done and by whom, and most participants had set times to do the laundry rather than set days. L5 commented 'sometimes I do the washing and sometimes my husband does, it just depends how busy we are and who is in the flat.' Six participants that had a regular full time working routine would fit laundry in around this, eight participants worked part time and two were students and their laundry was done on an ad hoc basis. Working full time or part time, and the type of clothes worn to work (formal or casual) also influenced the size and frequency of wash loads. L3 who works full time in a studio stated she wears casual clothes to work and dresses smarter when going out in the evenings and on weekends, as a result she washes her smarter clothes more often than her work clothes. In contrast L2 wears smarter clothes to work and washes these more often than her casual clothes.

Feelings, motivations and timings

Most participants had fairly neutral feelings about laundry but felt satisfied when it was done and liked to have clean and fresh smelling clothes. B1 stated 'I just do it when it needs to be done. Neither hate or enjoy it' and B6 stated 'it's necessary; I like to wear

clean clothes everyday (apart from denims). It used to be a real chore when we didn't have a washing machine, but now it's not so bad. Worse thing is putting away when they're all dry!' B8 stated 'I enjoy clean clothes, not too bothered about the process' and L8 stated 'Most of the time I don't mind washing clothes. It's a satisfaction to wash and have clean clothes, but sometimes I just don't put them away' and L5 stated 'I don't mind doing the laundry, but I don't enjoy it either. I do because I have to.' Four participants did not enjoy doing the laundry, B4 commented 'it gets on my nerves but I like clean clothes, sheets, towels etc' and B7 commented 'I don't enjoy it, it takes up too much time.'

For most participants knowing clothes were fresh smelling was as much of a motivation to do the laundry as removing visible dirt and stains. B5 commented 'I'm a bit lazy with it, clothes can lie on the floor for days at a time, I'm not too meticulous about cleaning, only when things start to smell gross' and L1 stated 'I do like my clothes to smell fresh, don't mind cycling clothes to be smelly as I would have to wash them all the time, sometimes I use Febreze to freshen them instead'. B3 commented that clothes are washed when 'visibly dirty or quite smelly, but I try to postpone washing if they don't really need to be washed' and B8 described why she washed work clothes after every wear 'they just get a bit sweaty and I like to look clean and smart when I'm at work'. Loss of garment shape was another motivation to do the laundry and L2 commented 'I wash mainly when clothes build up odours, loose shape and need to be freshened'. Having clean and freshly laundered clothes was important to most participants and seven participants stated that they felt satisfied after they had done the laundry. Laundry was also linked to a sense of control and order, L4 stated 'It makes me feel orderly and I like things to be tidy, organised and well presented'. L8

commented that she is prompted to do the laundry when 'it gets cramped in my flat with clothes around and I'm not putting them away. It helps to make my flat more tidy.' L7 decided to wash clothes 'generally to coincide with sports kits as needed etc'. Only L6 commented that clothes were washed for hygiene.

The desire for clothes to always smell fresh tied to average statistics from a larger UK average in which 'three quarters of adults put items of clothing in the wash to freshen them up when they are not visibly dirty' (Caines, 2011).

Summary

For the participants, laundry practices are made up of a complexity of interdependent elements such as appliances and products, the methods in which it is done, the frequencies at which it is performed, time, feelings and motivations. Breaking down the participants' existing laundry routines into key components reveals the contingencies and interconnections between the elements that form laundry practices. In using Reckwitz's (2002) construction of social practices, the existing elements that make up laundry practices break into bodily routines of behaviour, mind based routines, the use of objects and the structures of different routines coming together, as seen in Figure 4.5.

As reducing consumption is the focus of this research study, in considering participants' existing laundry norms it is highly relevant to point out that most participants used short machine wash cycles, washed on medium to low temperatures, and while seven had tumble dryers, all but one preferred to air dry clothes. These behaviours appear to be relatively energy conscious, and while explanations were not provided to why more lower energy processes were used than not, it can be suggested

that they were strategies for keeping down monthly electricity bills. Indeed, in the study reported by Caines (2011), the desire to save energy and costs on electricity bills was the key motivator for being more economical with laundry by putting on fuller loads of machine washes and using lower temperature cycles when possible.

The following analysis of the laundry study will focus first on how and how often the study garments were laundered, and to what degree their design characteristics influenced laundry behaviour. Following this, the analysis of the study will examine the elements that motivate laundry frequency and the elements that influence laundry processes.

4.4 Analysis of laundry study

This analysis of the laundry study explores the participants' laundry practices for the garments that were kept over the study period of twelve months. It is part narrative and informed through information provided in the garment maintenance diaries and other correspondences that occurred during and subsequent to the study via email, post, telephone and in person, and as such some quotes that have been used from the participants were written and some were verbal; the style of quotes change. The transcripts from the semi-structured interviews can be found in appendix seven.

The specifically designed study garments aimed to provoke pro-environmental changes in laundry practice. They were designed with characteristics which aimed to deter participants' compulsions to launder them. A comparison illustration for each study garment and its counterpart comparison garment with images and basic wear and laundry figures, plus the average amount of wears per maintenance for the twelve-

month period are in appendix six. The analysis of the laundry study will focus first on the laundering of the study garments in relation to the comparison garments as represented in the data in figure 4.8. It will discuss to what extent the designed garments influenced laundry behaviour and deterred laundry compulsions. Following this, the analysis will consider the study more thematically in terms of wider elements that influenced laundry frequencies and processes.

Study garments and comparison garments

During the study no two garments were treated in exactly the same way. Each study garment and the garment it was compared to told a different story in how and why it was used, and how and why it was laundered. As participants already owned the garments that were being used to compare with the study garments, routines in laundry practices for these garments were pre-established. The study garments were compared to see how they prompted different laundry routines and whether they led to reduced levels on consumption. Figure 4.7 demonstrates how this has been visualised to show the study and comparison garment side by side with the occasions worn listed, average wears per maintenance and methods of laundry. The full set of laundry study visualisations can be found in appendix six and they will be discussed in the remainder of this chapter. Figure 4.8 shows the collective statistics for the methods and frequencies in which laundry was carried out during the twelve-month study.

Figure 4.7 Laundry study visualisation for L1.ME and C.L1.ME

Jersey top (ME)

Participant code: L1

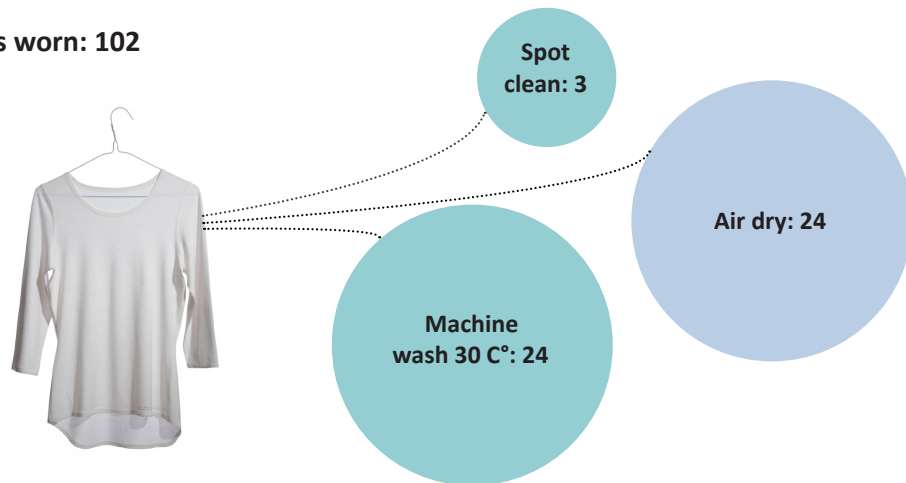
Participant location: London

Garment code: L1.ME

Garment description: fine jersey top with flat seam finish and three quarter length sleeves, natural

Material: 100% merino wool jersey

Occasions worn: 102



Average wears per maintenance: 4.3

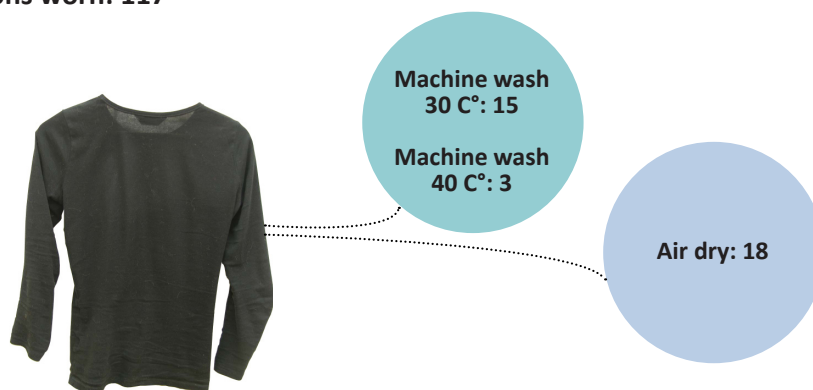
Comparison garment

Garment code: C.L1.ME

Garment description: jersey top with full length sleeves, black

Material: 100% cotton jersey

Occasions worn: 117



Average wears per maintenance: 6.5

Figure 4.8 Processes of laundry for all garments over twelve months

| Participant Code | Garment Code | Description | Separately listed occasions of maintenance | Freshening | | | | | Cleaning | | | | | | Ironing | | | | Drying | | | | Upkeep |
|------------------|--------------|---------------|--|-------------|---------|-----------------------------|--------------|-------|----------|-----------|-----------|-------------------|-----|--------|---------|------------|---------|--------|-------------------|---------|-------------|-------|--------|
| | | | | Air garment | | Artificial freshening spray | Machine wash | | | Hand wash | Dry Clean | Spot/sponge clean | Low | Medium | High | Tumble dry | Air dry | | Drip dry/flat dry | | | | |
| | | | | Indoor | Outdoor | | <30 | 30-40 | 40-50 | | | | | | | | 50-60 | Indoor | | Outdoor | Unspecified | Rewax | |
| L1 | L1.ME | Merino top | 24 | | | | | 24 | | | | 3 | | | | 18 | 6 | | | | | | |
| | C.L1.ME | | 18 | | | | | 15 | 3 | | | | | | | 13 | 5 | | | | | | |
| B1 | B1.ME | Merino top | 21 | 7 | | | | 1 | 16 | 4 | | | | | | 17 | | | 4 | | | | |
| | C.B1.ME | | 26 | 5 | | | | | 22 | 4 | | | | | | 22 | | | 4 | | | | |
| L2 | L2.BS | Black skirt | 2 | | | | | | 2 | | | | | | | | | | 2 | | | | |
| | C.L2.BS | | 3 | | | | | | 3 | | | | | | | | | | 3 | | | | |
| B2 | B2.BS | Black skirt | 3 | | | 1 | | | | 2 | | | | | | 3 | | | | | | | |
| | C.B2.BS | | 11 | | | 3 | | | 5 | 3 | | | | | | 5 | | | | | | | |
| L3 | L3.HK | Handknit vest | 9 | | 1 | | | 3 | | | | | | | | 8 | | | | | | | |
| | C.L3.HK | | 7 | 2 | | | | 2 | | | | | | | | 7 | | | | | | | |
| B3 | B3.HK | Handknit vest | 4 | | | | | 1 | | 1 | | | | | | 3 | | | 1 | | | | |
| | C.B3.HK | | 6 | | 2 | | | 2 | | | | | | | | 4 | | | | | | | |
| L4 | L4.TR | Trousers | 6 | 2 | | | | | | 1 | | | | | | 3 | | | | | | | |
| | C.L4.TR | | 12 | | 1 | | | | 9 | | | | | | | 11 | | | | | | | |
| B4 | B4.TR | Trousers | 7 | 7 | | | | | | | | | | | | | | | | | | | |
| | C.B4.TR | | 9 | 4 | | | | | 5 | | | | | | | | | | 5 | | | | |
| L5 | L5.SH | Shirt | 5 | 14 | | | | | | | | | | | | | | | | | | | |
| | C.L5.SH | | 12 | 4 | | | | 7 | 1 | | | | | | | 6 | 2 | | | 2 | | | |
| B5 | B5.SH | Shirt | 3 | | | | | 1 | | | | | | | | | | | | | | | |
| | C.B5.SH | | 27 | | | | | 5 | 17 | | | | | | | 19 | 3 | | | | | | |
| L6 | L6.AP | Apron | 38 | | | | | | | | | | | | | | | | 38 | | | | |
| | C.L6.AP | | 18 | | | | | | | 3 | | | | | | 3 | | | 15 | | | | |
| B6 | B6.AP | Apron | 6 | | | | | | | 2 | | | | | | | | | | 2 | | | |
| | C.B6.AP | | 9 | | | | | | 9 | | | | | | | 9 | | | | | | | |
| L7 | L7.DR | Dress | 16 | 7 | | | | | | | | | | | | 3 | | | | | | | |
| | C.L7.DR | | 7 | 3 | | | | | | | | | | | | | | | | 3 | | | |
| B7 | B7.DR | Dress | 4 | | 4 | | | | | | | | | | | | | | | | | | |
| | C.B7.DR | | 10 | | 2 | | | | | | | | | | | | | | | | | | |
| L8 | L8.CA | Cardigan | 7 | 2 | | 2 | | | 5 | 3 | | | | | | 5 | 3 | | | 3 | | | |
| | C.L8.CA | | 7 | 1 | | 4 | | | | | | | | | | | | | | 2 | | | |
| B8 | B8.CA | Cardigan | 15 | 2 | | 2 | | 13 | | | | | | | | 13 | | | | | | | |
| | C.B8.CA | | 12 | 1 | | 1 | | 8 | 2 | | | | | | | 8 | 2 | | | | | | |

During the twelve-month study, the majority of garments were relatively well used and some detailed data sets showing active use and laundry were collated as represented in figure 4.8 and shown in appendix 6. Three quarters of the participants wore the study garments more often than their existing comparison garments. However, across all garments in the study, the most worn was the comparison garment C.L1.ME which was worn 117 times and the least worn was study garment B7.DR which was worn six times (See appendix 6). Eight garments were worn over fifty times which can be considered high use, eighteen garments were worn between sixteen to fifty times which can be considered medium use, and six garments were worn fifteen times or less which can be considered low use.

The average wears per separately listed occasion of maintenance was calculated for each garment in the study (see appendix 6) to provide an overview of how the study garments compared to the comparison garments and if the study garments were successful in deterring laundry compulsions. It was found that twelve of the study garments (or three quarters) had a slightly higher wear per maintenance figure than the comparison garments, and four of the study garments (or one quarter) had a lower wear per maintenance figure. This suggests that there was a trend with the study garments where laundry impulses were deterred as the garments were worn more often yet maintained less frequently than their counterpart comparison garment. The study garments which had a lower wear per maintenance figure than the comparison garments were the merino jersey top L1.ME, the waxed apron L6.AP, and both the silk dress L7.DR and B7.DR.

However, what is now significant is to look at is the processes by which these garments were maintained since there are large environmental differences between

different methods of cleaning and maintenance. For example, in the case of the silk dress B7.DR, while it was worn six times and maintained four times (average wears per maintenance was 1.5) the method of maintenance was by air freshening outdoors which has no relative environmental impact, while the comparison dress C.B7.DR which was worn nineteen times and maintained ten times (average wears per maintenance was 1.9) may have had a higher wear per maintenance figure but it was machine washed eight times which is considerably more polluting than air freshening. A similar pattern emerged for L7.DR which was worn seventeen times and had an average wear per maintenance of 1.1, while it's comparison C.L7.DR was worn nine times and had a marginally higher wear per maintenance of 1.3. However L7.DR was often air freshened (seven times indoors) from which no or extremely little impact arises but this had the effect of decreasing the wear per maintenance figure for this garment.

However, these exceptions were not the case for merino top L1.ME. This garment was worn less often than the comparison garment and laundered more often through high impact processes in the washing machine. It was worn 102 times, machine washed twenty-four times, spot cleaned three times and air dried twenty-four times. Meanwhile, the comparison garment C.L1.ME was worn 117 times, yet this was only machine washed eighteen times and air dried eighteen times. From investigating this case further, it was found that this was due to a change in the use of the top which changed the reasons why it laundered (this will be discussed further in section 4.4.1).

One overall trend that emerges from looking at the data in Figure 4.8 is that the study garments tended to deter some of the higher impact processes of laundering such as tumble drying and hotter washing machine cycles. For example, the three garments in the laundry study that were regularly tumble dried were all comparison garments.

This included cotton jersey top C.B1.ME, cotton skirt C.B2.BS and linen shirt C.B5.SH. None of the study garments were tumble dried. Similarly, garments that were ironed on medium and high heats were all comparison garments. This included cardigan C.B8.CA, apron C.B6.AP and shirt C.B5.SH. Garments that were washed at higher temperatures also tended to be comparison garments. For example, the apron C.L6.AP was washed three times on 60°C, while nine out of the eleven garments that were washed at 40°C were comparison garments and only two were the study garments (B1.ME and L2.BS).

An immediate reason for this can be suggested that is to do with the material types that the study garments were made from which were more delicate than the comparison garments and unsuitable for higher impact laundry processes. Another reason for this can be suggested, which is that the study participants were more confident with the comparison garments and more willing to take risks when washing them. It can further be suggested that the comparison garments were older and used for longer, so more rigorous, higher impact laundry routines set in for them over time.

In summary from this discussion it can be suggested that the designs of the study garments did help to reduce laundering and maintenance frequency and also deterred high impact methods such as tumble drying and higher temperature machine washing. In this sense they showed that the particular design characteristics exhibited in the garments do deter laundry impulses to an extent. However, it is not clear why or which aspects of the garments' designs was more successful or less, and while the data in figure 4.8 shows some patterns and trends, further explanations and the larger social context of these figures can only be understood through engaging with the research participants more closely through the qualitative data collected. Therefore, to develop

a deeper understanding of the data from the study the remaining analysis will be more thematic and focus on laundry as a socially constructed practice and some of the wider social elements that influenced laundry frequencies and processes during the study.

4.4.1 Laundry frequency

Frequency of laundry is closely tied to resource consumption. By simply reducing the frequency that clothes are washed, consumption can be considerably reduced.

Understanding what influences laundry frequency is therefore crucial in identifying links to more sustainable laundry practices. This analysis of frequency examines which elements motivated the participants to launder and *increased* laundry frequency, and which elements motivated the participants not to launder and *decreased* laundry frequency. Frequency was influenced by many interconnected and overlapping elements, some physical, some emotional, some mind based and some to do with how the garment was used. This analysis breaks elements down into blocks and interrogates what each element triggered and why.

Physical elements

The physical elements that influenced washing frequency were to do with sensory perceptions, the fibre qualities and material characteristics of a garment, aesthetic and the technical design and construction of the garment. Removing dirt and odour were the main sense based reasons to launder. They were the most referenced motivators in the maintenance diaries and perhaps the most obvious and seemingly logical elements to identify, and in follow up correspondences these motivators were immediately

discussed. B1 commented on top C.B1.ME 'it's really smell more so than anything else that makes me wash it', B3 commented on hand knit tops B3.HK and C.B3.HK 'I washed them 'cause they got a bit grubby but the smell was ok'. L6 commented on aprons L6.AP and C.L6.AP 'I clean them both to remove dirt, clay, dust or whatever', B6 commented on apron B6.AP 'when it was soiled I washed it down' and B5 commented on shirt C.B5.SH 'Dirt doesn't really show on this shirt, I wash it mainly to get out sweat and smells'. L7 commented on dress L7.DR 'I removed a small cake stain by making a mild soapy solution with Ecover delicates.' As much as dirt and smell prompted laundry frequency, the absence of it reduced frequency. Garments that hid signs of dirt and reduced odour were washed less. L2 commented on study skirt L2.BS in period C 'It's dark and doesn't seem to get dirty. I have only washed it twice so far'. B5 commented on study shirt B5.SH 'the colour stops the dirt showing, when it didn't look dirty I felt better about not washing it'. B1 commented on study top B1.ME 'smelt less than my other top [C.B1.ME], so I didn't need to wash it as often'.

Other physical motivators to launder were linked to the fibre properties and material characteristics of the specific garment. Two participants washed to restore the garment when the material stretched, B8 commented on top B8.CA 'sometimes I just washed it when it stretched a bit and I wanted to make it feel tighter again' and B1 commented on B1.ME

I wash it mainly because it loses shape more so than anything else. I know that sounds weird but I don't like it when garments begin to sag in places. In this top it begins to sag in the elbows, and through the width in the body – I know it's a bit vain but this doesn't look flattering so I'll wash it to shrink it down again. Having said that I wear it about 4 to 5 times before washing it, which is more than some of my other clothes.

In a follow up discussion she explained her sense of satisfaction with the top changed when the top reduced in elasticity and stretched. The fibre properties influenced B1 on an emotional level. This demonstrates the interconnections between physical and emotional elements. B5 washed to make the wax cotton material of the shirt softer. She commented on shirt B5.SH 'I was a bit curious to put it in the washing machine [laughs]. I wanted it a little softer so decided to try it out, it did work, felt lighter and more gentle after, easier to wear'. For B5 the wax coating on the study shirt (B5.SH) also reduced laundering frequency, she stated 'A friend nicknamed it the invincibility shirt as it seemed invincible to getting dirty or needing washing. It was the wax of course'. For B4 the material the fibre properties and material characteristics of the study trousers also reduced laundry frequency. She commented 'Also the trousers are really lovely and are wool so I really don't feel the need/ want to wash'.

Another physical reason to launder was motivated by aesthetics; i.e. when the appearance of a garment was no longer pleasing. For example when seams began to twist out of place, when the crispness of the leg crease in a pair of trousers was lost, when material softened and changed its drape or when knee and elbow imprints remained in the garment. This made the garment look *worn*. L4 commented on the trousers C.L4.TR '...my other trousers tend to look a bit more worn so I wash them more often, they get knee imprints, and the creases start to drop out of the legs.' L8 commented on L8.CA 'it just looked worn in the arms, in the elbows and that kind of thing...'. In parallel, aesthetic was also a motivator not to launder; when garments did not appear *worn* they were less likely to be laundered. B2 commented on study skirt B2.BS 'I don't wash it very often, but it doesn't really need to be. Always looks quite new and doesn't look worn.'

The technical design and construction of a garment also had a role to play in both increasing and reducing laundry frequency. The hand knit tops were slouchy and relaxed, the trousers had a dropped crotch, and the cardigan was loose fitting in the body. They were easy to wear, not restrictive and came into less direct contact with the body. L3 commented on hand knit top (L3.HK) 'the cream top was perfect to wear at work, I used to wear my blue top a lot and but it is quite flappy and when doing practical work can get annoying... the cream top is not flappy and has a soft and easy fit, this also reduces the need to launder as I can wear layers underneath it.' L4 commented on the study trousers 'the fit was also nice, not too tight around my thighs and bottom, so I don't wash them so often'.

Emotional elements

Emotional factors also prompted laundry. These were 'gut' responses, and are more difficult to understand than physical elements. Emotions are complex and interdependent on many other things such as tacit knowledge, interpretation, and established societal norms. Participants were vague about emotional elements, they described key emotions, but described less how these were formed or what they were influenced by. Yet it was apparent emotional elements came into play on many different levels.

Freshening a garment was one of the most described emotional motivators to launder and was linked to making participants feel better, happier and more satisfied. B2 commented on B2.BS 'I only hand washed the skirt twice, to freshen it up as it wasn't really dirty and no noticeable smells', L3 commented on L3.HK 'it's nice to know it's a bit fresher after a wash'. L4 commented on L4.TR 'they really didn't get that dirty actually,

I hand washed them once, but after that I had them dry cleaned, more to freshen them up than anything else', L7 commented on L7.DR 'to know the dress is fresh is important, it makes me feel more satisfied' and L8 commented 'it wasn't dirty or anything, I just like to freshen things up. When I'm doing my hand washing I'll do the cardy as well, I'll just throw it in with everything else'.

Other emotional motivators were linked to gaining peace of mind, mental comfort, assurance and confidence through *knowing* a garment was clean. B8 commented on B8.CA 'I washed it to know that it was clean' and L8 commented 'it's a satisfaction to wash and have clean clothes'. During period B participant B8 wore and washed skirt C.B8.BS more often than normal. She stated 'I went on a training course recently and wore the skirt a lot more than normal. Also I probably washed it a lot more than normal because I wanted to feel completely confident and give a good impression'.

The desire to give a good impression is linked to social acceptance, and demonstrates interdependencies between different emotional motivators to launder. L1 also displayed a desire for social acceptance through laundry. She wore top C.L1.ME more than L1.ME (117 times in comparison to 102 times), yet over the study the study top was machine-washed six times more. C.L1.ME was worn for cycling and L1.ME was worn more socially, at work and generally around more people. She stated 'I'm not so bothered about washing clothes when they are used for cycling or outdoor activities as they will just get sweaty again and it's ok to be a bit sweaty after sports. I like to keep clothes that are worn less for sports a bit cleaner because I will also wear them more socially'. L1 was conscious of offending others with odour and visible spills and stains. She did not want to run the risk of losing social benefits by offending others with

unclean clothes. This is about maintaining a physical state worthy of respect by others and links to retaining a sense of dignity.

Different kinds of emotional motivators caused L8 to wash the study cardigan less (L8.CA). She took the study cardigan on a trip to Canada to visit her sister, and shared the use of the cardigan with her sister. When she returned home to London she did not want to wash the cardigan as it smelt of her sister and helped to retained pleasant memories. She commented 'I took the cardi to Canada with me last year to visit my sister. I knew it would be cold and needed warm clothes with me. My sister ended up wearing it more than I did! She liked the fact it is handmade and also very warm and stylish! Over 3 weeks she wore it about 10 times! When I got home it really smelt of her and I didn't want to wash it until the smell had faded.'

Meanings

In the study various mind based elements emerged that influenced laundry frequency. Some of these elements are easy to understand such as convenience, and some are more complex and interrelated to a host of other factors. Reasons of convenience reduced laundry frequency and were to do with what was easiest and what saved time and effort. They were based on individual rationale and reasoning. Convenience motivators are reasonable to understand and participants expressed them without difficulty. B7 wore B7.DR six times and did not wash it at all, while she wore C.B7.DR nineteen times and machine washed eight times. She commented on B7.DR 'the dress was hand wash or dry clean only so easier to not launder it. Never have things dry cleaned and don't like to hand wash. It's less effort to wash my other dress in the machine'. L3 explained that she got into the habit of leaving L3.HK at work so it was

more convenient to not launder, rather than remember to take it home especially to launder. L8 stated 'I used Febreze a few times on both cardigans, it's quicker than washing them'.

Garment tropes are another mind based motivator. They are the certain conventions participants applied to particular garments. They consist of entrenched ways of thinking and doing; they are based on established and existing behaviour: the processes by which and the frequency that participants expect certain garments to be laundered. Some tropes reduced laundering frequency and some increased it. As L3 commented on C.L3.HK 'I've never washed this one very often, you know, because it's an Arran knit they don't need to be.' Also L2 commented on C.L2.BS 'it's a denim skirt so it doesn't need to be washed as often'.

The garment trope that B4 applied to a pair of trousers caused a relatively high laundering frequency. She considered trousers as garments that should be washed every other wear; this was routine for all of her trousers. B4 made a particularly interesting case as the study trousers (B4.TR) broke the trope she attached to trousers. Many elements came together to break the trope: physical, emotional and elements to do with the way she used them. She established a different routine. They were worn fifteen times and aired instead of washed, while the trousers worn in comparison (C.B4.TR) were worn eleven times and machine-washed five times. She explained that after twelve months she had not felt the need to wash or clean them as she kept them hygienic through only wearing them for short periods of time and showering before wearing them. Her motivation for not washing was also linked to longevity: she felt they would get dirtier more quickly if they were washed. The notion she had about clothes getting dirtier more quickly once they are washed may be a confusion between

'becoming dirty' and 'no longer looking new'. Alternatively she may have been referring to the finishes or treatments on material that is lost after the first few washes and changes the appearance of the garment slightly. Either way, by not washing the trousers the original qualities were preserved (such as shape, feel, and the crispness of pleats) which prevented them from needing laundering. In combination with the duration of wear and original qualities, B4 also remarked on the fibre properties and characteristics of wool and silk. In period B she commented

I've only worn the trousers for short periods of time and always after a shower and I haven't felt the need to wash them yet. I tend to wash clothes a lot but when something is new I tend to let it go quite a while before washing it. It appears to me that once you have washed something once, it gets dirtier quicker... The trousers seem to wear well, they haven't marked at all (no stains), they still feel clean to wear without washing/ cleaning. No odours...

At the end of period B she noted 'the only thing I have had to do to the trousers on the last wear was to go over them with a sticky roller as they had lots of thread and hair from my jumper stuck on them' and in period D she stated

I am quite surprised that these trousers still do not appear to need cleaning. Because I have been logging here in the diaries how often I wear the trousers it has made me aware of how little maintenance they need. I feel slightly uncomfortable about the fact I haven't washed them (like I'm dirty!). However they really do still seem spotless inside and out. I do always shower before wearing them out and don't sit around at home in them; I generally wear them to work or out in the evening and always change to tracksuit bottoms when I get home. Someone told me once that if you have silk sheets you never have to wash them as silk has self cleaning properties and washing them destroys this – very strange and I didn't try this but maybe there is some truth in this – your trousers have a silk lining?

Use

The way garments were used had a large influence over how frequently they were laundered. This concerned which activities they were used for, the length of time for which they were worn, the combination of other clothes they were worn with and if they were in direct contact with skin. Some garments became dirty more quickly because they were used for messier work such as the aprons (AP), which increased the frequency at which they were cleaned. However, due to the way in which they were cleaned this did not increase consumption. Some garments were used more frequently during the day, such as the merino top (ME), while others were used for specific occasions such as the dress (DR). The way garments were used influenced the way they were cleaned which influenced consumption, this is further explored in section 5.3.

L1 made for an interesting example of how use can change the frequency of laundering. The study top (L1.ME) started out as a cycling top. It failed as a cycling top when L1 noticed the $\frac{3}{4}$ length sleeves bunched up in the inside of her elbow, which was uncomfortable, so she stopped wearing it for cycling. In period A, L1 commented 'I found this top impractical for cycling: I used the garment as a base layer (because my outer layer requires back pockets) unfortunately, when worn under other clothing the sleeves on my garment bunch up since they are $\frac{3}{4}$ length. This is uncomfortable'. This small design detail changed the way L1 used the top, and in comparison to C.L1.ME, which was used as a cycling top, the study top was worn slightly less (102 times in comparison to 117 times) but washed more often (six times more).

L1 also made a modification to the study garment that affected how frequently she wore it. During period A, L1 dyed the study top green as she did not like the original white colour (as seen in figure 4.9) and anticipated that it would be impractical to

launder and changing the colour would make her use it more often. In period A, she stated in the diary

Did not like colour, decided to dye garment green since I find light tops stain under the arms and I am too lazy to separate colours when I wash clothing. This means that white/ cream clothing quickly turns dingy grey. I used Dylon fabric dye for hand use to dye garment along with one cotton skirt and one cotton bag. Unfortunately, I became distracted during the dying process, and did not stir the solution as frequently as the Dylon instructions required. This led to the garment absorbing the dye more in certain places than others, giving the top a mottled, moss like effect. I do, however, like this effect and am happy with the modified garment. I feel that I will wear it much more frequently now. I was slightly surprised to discover that the stitching used for the seams did not take the dye, and have remained white. This is something I find quite attractive since it has highlighted the seams, making the garment look more flattering when worn.

Figure 4.9 L1.ME before and after it was dyed green



This case demonstrates the contingent nature and domino like effect of elements that come into play to influence laundry frequency. Through dyeing the top green she established a sense of authorship over the top, she felt it was more flattering to wear, her overall satisfaction with the top increased and she wore it more.

Use influenced frequency in other ways. In the case of L6 and B6 who were given the aprons, the way in which they were used also caused an increase in laundry frequency. Both aprons were worn to work in, L6.AP in a pottery studio and B6.AP in a textiles studio. The aprons were used as protective garments and consequently became dirty more quickly than other garments. This increased how often they were cleaned. However, because they were made from wax cotton they were not machine washed, the wax cotton acted as a positive intervention in laundry processes which therefore reduced the consumption of resources. B4 wore the study trousers for short periods of time and only after a shower, which kept them more hygienic and reduced her desire to launder them. L3 and B3 did not wear the hand knit study tops in direct contact with the skin, and they were worn over other layers. This stopped them from absorbing smell. B1 *sometimes* layered the study top B1.ME with other layers and she noted in the diary that when it was worn as a base layer it was washed less.

The dress (DR) was an occasion dress and used by L7 and B7 for special events. L7 commented 'Wore the dress to a birthday dinner at a gastro pub. Received a lot of complements on the dress; wearing the dress is always a pleasure as I find it elegant and easy to dress up or slightly down... I also wore the dress to a friend's 40th Birthday party at a club. The dress was warm enough with a light coat even though it was snowing!' She further commented 'I wore the dress to my daughter's speech competition at school, teamed with a blazer and pumps to tone it down. My daughter was a finalist so I needed to look nice!' During special occasions appearance becomes more important and the role of garment laundry becomes more significant.

Summary

Frequency of laundry is influenced by many elements, some physical, some emotional and some mind based. Each element is comprised of many different kinds of motivators, each with different dependencies. Physical elements as motivators to launder were chiefly associated with senses, i.e. when the garments appeared dirty or developed an odour. Yet in turn, when garments did not appear dirty, perhaps because dirt was hidden by colour or the texture of the material, and when they did not develop odours, perhaps because there were not in direct body contact, laundry was less likely to be performed. Responses to sensory perceptions were underpinned by emotions, as B5 commented 'when it didn't look dirty I felt better about not washing it'.

Fibre properties and material characteristics of the garment also influenced laundry practices, for B1 the study top (B1.ME) was mainly washed to regain shape after it stretched. This motivator also conjoined to an emotional element: as she described, when the top lost its shape, her satisfaction with it decreased, which made her feel displeasure when she wore it. Garment aesthetic also played a physical role in influencing laundry, and was even more closely tied to emotions. For example when a garment was no longer physically pleasing because a seam had perhaps twisted or bodily imprints were left in the material, it was more likely to be washed because it looked 'not quite right'. On the other hand, when garments did not appear 'worn' and retained their aesthetic they were less likely to be washed.

Emotional elements were the most complex to understand, and participants struggled to describe them well, most likely because emotions are slick, automatic and often subconscious responses. Yet emotion had a massive influence over decisions on when to launder. Freshening garments emerged as a key motivator to launder; it was

connected to satisfaction and a greater sense of contentment. Some emotions were interdependent on other emotions. For B1 and L8 assurance and peace of mind from *knowing* a garment was clean increased confidence in certain situations and helped to uphold feelings of dignity. Mind based elements were mostly time and effort saving responses: they were about convenience. Short cuts were found for garments that were difficult to launder, by machine washing garments that were hand wash only, or on the contrary, not laundering at all. Garment tropes were particularly interesting mind based motivators, especially in the case of B4. The trousers that she was given successfully broke the garment trope she attached to laundering trousers.

As can be seen, the relationship between elements is very circumstantial and heavily influenced by how the garment was used. Use relates to many things such as how long the garment was worn, what it was worn for, and how functional it was. Each of these things carries a host of other elements that can instigate changes in laundry practices. The most interesting case was for L1, for whom a small design detail caused a failure in use of the study garment (L1.ME) as a cycling top, which radically changed the way she used the top, and consequently instigated a change in laundry practice.

In short, the study garments successfully intervened in user behaviour and showed massive potential to instigate changes in frequency in habitual laundry routines. Yet frequency is only significant to consumption when it involves specific processes of laundry, such as machine washing and tumble drying. Therefore the next section of analysis continues to explore laundry processes and how this interplays with consumption.

4.4.2 Laundry processes

Laundry processes are the methods in which garments are laundered. This includes how they were washed (machine washed, spot cleaned, hand washed, dry cleaned or sponged down), the use of detergents and laundry aids (softeners and whiteners), how they were dried (tumble dried or air dried), if they were ironed and if and how they were freshened (Febreze, airing, machine washed). During the study, the garments were laundered in different ways and with different combinations of methods. Some methods are highly resource demanding, such as machine washing and tumble drying (which require water and energy to heat air and water), some are less demanding, such as ironing, and some require minimal resources, such as spot cleaning and air drying. Some methods such as dry cleaning require the use of chemical solvents that are harmful to both people and the environment. Understanding what influenced laundry processes, and identifying what roles the garments and their design features played in motivating specific methods of laundry is central in assessing how design can be used as an instigator for changing laundry behaviour and reducing consumption.

This analysis explores what motivated participants to launder in different ways, why some processes were used and others were not, why processes changed, and how and why consumption occurred. Similarly to laundry frequency, elements that influenced laundry processes are multifaceted and interrelated. However, decisions on how to launder were less emotional and more pragmatic, based on individual rationale. They encompassed physical elements, mind based elements, habitual elements and reasons to do with longevity.

Physical elements

The physical motivators for which laundry methods participants used were mainly to do with the fibre properties and material characteristics of the particular garment. The study garments made from wax cotton (shirt SH and apron AP) were the most obviously affected by this motivator as they were unsuitable for machine washing due to the waterproof qualities of the wax and participants had to rethink how to launder them. These garments also had the largest variance between how they were washed in comparison to their counterparts. Each participant laundered these garments in a different way.

L5 who was given the shirt (L5.SH) mostly aired it. She wore it seventeen times, spot cleaned it three times, aired it fourteen times and re-waxed it twice. The comparison shirt (C.L5.SH) was worn twenty-eight times, machine-washed eight times, ironed eight times and aired four times. As the study shirt was not machine washed or ironed, it established a different and lower impact laundry routine in contrast to the comparison shirt. Meanwhile, B5 who was given the same shirt (B5.SH) did not air it at all, but machine washed it once. This was a one off event and as discussed in section 5.2.1 she wanted to make the shirt feel softer to wear. Machine washing the shirt removed some of the wax coating and it did become softer. B5 wore the study shirt (B5.SH) twenty-nine times, machine-washed it once and spot cleaned it twice. The comparison shirt (C.B5.SH) was worn forty-nine times, machine-washed twenty-two times, ironed five times and tumble-dried nineteen times. The laundry process for the comparison shirt had a significantly greater consumption of resources because it had a higher impact, and while B5's laundry process for the shirt was different to L5's, the

fibre qualities and material characteristics of both shirts made for a lower impact laundry processes.

L6 who was given the apron (L6.AP) made for an interesting case. During the study she changed the way she cleaned the apron to establish a more suitable routine from how she began laundering it. L6 is a ceramicist and wore the apron often (seventy-seven times). At the beginning of the study she maintained it by wiping the clay and dirt off with cold water and a sponge. During period A she commented 'I filled the sink with lukewarm water and sponged the apron in sections. However I used too much water as I removed some of the wax. Now after every time I wear it, or every other time I spend 2 minutes wiping it down with cold water.' Wiping the apron down made it gradually lose the original protective qualities of the wax, and deposits of clay began to build up the more she used it. The original cleaning practice was no longer effective so she developed a new way to maintain the apron. This involved making a paste from water and clay and using it to 'reseal' the garment after every wear. In period C she explained 'most of the wax has come off so I make a sort of clay water paste, like cream, and use it to reseal the apron. This sort of camouflages splashes and clay when I am working in it and also protects the apron.'

The apron used in comparison (C.L6.AP) was also worn often (fifty-eight times), but did not have any original protective coating and L6 did not try and seal the apron with any kind of paste. She machine washed it three times and spot cleaned it fifteen times. By applying the paste to the study apron and not the comparison apron it would seem that she was trying to preserve and restore the original quality of the study apron that was lost after the wax came off. This speaks of preserving quality and also links to longevity. While the laundry process that L6 established for the study apron was very

different from the comparison apron, the variance in impact between garments was not big, since the comparison apron was only machine washed three times over the year. However, it is interesting that the change in laundry processes for the study apron was motivated when the previous laundry process failed; changing laundry behaviour was caused by necessity.

In comparison, B6 who was given the same apron (B6.AP) is a textiles technician and used the apron for less messy work. She wore it thirty-nine times and the apron she compared it to (C.B6.AP) thirty-two times. She stated 'I really like the design of the apron but initially found it hard to wear for heavy use, as I would my other apron. But when it was soiled I washed it down – which was a lot more practical than with my other apron where I would have to put it in the washing machine.' The study apron was not machine washed, and B6 would wipe it down with a sponge to remove dust and threads, to avoid removing the wax coating. The apron used in comparison was machine washed and ironed nine times over the year. The laundry process for the study apron was notably lower impact than that of the comparison apron, caused by the fibre qualities and material characteristics of the garment.

For Participant B1, the fibre type and characteristics of the study top (B1.ME) also altered normal laundry routines. Most of the time, she uses the launderette and washes everything on 40°C, tumble dries everything until damp and finishes air drying at home. The merino wool top given to her was not tumble dried because it was wool; she did not want to damage it. The comparison garment (C.B1.ME) was made from cotton and tumble dried after every wash. Both garments were wardrobe staples and worn often (B1.ME was worn sixty-five times during the study and C.M1.ME was worn

fifty-three times), yet the fibre characteristics of the study top changed B1's normal drying routine and reduced levels of consumption during laundry.

In the case of L8, ironing the silk straps on the wool study cardigan (L8.CA) was the main difference in laundry processes between that of the comparison cardigan (C.L8.CA). It was the fibre properties and material characteristics of the straps that caused them to be ironed. As she commented 'I hand wash it with other garments, let it drip dry and then lightly press the silk ribbons as they get really creased. In between wears I use Febreze spray to freshen it up and prolong periods of use or if I don't have time to wash it before going out.' L8 wore the study garment twenty-nine times, hand washed it three times, ironed it three times, aired it twice and freshened it twice with Febreze on it twice. The comparison cardigan was worn twenty-six times, hand washed twice, aired once and freshened with Febreze four times.

Mind based elements

Mind based elements that influenced laundry processes were largely to do with convenience. They were pragmatic for the participants and were things that saved time and effort. Convenience was demonstrated mainly through choosing to machine wash a garment that was recommended for hand washing and airing instead of cleaning.

Participant B3 washed the study top (B3.HK) by hand and after doing this once she decided it would be easier to machine wash as she did the comparison top (C.B3.HK) that was also made from wool and hand knit. B3 wore the study top seventeen times, hand washed it once, machine washed it once and spot cleaned it twice. The comparison garment was worn twenty-one times, machine washed twice and spot cleaned twice. She commented 'with the new top I washed it once by hand

but it was quite hard work, heavy and difficult to squeeze the water out. After that I washed it on a wool cycle in the machine and it came out fine.’ B3 decided to wash the study top in the same way that she washed the comparison top because in her experience it was easier and took less time, and more convenient. Overall both garments led to comparatively low resource consumption.

Participant B7’s laundry process for the study dress (B7.DR) was also influenced by reasons of convenience. She wore the study dress six times and rather than washing it, she aired it outside on four occasions. The dress worn in comparison (C.B7.DR) was worn nineteen times and machine-washed eight times. The dresses were worn for similar occasions but the comparison dress was made from cotton jersey and suitable to machine wash while the study dress was made from silk and was hand wash or dry clean only. She commented on the study dress ‘the dress was hand wash or dry clean only so easier to not launder it. Never have things dry cleaned and don’t like to hand wash. It’s less effort to wash my other dress in the machine’. As a consequence of convenience and through choosing to air the study dress, resource consumption was minuscule if at all, especially in comparison to the counterpart dress. Convenience motivated laundry processes which both increased consumption and decreased consumption.

Another motivator for laundry processes was care advice. Following care guidelines is the mental process of taking heed of expert advice. During the study, care advice was not a stand alone motivator for laundry processes; it was part of the mix of a larger group of motivators. For example, L4 was given the trousers (L4.TR) and wore them thirty times, hand washed them once, dry-cleaned them twice and spot cleaned them three times. The comparison trousers (C.L4.TR) were worn twenty-eight times,

machine washed nine times, spot cleaned twice and ironed nine times. She stated in period C 'I tried to follow the care advice so didn't put them in the washing machine. They really didn't get that dirty actually, I hand washed them once, but after that I had them dry cleaned'. L4 explained that the reason she had them dry cleaned was because after hand washing they become very wrinkled and it was difficult to get the creases out; convenience motivated a change in laundry process. Consumption patterns between the study trousers and comparison trousers were relatively large due to the comparison trousers being laundered more frequently in the washing machine and also ironed. Dry cleaning the study trousers led to a different type of impact arising from the chemical solvents used in the process.

Habitual elements

Habitual behaviour describes things that are done often as a habit; things that have become customary. This is automatic behaviour that is not challenged or rethought because it is an individual norm. During the study habitual behaviour was displayed in different conditions and to varying degrees.

L2 demonstrated how habitual behaviour influenced the laundry processes of the study skirt (L2.BS), which had she followed care guidelines could have reduced consumption. She machine washed the study skirt at 40°C despite care guidelines that recommended hand wash or dry clean only. During the study she did not comment on the reason why she decided to machine wash it, and she used the same laundry process for the comparison skirt (C.L2.BS). In a follow up conversation after the study, when asked why she had chosen to machine wash it she said 'I don't know, I treated it the same as my other skirt.' It was habitual behaviour that influenced the laundry process.

As a consequence, L2 noticed the weave tension of the wool material increased after laundry, making the material look slightly distorted. In period D she noted in the diary 'Just a little thing I thought I should mention, the bottom part of the skirt changed a bit, were it is sown the material got tighter and skewed (? I'm not sure whether that is the correct word...) It looks a bit weird, if you know what I mean '. Interestingly, L2 did not seem to directly connect this to the laundry process and machine washed it again, further demonstrating entrenched behaviour. L2 wore the study skirt ten times and machine-washed it twice, the comparison skirt was worn nine times and machine washed three times. Both skirts were air-dried. The difference in laundry practices between skirts was minute, and the difference in consumption patterns between skirts was small.

Participant B8 also displayed a degree of habitual behaviour as a motivator to machine wash a hand wash only garment. She was given the wool cardigan (B8.CA), she wore it forty-three times, and machine washed it and ironed it thirteen times. The cardigan used in comparison was worn twenty-nine times, and machine washed and ironed ten times. The only difference in laundry process for the study garment was that it was not tumble dried while the comparison cardigan was tumble dried eight times. She explained that it was habit that caused her to machine wash the study garment but experience of previous wool garments shrinking in the tumble drier that motivated her to air dry it. In the case of B8, main resource savings for the study garment were made through air drying and not tumble drying. Habitual behaviour is difficult to break; yet for B8 the way in which she interpreted past experiences changed her laundry routine.

Longevity

Longevity was a fundamental reason why certain laundry processes were avoided.

Garments were not put in the washing machine or tumble dryer to avoid damage, (such as material shrinkage, garment distortion and in the case of the wax cotton garments, or removal of the wax finish) and extend the garment life.

During the experiment, the four participants that did tumble dry (B1, B2, B5 and B8) chose to tumble dry the comparison garment and not the study garment. B8 tumble dried the comparison cardigan (C.B8.CA) eight times, but not the study cardigan (B8.CA) because she did not want to shrink it; she wanted to preserve the life of the garment. Likewise, B1 tumble dried the comparison top (C.B1,ME) twenty-two times, but not the study top (B1.ME) for the same reason. This was the same for participant B2 who tumble dried the comparison skirt (C.B2.BS) five times, but not the study skirt (B2.BS). B2 also commented on not using the washing machine to avoid damaging the garment, as she noted 'I washed it by hand as I didn't know how well it would take the washing machine and it's wool'.

The desire to keep a garment in good condition and not damage it deterred the more vigorous and high impact laundry processes of machine washing and tumble drying. Most processes that these were substituted for were lower impact (hand washing, air drying or simply not laundering the garment at all), which reduced consumption for the study garments in contrast to their counterparts. However, in the cases of L7 and L4 a different kind of impact emerged from the process of dry cleaning. Designing garments that spur a desire for longevity through deterring vigorous and high impact laundry processes has huge potential in reducing resource consumption.

Summary

Motivators for laundry processes are easier to comprehend than motivators for laundry frequency because they are more pragmatic and often rooted in convenience. They mainly responded to the physical elements of the garments. Fibre properties and material characteristics of a garment was one of the chief physical motivators to instigate, or avoid, particular laundry processes. The wax garments, apron (AP) and shirt (SH), and silk dress (DR) were most obviously affected by this. They were unsuitable for high impact processes such as machine washing and tumble drying as the shirt and apron had a wax coating, and the dress was made from delicate silk, and during the year they were not machine washed (with the exception of shirt B5.SH which was machine washed once to soften the material by removing the wax). Indeed, they also *looked* unsuitable for machine washing. The materials they were made from looked specific and occasional and less likely to be used for casual every day dress.

Yet in contrast to this, the wool skirts (BS) were also unsuitable for machine washing because of the particular quality of the wool they were made from. However, the material looked less occasional and more suited to casual every day wear, and L2 did machine wash it. This was linked to habit. Likewise, B8 machine washed the wool cardigan (B8.CA), which was hand wash. It was made from wool jersey and was also more suited to every day dress than occasional dress. Yet, it is likely that if these materials looked more occasional the participants would have made a clearer mental distinction between more suitable laundry processes, and would have been inclined to not machine wash them: leading to a reduction in consumption. As in the cases of the participants who were given the wax cotton garments and silk dresses, their alternative laundry routines for these garment led to lower impact laundry routines in relation to

the study garments. This insight from the study evidences that the way in which materials and textiles are perceived plays a significant part in the way garments are laundered. This makes a clear case for further research into the relationship between garments, the materials they are made from, how materials are perceived and how material perception is linked to laundry knowledge. This will be discussed in section 4.5 of this chapter.

Mind based elements also influenced laundry processes. These elements were mainly connected to convenience, saving time and effort, and also adhering to care advice (but to a lesser extent). B3 who was given the hand knit top (B3.HK) hand washed it only once, then switched to machine washing it because it was less difficult. This increased consumption. In contrast, B7 laundered the study dress (B7.DR), which was hand wash or dry clean only, by airing it because hand washing was too much effort and dry cleaning was not part of her routine laundry behaviour. This led to decreased consumption. Elements of convenience therefore demonstrated capacity to increase and decrease resource consumption. Following care advice was another mind based motivator for laundry processes, but to a much smaller extent than convenience, and mostly in combination with degrees of other elements related to convenience and the material properties and fibre characteristics of the garment.

Habitual behaviour also motivated laundry processes; some participants' habitual behaviour was more embedded than others. For B8, habitual behaviour was changed by interpretation of past experiences and knowledge. She washed the study cardigan (B8.CA) which was hand wash only, in the washing machine as she did the comparison cardigan, out of habit. But her past experience of shrinking wool in the tumble dryer caused her to air dry it.

A desire for garment longevity was another element of laundry practices, yet instead of motivating laundry processes it deterred the vigorous and high impact processes of machine washing and tumble drying to avoid damaging the garment and preserve the garment's life. For example B1, B2, B5 and B8 tumble-dried the comparison garments but not the study garments (merino top ME, skirt BS, shirt BH and cardigan CA) to avoid ruining them, making significant resource savings for the study garment in relation to the comparison garments. This emerged as one of the chief motivators for instigating a change in habitual laundry behaviour and a reduction in resource consumption that results from how laundry is performed.

4.5 Perception polling

Following the yearlong laundry study an additional survey was set up to further explore how the garments from the laundry study, and the materials they are made from are perceived. This material perception survey took the form of a 'garment perception polling station' as a quirky and fun way to engage participants to briefly look at the garments and record how they would launder them. The aim of the survey was to record immediate perceptions and responses to these garments and thus the garments had no labels to indicate material or laundry care advice. The survey produced a sample of 104 responses across four survey sites, over a twelve-month period. Three of the survey sites were public facing events and spaces including: Hackney House Fashion Day (London, August 2012), Water-Colour exhibition (by Katherine May) as part of London Design Festival (London, September 2013) and Here Today Here Tomorrow shop studio (London, different occasions during August and September 2012). The fourth survey

site was in Bristol at a private event in which participants were invited (October 2012). All survey participants were offered a rosette or chocolate bar upon completion and their involvement lasted approximately ten minutes. Collected images from the survey are shown in figure 4.10. The information collection form is in appendix eight.

Figure 4.10 Perception polling



From the perception polling survey it was found that there were vast differences between how participants perceived materials, understood them and how they related them to particular cleaning methods. This further highlights the significant role that perception (which is not always rational) plays in laundry decision-making. Figure 4.11 below shows the large degree in variation between selected laundry methods for the study garments in the material perception survey. Further data and visualisations from this study can be found in appendix nine.

Figure 4.11 Findings from material perception survey

| | Machine wash | Hand wash | Dry clean | Spot clean | Freshen/steam | Never |
|----------------------|--------------|-----------|-----------|------------|---------------|-------|
| Black Dress (DR) | 25% | 33% | 33% | 5% | 4% | - |
| Hand knit tunic (HK) | 17% | 61% | 16% | 5% | 1% | - |
| Navy shirt (SH) | 46% | 20% | 13% | 18% | 3% | - |
| Black skirt (BS) | 31% | 43% | 22% | 2% | 2% | - |
| Jersey top (ME) | 67% | 28% | 5% | - | - | - |
| Navy cardigan (CA) | 28% | 51% | 18% | 2% | - | 1% |
| Wax apron (AP) | 52% | 22% | 13% | 11% | - | 2% |
| Navy trousers (TR) | 42% | 20% | 35% | 1% | 2% | - |

In particular, as visualised in figure 4.12, the responses collected for the black dress (DR) were the most divided in terms of how participants related their perceptions of it to different cleaning methods. For this garment 33% noted they would dry clean it, 25% noted they would machine wash it, 33% noted they hand wash it, 5% noted they would spot clean it and 4% noted they would steam or freshen it. Whilst the dress is made from silk, one participant noted ‘machine 30C synthetic fabric but still needs a delicate wash’ and another participant noted they would hand wash it because ‘I don’t want it to get bobbles’.

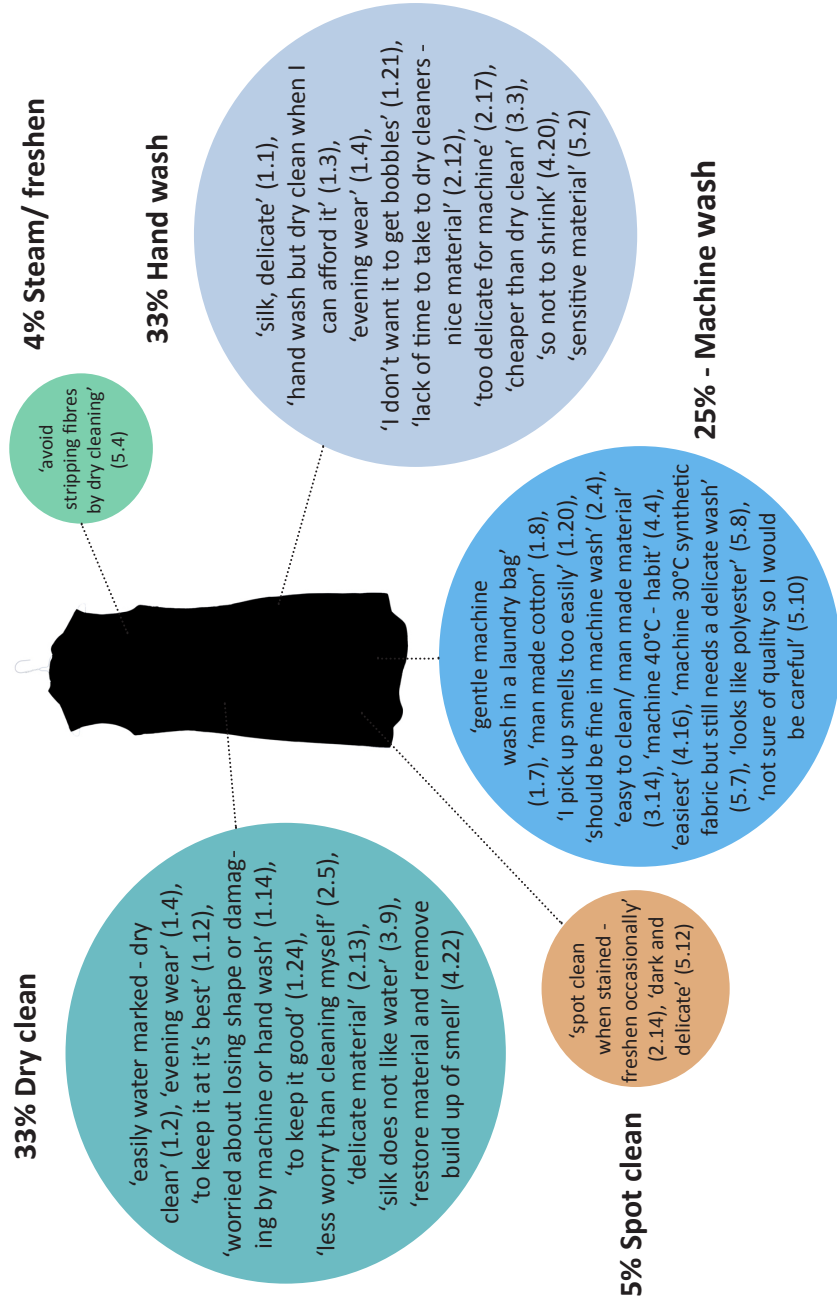
Figure 4.12 Findings from material perception survey for black dress

Black dress (DR)

Garment description: three quarter length dress. Fitted with an invisible side zip. Black with navy blue lining.

Material: duchess royal satin, 100% silk, 100 g/m², lining 100% silk habotai, neck webbing 100% cotton.

Average wears between wash: 3 (high: 12, low: 1)



Insights from this survey highlight how perception and understanding of material helps to shape laundry practices. It evidences how associations between certain garments, materials and routinized ways of cleaning influence judgements made on how best to wash particular garments. Most significantly, it shows that there is potential for laundry practices to change when associations between garment, material and cleaning practices are challenged.

4.6 Conclusion

The overarching aim of this research is to provide greater insights into methods and creative opportunities for designers to respond to laundry practices in ways that reduce impact. Through the analysis of the yearlong laundry study and further garment perception polling survey, this chapter makes two major contributions to this research.

In the first instance, the analysis from the yearlong laundry study has shown that there was an apparent link between the design characteristics of the study garments and less resource intensive laundry practices. In relation to the comparison garments, the majority of the study garments were laundered less often in relation to the frequency of which they were worn. They also tended to deter high impact methods such as higher temperature machine washing and tumble drying. The design characteristics in the study garments, which were developed in previous research (Rigby, 2010), can be summarised as:

- the use of high quality materials (wool, cotton and silk)

- the use of absorbent materials that are breathable and more likely to resist odour
- the use of darker colours which conceal dirt
- the use of silk linings
- non-restrictive and loose garment fit and cut
- openings and fastenings to allow ease of removal
- overall designs that are not particularly suited for machine washing
- wax cotton coatings that resist dirt and are wipe clean

However, while these design characteristics were successful in influencing laundry practices to an extent, this was not the case for all study garments. For participant L1 the study top prompted higher impact laundry for unexpected and unpredictable reasons. She was given the merino top (L1.ME) but changed the way she used it when it failed as a cycling top, due to the length of the sleeves which bunched up in the inside of her elbow. The change of use caused a change in laundry behaviour and the impact of the top increased, as it was machine laundered more frequently.

So, while the laundry study showed that the design characteristics can be successful in motivating changes in behaviour, it also showed that laundry behaviours can be erratic, unpredictable and deeply entwined with how a garment is used. To better understand these findings in relation to the overall research aim, the laundry study was further analysed from a social perspective to develop a deeper understanding of how design integrates into the organisation of laundry practices as a whole, and how and why the changes in use occurred.

In analysing the yearlong laundry study from a social perspective this chapter makes a second key contribute to this research. Using a practice theory approach provided a setting to better understand laundry, consumption and design. This enabled laundry to be understood as a social practice which is comprised of a complexity of interdependent elements such as appliances and products, the methods in which it is done, the frequencies at which it is performed, perceptions, time, feelings and motivations. In doing so, the study highlighted that clothes are washed for a whole host of different types of reasons beyond simply removing dirt and odour. While this highlights where the parameters are for designing clothes that aim to resist dirt and odour, and therefore laundry impulses, it also illuminates further spaces and areas within laundry practices where designers can engage and intervene to respond to laundry practices in ways that aim reduce impact. These areas can be summarised as:

- Clothes in transit, space and organization (where clothes are kept after they have been worn but before they are dirty, how distinctions are made between clean and unclean clothes, how clothes circulate around the house)
- Households, laundry needs and laundry routines (responsibility and how laundry routines develop around collective household needs)
- Shape, stretch and material memory (how and when garments physically change and distort through use and wear)
- Society, scents and senses of smell (odour and perception of smell)
- Dirt and diversion (removing dirt and soiling)
- Material perceptions and laundry connections (how materials are perceived and linked to different laundry methods)

- Garment typologies and laundry ideologies (garment types and related laundry preconceptions)
- Clean social security (laundry as a measure for social benefits)
- Newness (the condition of newness and when clothes are laundered to restore them to an acceptable condition)

Practice-orientated platforms for design practice

Introduction

Mechanisms of change

Materials, competencies and meanings

Summary of approach

5.1 Introduction

In chapter one I discussed my preliminary work that prompted this doctoral enquiry. I described how this work explored design-based strategies for reducing the frequency of garment laundering, with the intention of curtailing the consumption of environmentally significant resources such as energy and water. These ideas for sustainable design strategies in fashion were built around the idea of behavioural scripting; suggesting that it may be possible to influence laundry related routines through adopting certain tactics when designing clothes.

In chapter two I discussed how my methodological approach developed during the analysis of my research. I explained how my understanding of laundry practices and sustainable design evolved and my research approach shifted accordingly, developing much further from the idea of behavioural scripting. This shift in approach broadened the focus of this enquiry from design and user behaviour, towards the wider everyday conditions that inform social behaviour and practices of consumption. I described why I intended to use practice theory as a backdrop for my analysis, to open up new ways of thinking about laundry practices and different possibilities for sustainability and design.

In chapter three I discussed how laundry practices have evolved historically, including how, when, where and why it was done. Following this in chapter four I analysed the empirical laundry studies and discussed the wide range of elements that come together to form laundry practices. Key insights that emerged from the chapter showed that while the eight specific garment designs which were surveyed during the yearlong laundry study were successful in motivating lower impact laundry practices to an extent, laundry behaviours are unpredictable and influenced by a plethora of other

tangible and intangible elements. The chapter provided a series further observations from the laundry studies which illuminated more places and opportunities for designers to respond to laundry practices in ways that could reduce impact.

This chapter follows by focusing on ideas for change and transformation within laundry practices. Here, I refer to changes in not just the physical and material stages involved in carrying out the laundry, but more significantly, changes in the meanings and competences that laundry practices engender as a whole. I will begin by returning to Shove's (2003) model of laundry as a 'system of systems' as a useful theoretical basis from which to discuss accounts of transformation within laundry practices. Then I will refer to Shove, Panzar and Watson's (2012) later account of social practices and change that homes in more specifically on the elements that shape and construct practices, and how these elements interact and coevolve. This will help to form a rationale from which to develop a revised trajectory for new functions for design, in support of sustainability goals.

5.2 Mechanisms of change

In 2003 Shove offered an account for understanding the mechanisms of change and transformation within practices, specifically laundry practices. While some of these ideas surrounding laundering have been discussed in previous chapters, here it will be useful to home in on more detailed models of change within laundering, and other social practices. This will help to validate the possibilities for alternative functions for design developed in this research, and demonstrate how I am integrating social practice theory with sustainability theory from which to develop a revised design trajectory.

I will begin by returning to Shove's (2003) concept of laundering as a 'system of systems'. In this model, laundering is understood to be contingent on and an output of many different types of elements and components that coexist within the arrangements of various sociotechnical systems. As stated by Shove (*ibid.*, p117) '...its accomplishment depends upon the active co-ordination of a multitude of relatively independent sociotechnical systems'. Understood in this way, Shove (*ibid.*, p118) argues that any changes in laundry practices are reflective of how elements and components, and the systems of which they are part, integrate and co-evolve. Shove (*ibid.*, p118) illustrates this with reference to the mass production of textiles and clothing as a precursor to the size and content of the washing basket, and consequently what is washed. To extrapolate on this, the quantity of clothing and textiles that is collectively washed is made possible by the globalisation of supply chains and models of mass production which these supply chains serve. Thus, the elements that form laundry practices, in this example the types of textiles and quantity of clothing involved, are intrinsically connected with much wider economic and material systems of provision.

To further illustrate this point, washing machines are carefully designed around elements such as: trends in the textiles market, developments in cleaning products, notions of domesticity and concepts of cleanliness. The size of the washing drum and the selection of cleaning programmes offered are reflective of how washing machine manufacturers integrate design with wider developments in the laundering supply chain. As these wider elements change, washing machine design gradually changes alongside. Therefore, the material elements that form part of laundry practices (in this example, the appliances used) are inherently linked to developments in the clothes cleaning supply chain and changing consumer expectations. In parallel, washing

machines have standardised expectations for appropriately clean clothing (*ibid.*, p118-133).

Following these examples, it can be concluded that laundry practices involve different *varieties of integration* that influence laundry practices in different ways. The outcome of these varieties of integration can be considered as the mechanisms of stability and change within laundry practices. Shove emphasises that to understand changes in laundering, is it the 'media and mechanisms' of integration that should be the focus of enquiry. Building on this, Shove (*ibid.*, p118) contends that how laundering is understood as a service, or what it means to launder appropriately, is dependent on and reflective of the unique arrangement of elements involved at any one time (appliances and the resources they require to operate, textiles and clothes, reasons for washing, meanings of cleanliness, values of laundry, competences, skills, knowledge etc.) and the modes of integration in which they combine. Thus, the way in which various elements integrate not only affect how laundering is carried out, but on a much broader level, what it means to do the laundry and the service it is understood to provide. It is from this point that design opportunities emerge to meddle with or disrupt the arrangement of elements involved, the way in which they integrate, and the resultant services that laundering offers – I will extrapolate on this idea later in the chapter.

In this approach, Shove (*ibid.*, p119) describes a necessary shift away from solely focusing on the 'vertical integration of sociotechnical regimes and landscapes' towards a more pluralistic perspective of the 'horizontal co-ordination of practice'. What is meant here is that it is not enough to consider change from a vertical sociotechnical perspective. Changes in laundering practices do not only occur along a hierarchical

continuum. For example, it is not only the development of washing machine design and increased drum capacity that equate to greater loads of clothes that are washed.

Amongst many other factors, it is also the amount of clothes people own, the types of clothes people wear, social attitudes towards dress, understandings of domesticity, meanings of cleanliness and a host of other situation specific elements that influence the size of the washing load. Thus, the dynamics that exist between the elements involved in laundering are multifaceted. On describing this shifted perspective towards a more horizontal understanding of change, Shove (*ibid.*, p135) states, ‘...change is engendered by the circulation and mutual adjustment of ideas and practices not hierarchically, or between levels, as before, but across one horizontal plane.’

The benefits in this approach is that it offers a more holistic understanding of how elements integrate within laundry practices, giving attention to social elements, as well as experiential, material and technological. This gives greater meaning and significance to the interdependence between elements involved in laundering. If disruptions are made to components or elements within the system, dynamics will transform, and affects will be felt across the whole practice (*ibid.*, p120). So, in considering options for laundering, sustainability and design, it can be suggested that design needs to be focused on challenging and redefining what laundry means as a service. I will extrapolate on this proposition for design later in this chapter, but first I will continue with a more detailed discussion that follows recent theoretical contributions regarding theories of practice and models of change.

5.3 Materials, competences and meanings

In 2012, Shove, Pantzar and Watson offered a more structured framework for understanding social practices in *The Dynamics of Social Practice: Everyday Life and How it Changes*. In this, they develop a series of concepts to further explore and describe social practices, how they emerge, evolve and transform, and the dynamics that define change. This more detailed analysis of social practices critically develops from other accounts of practice theory and is valuable because it offers innovative ways to conceptualise change and stability within social practices, and by extension, environmentally significant practices of consumption. This is useful within this research because it offers a more rigorous social perspective from which to hypothesise design approaches for sustainability. Further, it offers a clearer insight into how elements circulate and travel within practices, which in this research has significant implications for understanding how laundry is defined as a service, and more crucially, the possibilities for how laundry might be redefined as a service through new design based approaches.

This approach shifts focus, from the perspective of the person as the practitioner as the central unit of analysis, to practices and the elements from which they are formed as a central unit of analysis. Shove, Pantzar and Watson (2012:22) describe this as an 'elemental approach'. In line with Reckwitz's (2002:249) account of a practice as a 'block' of integrated elements, including, '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', Shove, Pantzar and Watson (2012) maintain that practices are made up of elements that combine when practices

are enacted. They describe practices as having different cycles, which emerge, develop and mature, and then eventually fragment and disintegrate as the links that connect the elements from which practices are formed connect and disconnect. In developing Reckwitz's notion of elements forming a block (the output of the block being the practice), Shove, Pantzar and Watson (*ibid.*, p23-25) offer a simplified model of three distinct categories that elements fall into, as shown below in Figure 6.1. The first of these categories is 'materials', which includes all that is tangible and physical within a practice, for example, objects, people (the body), infrastructures, tools and other provisions. The second of these categories is 'competences'. This refers to various forms of understanding, the basis of judgement and 'practical knowledgeability'. The last category is 'meanings', which characterises 'the social and symbolic significance of participation at any one moment' (*ibid.*, p23).

Figure 5.1 Materials, Competences and Meanings (adapted from Shove, Panzar and Watson, 2012)

| | |
|-------------|---|
| Materials | Things, objects, technologies, tangible physical entities |
| Competences | Skill, know-how, judgment and technique |
| Meanings | Symbolic meanings, ideas and aspirations |

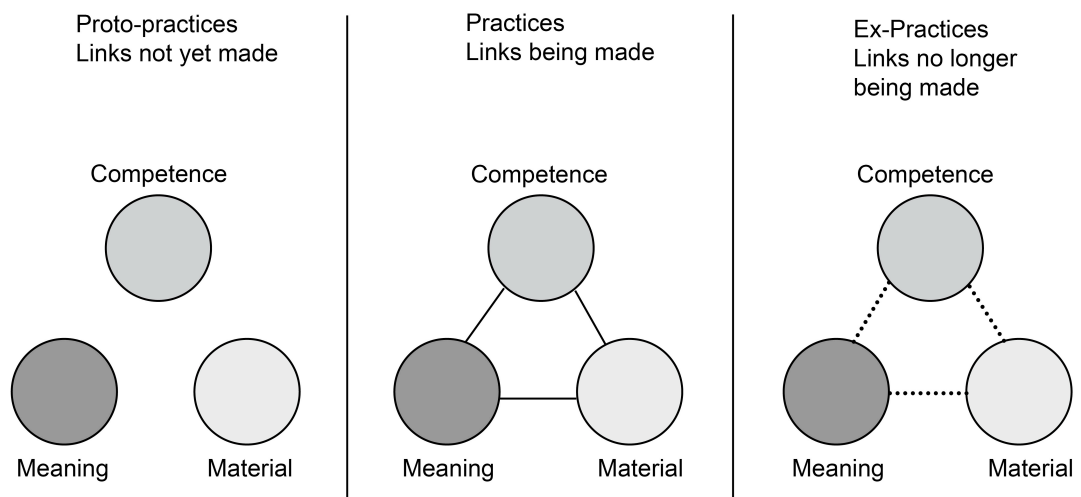
If practices are treated as the outcomes of integration between materials, competences and meanings, Shove, Pantzar and Watson (*ibid.*, p24) argue that it is the symbiotic and reciprocal relationship between elements that work to define practices. Or put more

simply, it is the ways in which elements link, connect and integrate that characterise and shape practices. In the case of laundering, the most obvious example of this 'shaping' in the last century has been the invention and wide spread use of the electric washing machine. As this new material element was introduced, the way in which clothes were washed changed dramatically and the practice of laundering rapidly evolved. The integrative and knock-on effect of the electric washing machine on other elements involved in laundering was tremendous. It completely rearranged the volume of laundry that was done, the clothing and textiles involved, the level of effort required for the task, the amount of time it took, who did it, the skills involved, the businesses that would come to support it, expectations for cleanliness and 'appropriately' clean clothes, and significantly, the infrastructure of resources required for the task. The electric washing machine actively reconfigured the necessary materials, meanings and competences involved in the task and the practice evolved, not just in process but also in what it meant to do the laundry, the values it symbolised and the competences it required. Thus, practices evolve as elements change, and changes are in part a consequence of processes of integration. As elements integrate, they also co-evolve (*ibid.*, p25).

This way of understanding laundry practices suggests that elements involved have a life both prior to their linkage and after, inferring that elements can exist independently of practices. It implies that elements can be thought of as external parts, which come together to form practices when appropriate links are made, and then disperse when the links are no longer supported. Shove, Pantzar and Watson (*ibid.*, p 25) illustrate these scenarios with reference to the concept of proto-practices (elements

exist without being linked) and ex-practices (the disintegration of a practice as links disappear), as shown in Figure 5.2.

Figure 5.2 Proto-practices, practices and ex-practices (from Shove, Pantzar and Watson, 2012:25)



What is significant in this model is the notion of linkage and connection between elements. Links are not permanent or consistent; every time a practice is enacted they are recreated and reconnected between necessary elements. For example, with reference to laundering, as it is repeated across multiple households as an everyday and reoccurring practice, the links between the elements involved are being constantly renewed. Conditions providing, links are recreated in similar ways with very similar outputs for a laundering. However, as discussed previously, as elements change the nexus of links also change, and the practice begins to evolve. This implies that routines in laundry are never static or fixed, and the stability and consistency of a routine is itself the result of how similar elements are recursively linked and how meanings,

competencies and materials are reproduced (*ibid.*, p24). If changes in laundering practices are understood in this way, possibilities emerge to meddle with and introduce new elements at the proto-practice stage, as illustrated in Figure 5.2. In doing so, there is an opportunity for elements to link together in different ways, creating novel combinations and provoking changes within laundry practices.

5.4 Summary of approach

Looking at changes in laundering from a social perspective is significant in this research because it helps to define a sharper trajectory for sustainable design that is rooted in an understanding of sociality. It takes its point of departure from recognising the social complexity that occurs 'inside' practices, rather than solely the material and technological elements that can be observed from the 'outside'. Using this element based approach as a point from which to hypothesise new directions for sustainable design has many advantages. It shows how practices depend on the arrangement of elements they engender and gives a clearer insight into how changes in practice may be provoked when elements are disrupted. It purports that by introducing new elements at a proto-practice stage; practices can evolve in new directions. This has implications for how design might be used to stimulate different circulations and conjunctions of elements that might result in different meanings and constructions of laundry as a service. What follows in chapter six is a series of conceptual design provocations (for sustainability) that are developed from this elemental approach, and respond to the observation themes discussed in the conclusion of chapter 4 (section 4.6). The value in the design provocations is not in their literal sense as design ideas, but rather in the way

that they illuminate different elements of laundry practices and the way in which they develop an element based approach to design for sustainability.

CHAPTER SIX

Design provocations

Introduction

Clothes in transit, space and organization

Households, laundry needs and laundry routines

Shape, stretch and material memory

Society, scents and senses of smell

Dirt and diversion

Material perceptions and laundry connections

Garment typologies and laundry ideologies

Clean social security

Newness

Conclusion

6.1 Introduction

One of the key aims of this research project is to identify methods and creative opportunities for designers to respond to and engage with laundry practices in ways that reduce environmental impact. The laundry study highlighted that embedding certain design characteristics into garments is successful at deterring laundry impulses to an extent, however it also highlighted that laundry practices are motivated by many different types of elements besides from removing dirt and odour. Following this, a series of observations were elicited from the laundry studies to highlight identified spaces and areas within laundry practices where designers can engage and intervene to respond to laundry practices in ways that aim reduce impact.

This chapter develops from the element based account of laundering and change (as discussed in chapter five), and the laundry observations (as discussed in the conclusion of chapter 4) from which to hypothesise a series of provocations.

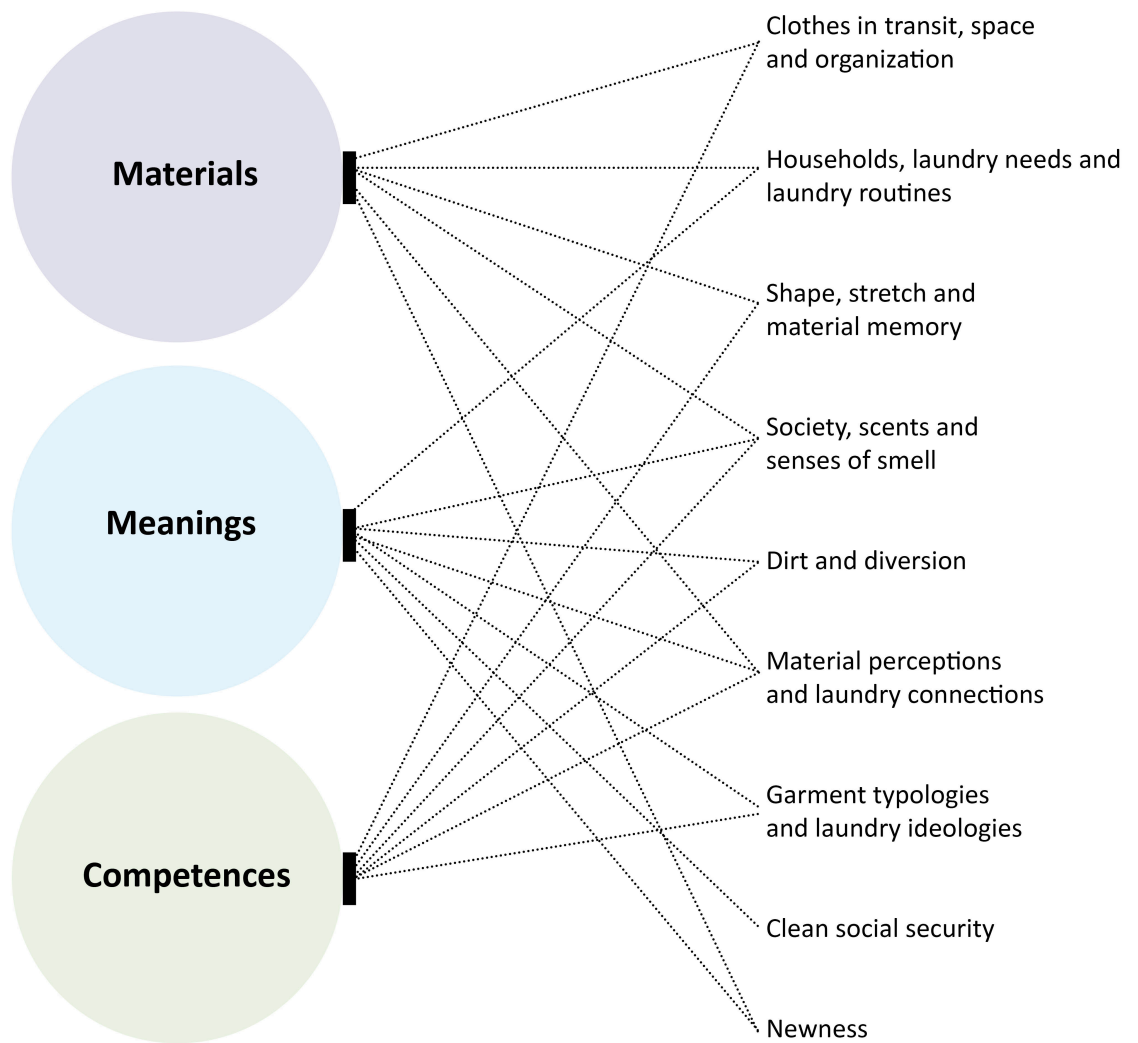
The aim of these provocations is to suggest novel combinations of elements for laundering at a proto-practice stage via a series of design based interventions. This includes both introducing new elements and eliminating existing ones. These design scenarios intend to challenge not only the way in which existing elements integrate to form laundering practices, but with greater significance, the circulation of elements within laundering practices, and their capacity to shape each other and generate new meanings, materials and competencies through a process of collective and interdependent adaption (Shove, Pantzar and Watson, 2012:32). Each of the design provocations propose alternative ways to engender different meanings for laundering, and in doing so work to redefine what laundry could offer as a service aside from

of clean clothing. Figure 6.1 provides an overview of the connections between observations and provocations that are discussed in this chapter. The observations are drawn out of the research undertaken in this study (the laundry study, follow up discussions and perception polling) and the consequential design provocations aim to highlight ways in which certain aspects of laundry practices could be rearranged. Part of value and significance of these conceptual design provocations is in the way they develop an element-based approach to design for sustainability. Figure 6.2 maps the observation themes to element groups.

Figure 6.1 Observation themes and design provocations

| Observation themes | Design provocations |
|--|------------------------------|
| Clothes in transit, space and organization | The clothing house |
| | Clothes art |
| | The clothing curtain |
| Households, laundry needs and laundry routines | Co-wear communities |
| | Sides for sharing |
| Shape, stretch and material memory | Clothes in Motion |
| | Material Impressions |
| Society, scents and senses of smell | Wear and Rotate |
| | Detachable linings |
| Dirt and diversion | Food for Print |
| | Stain Palette |
| Material perceptions and laundry connections | Textural transfers |
| Garment typologies and laundry ideologies | Garment Compilations |
| Clean social security | Clothes Cleaning Communities |
| Newness | Clean and serene |
| | Laundry Charms |

Figure 6.2 Observation themes and element groups



6.2. Clothes in transit, space and organization

This observation addresses the relationship between people, clothes, their surroundings at home, organization, and laundry practices. It focuses on the spaces in which clothes are kept after they have been worn, but before they are ready to be cleaned again.

Traditionally this was the function of the valet stand: to air clothes and prevent them from becoming creased and wrinkled between wears. Yet valet stands have decreased in use as the frequency and quantity of washing loads has increased and clothes are worn increasingly less between washes. This has left an undefined space for where clothes are kept between the wardrobe and the laundry pile. This is a transitional space and was described differently by each research participant. Some of these spaces included: over the end of the bedstead, dropped in certain areas on the floor (sometimes specific and sometimes at random), folded and placed on a particular shelf, carefully hung in a spare room and draped over the back of a chair. These spaces are not specifically designed to store clothes, but become appropriated as such to help differentiate between freshly laundered clothes and clothes not yet ready to go into the laundry pile, or for convenience to save from folding or hanging clothes and returning them to the wardrobe. These spaces are significant to shaping laundry practices because they are in constant use when getting dressed in the morning and undressed in the evening. Some participants noted that they often placed clothes in the laundry pile for convenience to tidy up their bedroom or flat, instead of folding them and returning them to the wardrobe or drawer. In this way, washing clothes was a function of tidying and organizing space.

This observation highlights how our surroundings and our personal domestic spaces help to shape and in part define our laundry practices. It evidences how decisions on when to wash clothes can be influenced by arrangements and allocations of space for storing clothes, and demonstrates the complexity of elements involved in the construction of laundry practices. Most significantly, it shows how laundry practices can change and evolve when our domestic settings and personal spaces change, as the elements involved in shaping practices are rearranged.

Design provocation

This provocation uses design to explore how the structuring of space (domestic surroundings and bedroom space) shapes our laundry practices and the potential to effect change within them. It uses design to challenge the function of the wardrobe and to disrupt the usual patterns of behaviour that set clothes within our domestic surroundings, and which help to construct routines within laundry practices. The provocation builds on the hypothesis 'what if we take the wardrobe and chest of draws out of domestic spaces?' This raises questions such as where would we keep freshly laundered clothes? Would this remove the need for existing transitional spaces (such as over the back of a chair or on the floor)? Would this blur the boundaries between clean and unclean clothes and how would this alter our perception of appropriately clean clothing? How would the reordering and allocation of space affect laundry practices as a whole? How would they change? This design provocation can be realised in various ways.

The clothing house

Clothes are designed to integrate and fit together with household furniture and objects.

Like a jigsaw puzzle, garments are specifically designed to fit over, on or connect to

existing furniture and objects in the house. The aesthetic of the garment reflects the

object that it is designed to be located with. When the garment is used, it is removed

from the object and afterwards the garment is placed back on the object. An

association is formed between certain garment types and particular everyday objects in

the house.

Figure 6.3 The clothing house

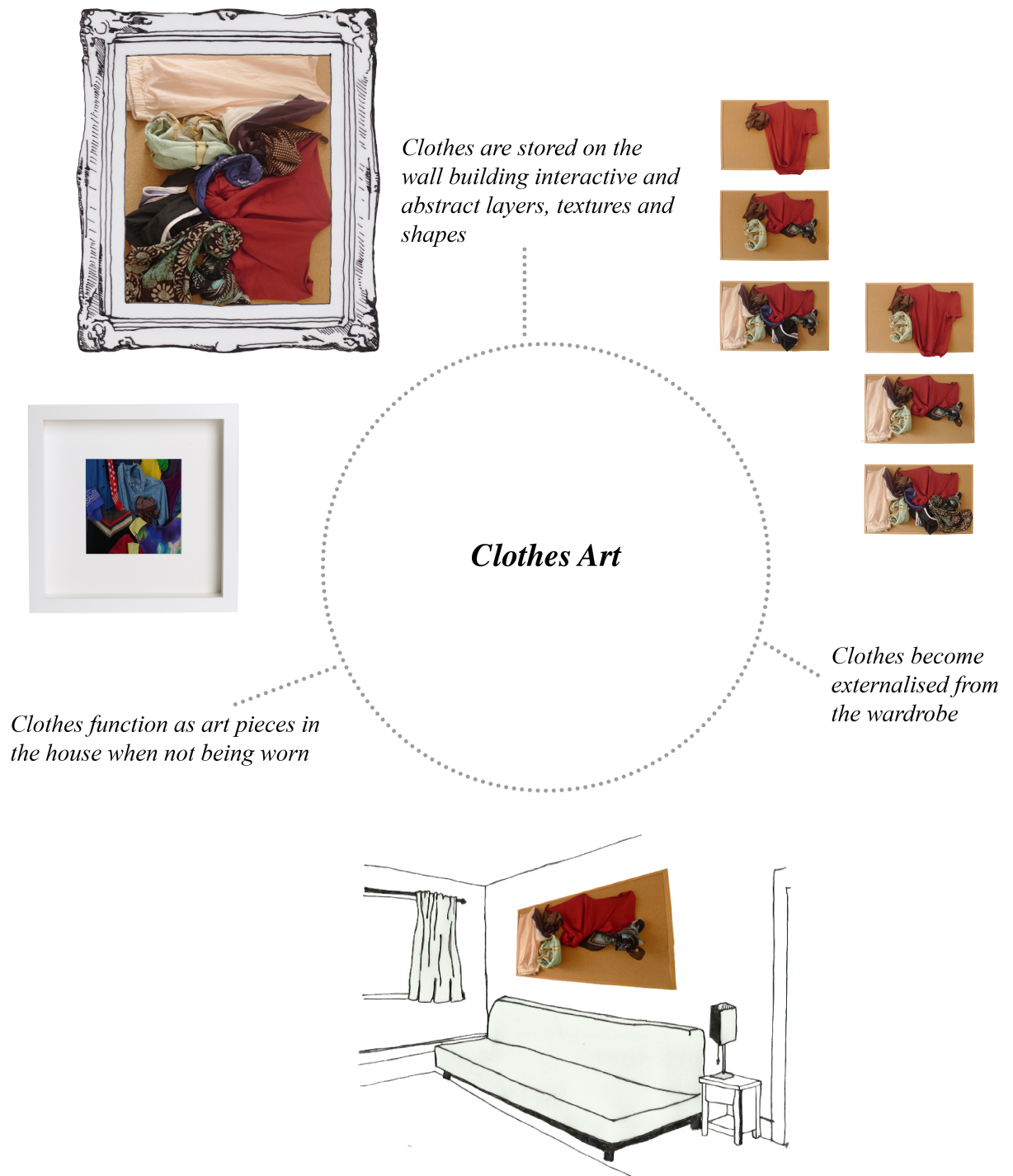


Clothes art

Clothes take on a decorative role within households and form live clothing installations.

A wall is assigned, upon which clothes are attached in various and changing assemblages. Clothes are stored on the wall when not being worn, building abstract layers of different textures, colours and forms. Clothes are taken from the wall when desired to be worn. The clothes become externalised from the closet and take on a more significant presence in households. Displaying clothes in this way encourages awareness of the amount of clothes in possession at any one time, and stimulates an open approach to sharing clothes between different household members.

Figure 6.4 Clothes art



The clothing curtain

Curtains are made from clothes that can easily be assembled and re-assembled.

Clothes are designed with points of connection that allow curtains to take on a modular function. The curtain would constantly change its aesthetic as garments are taken off to be worn, and reattached after wear. During winter months the curtains become heavier and more insulating as thicker and heavier weight garments are worn. During summer the curtains become lighter and more airy as they are rebuilt with thinner summer clothes. The clothing curtain offers a new space for clothing storage and at the same time creates a stronger connection between clothing, textiles, place and season.

Figure 6.5 The clothing curtain



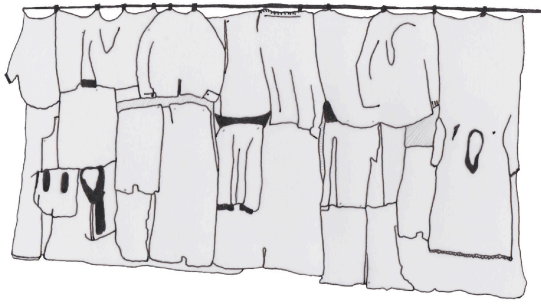
Clothes are designed with points of connection to form modular curtains

Curtain changes aesthetic as garments are removed to be worn

The Clothing Curtain



During winter months the curtain becomes heavier and more insulating as thicker garments are worn



6.3 Households, laundry needs and laundry routines

This observation focuses on what individuals in a household need to wash and how household laundry routines form around collective needs. It addresses how household laundry routines are structured around an amalgamation of individual needs of different household members. It focuses on the mix of different life stages, genders, work life balances and lifestyle choices in relation to clothing and laundry needs, the translation of needs into laundry routines and the ensuing number of laundry loads carried out.

In a laundry survey with a sample base of 1,500 adults aged 16+, Caines (2013) reports that the main influence of washing machine usage is the number of people living in a household. In particular, the washing rates for households with children tend to be highest with four or more loads done per week. However, in the longitudinal laundry study carried out in this research it was observed that the number of people living in a household and the presence of children had a more erratic correlation with the number of wash loads carried out per week. For example, in the study B3 took lead responsibility for her household of four (herself, partner and two children) and put on two to three washing loads per week, while B7 was responsible for solely her laundry in a household of four (herself and three flatmates) and also put on two to three washing loads per week. Meanwhile B4 took responsibility for her household of two (herself and her daughter) and put on seven wash loads per week. This appears counterintuitive: in line with Caines (2013) it would be reasonable to assume a more consistent correlation between the number of people living in a household and the number of wash loads done. While the laundry study carried out in this research had a smaller sample base of

16 participants, the discrepancy in findings is also indicative of the characteristics of the longitudinal survey, in which behaviours were observed in context to use and the temporal order of everyday life (not a cross sectional study). Through repeated observations on the same individuals over the course of the year, a variety of key usage factors for doing the laundry emerged. Thus, it was found that the quantity and frequency of wash loads done per household was not only reflective of the number of people in the household, but most significantly the context of use and the interdependencies between different life stages, genders, work life balances, types of clothes worn most often (work wear, school uniform, sportswear, casual wear etc.).

Provocation

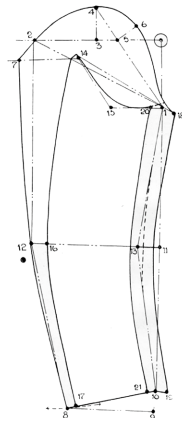
This provocation uses design to explore better ways to meet collective household laundry needs while simultaneously reducing the frequency and quantity of household wash loads carried out. It uses design to suggest ways to expand the ownership of garments and their capacity for use across different household members and contexts of wear. Through exploring possibilities for co-wear, reversibility and modularity in garments, it hypothesises ways to reduce laundry needs through tapping into household relationships and encouraging more resource efficient laundry routines.

Animated scenarios

Co-wear communities

This scenario plays on the idea of co-wear in which a shirt is designed for the use of multiple members of a household and in different contexts of use. The shirt is high quality and made from navy blue heavy weight linen. It is designed to be unisex, adaptable in size, and has adaptable style lines. The shirt also comes with a use adapter set, which includes a basic pack of three different collars, three different cuffs, three plackets and a waist belt. When the shirt is bought the group of users decide together which components in the adapter set they will buy. The adapter set can be updated with new style components, and disused components can be re-circulated within the co-wear community or returned for disassembly. Different designers make limited edition component collections and over time certain components become more valuable than others and collectable. The shirt can be worn in both formal and casual contexts. The modular components of the shirt allow pieces to be washed individually, reducing the quantity of clothing washed. The different styles of the shirt allow it to be worn in multiple contexts, at work or more casually, enhancing it's functionality and reducing the need for multiple variations of the same garment within a household. Through sharing the use of the shirt between multiple household members the shirt encourages collaborative use and better meets laundry needs by having a faster cleaning turn around as only parts of the adapter set are washed. Through user feedback, different co-wear garments are developed, including trousers and jackets, and more playful ranges are developed for children.

Figure 6.6 Co-wear communities



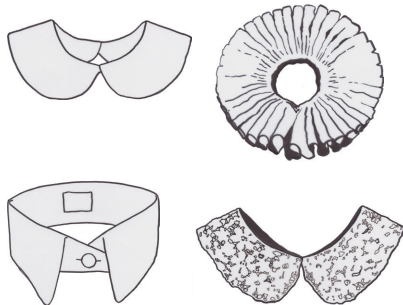
A garment is designed for the use of multiple members of a household and in different contexts of use. It is designed to be unisex, adaptable in size, and has adaptable style lines.

The modular components of the garment allow pieces to be washed individually, reducing the quantity of clothing washed. The different styles of the garment allow it to be worn in multiple contexts, enhancing its functionality and reducing the need for multiple variations of the same garment within a household.

The garment comes with a use adapter set, which includes a basic pack of three different collars, three different cuffs, three plackets and a waist belt.

Co-wear Communities

| GARMENT USE ADAPTER SET | |
|-------------------------|--------------------------------------|
| COLLAR SERIES 001 | |
| SIZE ADJUSTABLE | |
| Set includes 3 collars | |
| | Peter pan collar 100% virgin wool |
| | Ruffled collar 100% virgin silk |
| | Spread collar 100% virgin wool |
| | Lapel collar 100% virgin silk |



Sides for sharing

The four-sided sweater is designed to be reversible and incorporates four different styles: a style on the front and back both inside and outside. The multiple styles lend the use of the jumper to different contexts, and allow the jumper to be shared between household members. Wearers can choose if they wish conceal the alternative style on the back by wearing a cardigan, bolero or waistcoat with it, or alternatively they may wish to show the two styles off. The jumper adds a new dynamic to laundry practices by means of questioning how multiple relationships with a garment alter senses of responsibility in laundry practices and individual preferences for cleanliness. The reversibility function reduces the need for cleaning through allowing the wearer to hide occasional spills and stains on the inside, and at the same time the different styles of the jumper allow it to be worn repeatedly without fear of being judged on wearing the same garment on consecutive occasions. As the function of the jumper is increased, it reduces the need for more jumpers, slowing the material flow into the wardrobe.

Figure 6.7 Sides for sharing



6.4 Shape, stretch and material memory

This observation addresses how and when garments physically change through use and wear. It responds to when a garment stretches and loses shape after it has been worn, and retains imprints from the body that evidences use. This can be described as the 'memory of use' left in the garment.

Most garments are designed and shaped to fit the body in a stationary position, yet few garments, with exception to sports wear, are specifically designed with a consideration of elasticity for wear and use, especially in relation to laundering. It is not usual for designers to think about the point at which a garment will start to lose its shape, how long it can be worn for before it begins to stretch, or how quickly the garment will develop knee or elbow imprints. Indeed, these elements are difficult to measure and largely circumstantial. They are dependent on a subtle combination of factors such as the movements of the wearer, their body shape, the fit of the garment on the wearer and the duration of time that a garment is worn for. For example, in the case of a pair of trousers, the length of time that someone spends sat down during the day will affect the amount of tension on the material around the knee area and the likelihood of a knee imprint developing. The length of a person's stride when walking and the amount of walking that a person does whilst wearing the trousers will also affect the level and duration of tension to the material around the knee area. The design of the trousers, the way that they fit, whether they have a lining or not and the material they are made from will all interconnect with these aspects of use to influence how and when a garment begins to lose its shape, stretch in certain places, or retain body imprints. In many ways, this depends on how the garment is used.

During the laundry study it was observed that when garments stretched, changed shape and retained body imprints, participants were more likely to wash the garment to remove the memory of use and restore the former shape of the garment. For example, during the longitudinal laundry study B1 commented, 'I wash it mainly because it loses shape more so than anything else. I know that sounds weird but I don't like it when garments begin to sag in places. In this top it begins to sag in the elbows and through the width of the body – I know it's a bit vain but this doesn't look flattering so I'll wash to shrink it down again'. Similarly, participant L4 commented on her experience of wearing the trousers L4.TR, noting that they didn't lose their shape, which she perceived to be positive. She commented 'no I really liked everything about these trousers, they just seemed to be well thought through and things that I find annoying in other trousers, like when they lose their fit or hang, or go a bit scummy on the bottom, these ones didn't at all.'

Provocation

This design provocation suggests new considerations for the design process, which pivot around the significance of stretch, bodily imprints left in clothes and changes in garment shape as an indicator for laundering. It addresses the physical relationship between body and material, the movements of the wearer and the processes by which garments stretch, change shape and retain imprints of the body.

This provocation explores how design can be used to both delay the accumulation of imprints and changes in shape that propel laundering, and also challenge changes in shape as a driver for laundering more frequently. It subverts how signs of use and wear are commonly perceived as unsightly and an imperfection in

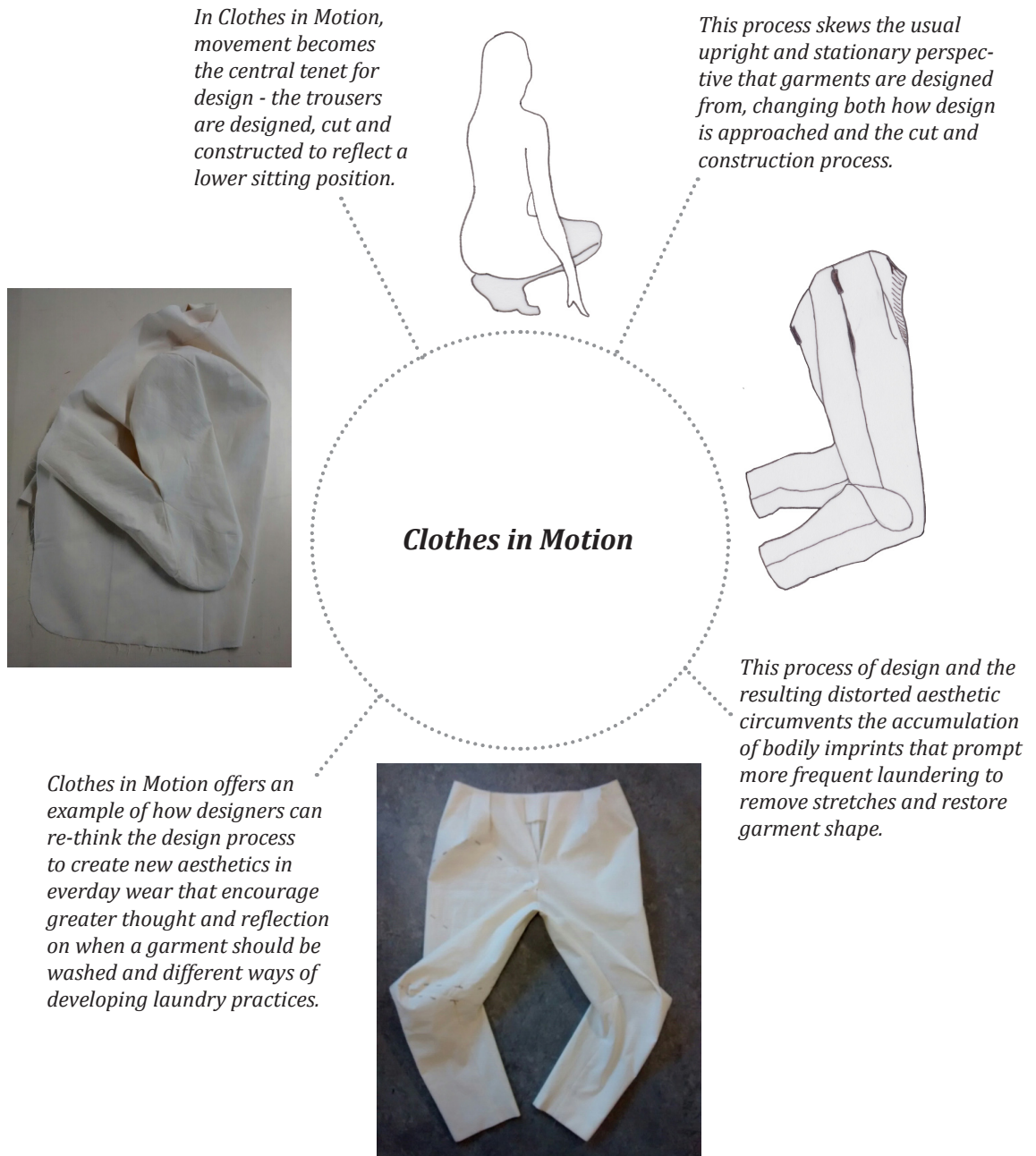
garments, and postulates ideas to accentuate evidence of use, rather than to remove it. It raises the question: if garments were no longer washed to restore shape and remove evidence of use, how would this interfere with decisions and judgements on when to launder? Would it encourage an overall decrease in the amount of laundering carried out?

Animated scenarios

Clothes in Motion

Clothes in Motion shifts the conventional approach to garment design, in which clothes are designed based on the body in an upright and stationary position. In Clothes in Motion, movement becomes the central tenet for design - the trousers are designed, cut and constructed to reflect a lower sitting position. In doing so, they skew the usual upright and stationary perspective that garments are designed from, changing both how design is approached and the cut and construction process. When the wearer stands straight the trousers sit taut on the calf and back of leg, tilt down from the hips, and protrude at the knee giving the impression of a knee imprint. This intentionally distorted aesthetic intends to challenge how a garment should look from new and how the wearer determines when a garment looks worn. It offers new possibilities for fashion design aesthetics that encourage different ways of constructing laundry practices. This process of design aims to circumvent the accumulation of bodily imprints that were observed to prompt more frequent laundering to remove stretches and restore shape. The Seated Trousers offer an example of how designers can re-think the design process to encourage less washing and thus reduce the consumption of energy and water expended during laundering.

Figure 6.8 Clothes in motion



To further visualise this scenario a jacket and pair of trousers were constructed in organic waxed cotton with extended space for movement in the elbow and knee area.

Figure 6.9 Clothes in motion garment images

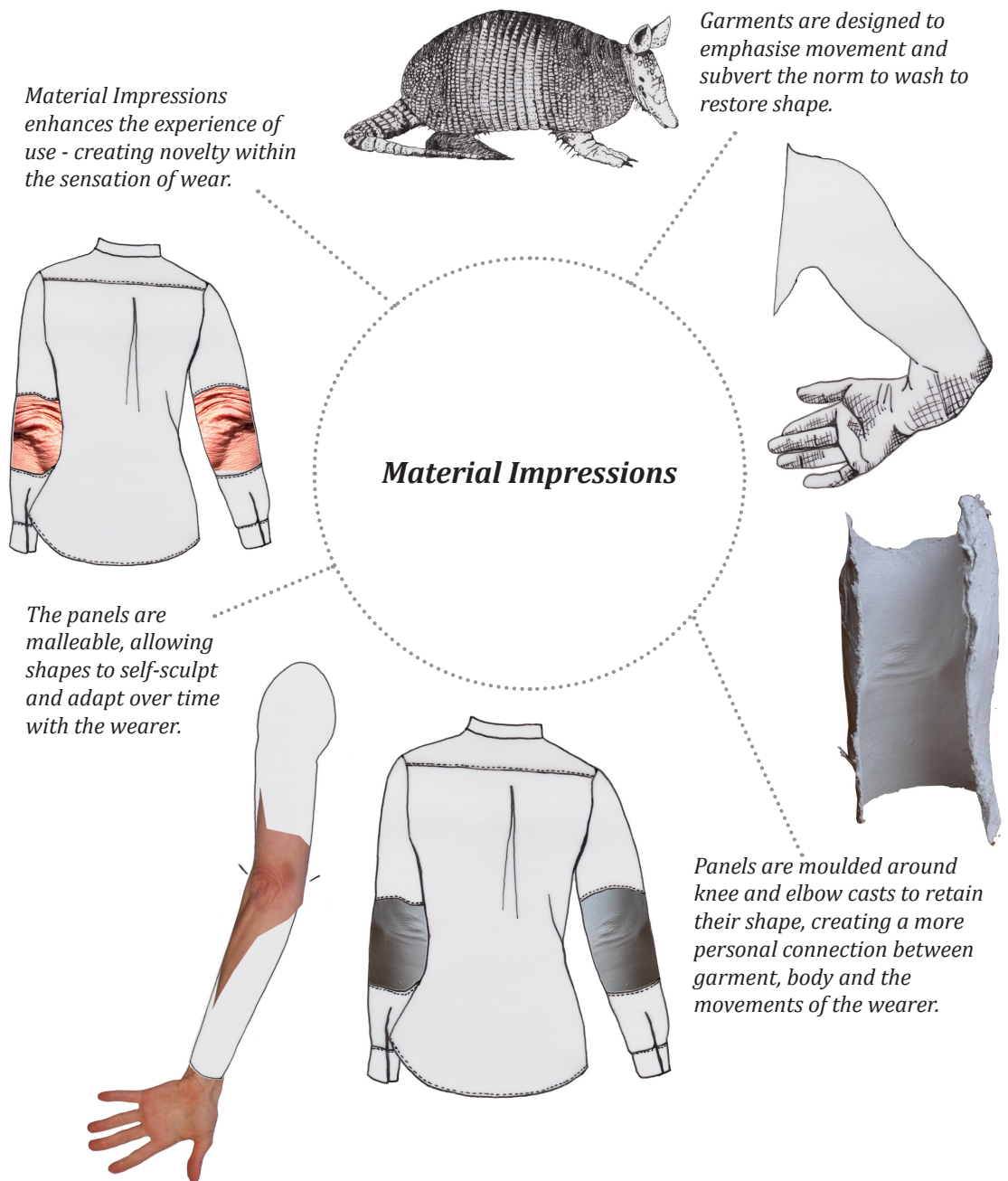


Material Impressions

Material Impressions enhances the experience of use: creating novelty within the sensation of wear. Garments are designed to adapt and mature with age and use, embracing signs of wear rather than contesting them. Material Impressions gives attention to the areas on clothes that body imprints are most likely to occur, addressing the irony that garments are washed to bring them back to a near new aesthetic; to restore shape and elasticity, yet in paradox it is the process of washing that propels their gradual and overall decline in quality. Continual washing induces fading in colour, pilling, twisting in seams and loss of handle in material, which eventually causes garments to 'wear out', to reach the point at which they no longer *look* appropriate to wear.

In this scenario garments are designed to emphasise movement and subvert the norm to wash to restore shape, thus eliminating one of the key drivers to wash clothes. Panels around the knee and elbow areas are designed to accentuate changes in shape through a process of material casting. Knee and elbow panels are moulded around knee and elbow casts to retain their shape, creating a more personal connection between garment, body and the movements of the wearer. The panels are malleable, allowing shapes to self-sculpt and adapt over time with the wearer. They are like wearing a second skin – lightweight and comfortable, yet supportive and yielding gently with movement. Thicker and more structured panels are used for heavier weight garments, such as coats and winter trousers, while for lighter weight summer clothes more flexible and softer panels are used.

Figure 6.10 Material impressions



6.5 Society, scents and senses of smell

This observation addresses odour and the perception of smell, or olfaction, as an indicator to launder. It explores how smell is understood, and the relationship between smell, clothes, cleanliness, and links between judgements on clothes and laundry practices. Social norms and conventions that link to cleanliness are intangible yet hugely influential in shaping laundry practices. For a garment to smell fresh is symbolic that the garment is also clean. Odours on clothing, especially bodily odours, is a social faux pas. Caines (2011) reports that three quarters of adults put items in the wash to freshen them, even with they are not visibly dirty. It was not surprising to observe from the one-year laundry study that removing odour from clothes emerged as one of the most consistent reasons for washing. B1 commented on top C.B1.ME, 'it's really smell more so than anything else that makes me wash it' and B5 commented on shirt C.B5.SH 'dirt doesn't really show on this shirt, I wash it mainly to get out sweat and smells'.

Yet while removing odour was one of the chief reasons to wash clothes, it was also observed that there was a whole host of factors that influenced how likely garments were to develop odour. The type of garment, if it was worn next to the skin, how it fit on the body and the material it is made from all played a large part in influencing how quickly odours developed. In the study, garments L1.ME, C.L1.ME, C.B1.ME, C.B2.BS, C.B4.TR and C.B5.SH were more likely to be machine washed to clean and freshen, rather than spot cleaned or left out to air as in the case of some looser fitting garments in the study such as C.L3.HK and B6.AP. In addition, in a separate study, Caines (2013) reports that clothes which are worn next to the skin are far more likely to be worn just once before going in the wash, and three out of four laundry

consumers will go no longer than wearing T-shirts, tops, shirts and blouses twice before putting them in the wash.

This observation highlights how odour, perception of smell and social norms that link to cleanliness play a large part in shaping our laundry practices. Yet, while removing odour from clothing plays a significant part in the frequency that certain garments are washed, understanding the elements that influence how and when odours develop opens design opportunities to tamper with and subvert some of these factors.

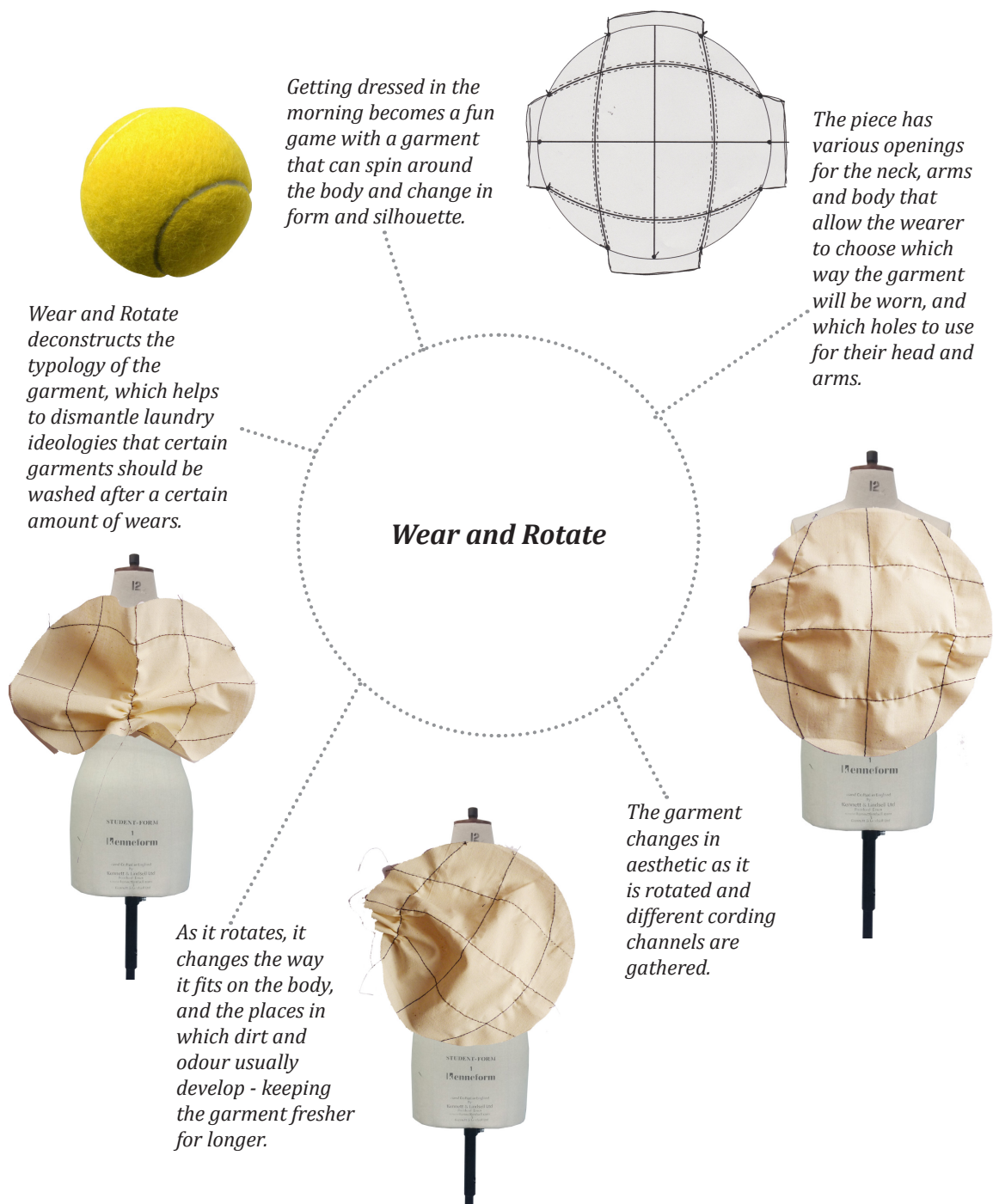
Design provocation

This design provocation acknowledges that odour is social taboo. Rather than trying to dismantle social conventions linked to cleanliness and odour, it postulates ways to design with an understanding of them. It explores practical approaches to design in which knowledge of individual and collective laundry routines and contexts of use are interlinked with the design process. It suggests ways to create outer garments that are more resistant to developing odour build up through both rotating the position of the garment around the body and using detachable linings that can be washed separately from the main garment.

Wear and Rotate

Getting dressed in the morning becomes a fun game with a garment that can spin around the body and change in form and silhouette depending on how you choose to wear it. The garment is designed with various openings for the neck, arms and body that allow the wearer to choose which way the garment will be worn, and which holes to use for their head and arms. The garment changes in aesthetic depending on which way the user decides to wear it. When the garment is rotated it changes the way in which it fits on the body, and the places in which dirt and odour usually develop. This helps to keep the garment fresher for longer by reducing the build up and concentration of odour in particular areas such as under the arm, prompting the wearer to reevaluate their laundry decisions. Significantly, the rotatable character of the garment deconstructs the typology of the garment, which helps to dismantle laundry ideologies that particular garments should be washed after a certain amount of wears. As well as reducing the need to launder, the rotating garment also offers multiple aesthetics in one garment, increasing the variety in style and reducing the need for multiple variations of a garment, helping to reduce the overall material flow of the wardrobe.

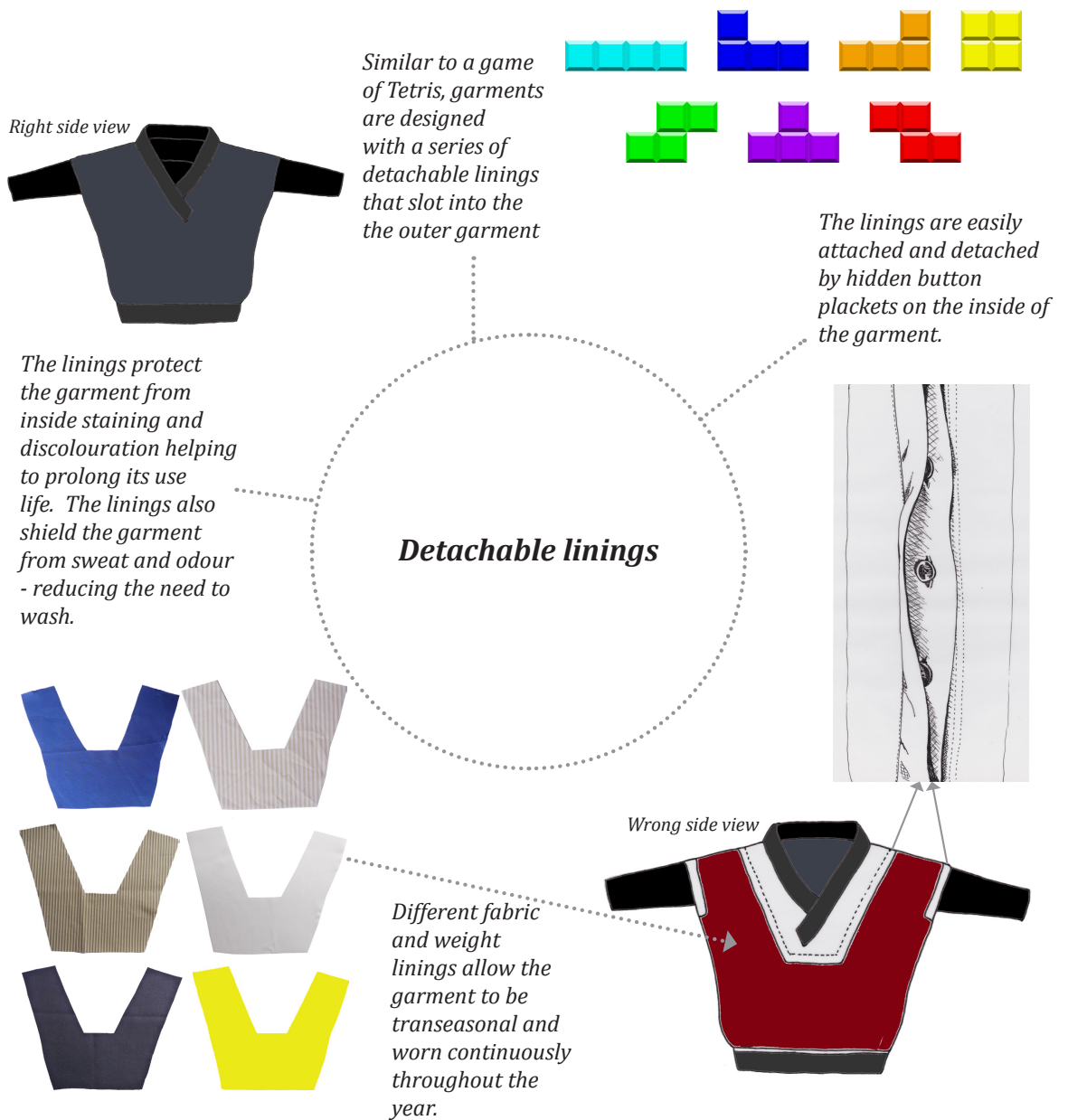
Figure 6.11 Wear and rotate



Detachable linings

Like a game of Tetris, garments are designed with a series of detachable linings that slot into the shape of the outer garment. The linings are easily attached and detached by hidden button plackets on the inside of the garment. Some linings are made from lightweight silk for warmer days, and others are made from heavier weight wool for cooler days, allowing the garment to be trans-seasonal and worn continuously throughout the year. The linings protect the garment from inside staining and discolouration helping to prolong its use life. The linings also shield the garment from sweat and odour - instead of washing the complete garment, the wearer can detach the lining and wash this separately, reducing the overall amount of household laundry. Detachable linings increase versatility for use and at the same time prompt greater user-garment engagement as the wearer must match the lining fabric to context of wear.

Figure 6.12 Detachable linings



6.6 Dirt and diversion

This observation responds to the most literal and obvious motivators to wash clothing: to remove dirt and soiling. It addresses the relationship between the sense of seeing, perceptions of dirt, clothes and laundry practices. Removing dirt from clothing is an easy reason to understand why clothes are washed, but how the participants' perceived dirt and why it has become such a social taboo to wear clothes with marks on them is more complex. This observation explores the significance of visual perception and cleanliness in social culture. It addresses the perception of sight as our most dominant sense, and responds to how dirt is perceived differently in different contexts and on different types of garments.

For example, during the pre laundry study questionnaire, participant B6 noted '...I like to wear clean clothes everyday (apart from denims)' and participant B3 commented that she washes her clothes when 'visibly dirty or quite smelly, but I try to postpone washing if they don't really need to be washed'. During the laundry study participant B5 commented on shirt C.B5.SH 'Dirt doesn't really show on this shirt, I wash it mainly to get out sweat and smells' and C.B3.HK noted 'I washed them 'cause they got a bit grubby but the smell was ok'.

These comments are not unusual yet in different ways they demonstrate the difference between and the significance of being able to physically see dirt, in comparison to when dirt is hidden by darker coloured garments, bold prints or coarser textiles. This shows that how dirt is perceived is more meaningful than the presence of dirt itself, and thus removing dirt that is visible is more important than removing dirt

that is not visible. Extrapolating from this, washing to remove physically visible dirt can be understood to be dominated by social meaning, rather than the factor of cleanliness. This observation highlights how social meanings are active and significant elements in the construction of laundry practices. It shows that the desire to wear constantly clean clothes is a social priority and responds to socially constructed norms surrounding clothes and cleanliness. This dynamic demonstrates the unspoken yet powerful connection between visual perception and social interpretation. It provides evidence to suggest that laundry practices can change when the social meanings that they act to reproduce are challenged or become superseded with different meanings.

Provocation

This provocation uses design to explore how visual perception and shared understandings of appropriately clean clothing shape our laundry practices. It postulates around the idea of misappropriating meanings congealed in how we perceive and interpret dirt, or the absence of it. It hypothesises that laundry practices can change when the social meanings that they act to reproduce are challenged or become superseded with different meanings.

Animated scenarios

Food for Print

Match your outfit with your meal! Clothes are designed to be worn for particular meal occasions and the wearer chooses their outfit based on what they will be eating.

Garment prints are inspired by certain food types and work to camouflage any potential spills or stains. Food for Print playfully conceals food stains, disrupting how dirt is perceived and when a garment should be cleaned and restored through washing. It encourages longer periods of wear before washing and at the same time helps to preserve the quality of garments, which is degraded through continual washing. In addition to reducing the need to launder clothes, Food for Print creates new sets of relationships between clothes, food and outfit planning, creating new considerations and possibilities for both fashion designers and the end wearers.

Figure 6.13 Food for print



Stain Palette

Camouflage your spills and stains in your garments. Stain Palette addresses the way in which new clothes are presented in shops as archetypes. New and off the peg garments benchmark how clothes should appear and the standard that a garment should be maintained to. They are in pristine and perfect condition, and perpetuate ideals that garments should consistently look immaculate. In this scenario, clothes are acquired in a different context. Rather than being bought off the hanger they are bought like food – in different shaped bottles and jars.

A colour palette is inspired from common stains and the colour of the garment matches the food or stain type that is referenced by the packaging, which offers a practical camouflage for spills and stains and at the same time helps to relieve the standardized ideal for garments to always look pristine. For example, a pink blouse is bought in a strawberry jam jar, a red silk dress is bought in a wine bottle, a brown shirt is bought in a coffee tin and a red T-shirt is bought in a tomato ketchup bottle. The containers that clothes are bought in are designed to be kept and used as food and liquid storage containers. Stain Palette alters the way that dirt is perceived and prompts the wearer to reconsider why and when a garment needs washing. It brings the use of garments into their design, allowing the experience of everyday wear, including spills and stains, to be part of the fashion-use experience. This process challenges the foundation of new garments being presented and sold as archetypes and suggests new approaches to fashion design.

Figure 6.14 Stain palette

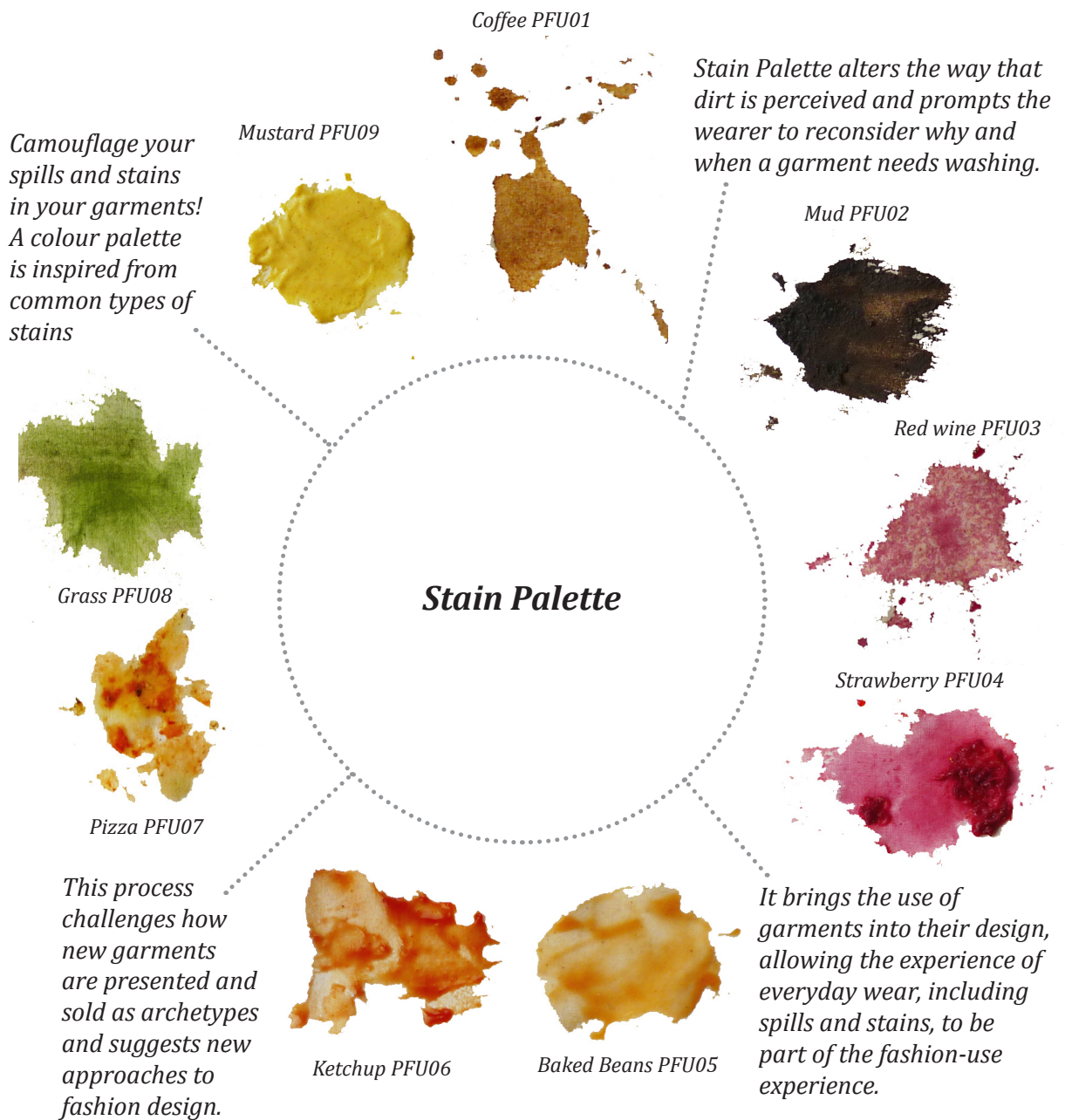


Figure 6.15 Stain palette 2

Coffee stain shirt



Strawberry stain waistcoat



Stain Palette



Mustard stain blouse

6.7 Material perceptions and laundry connections

This observation addresses the relationship between how textiles are perceived, clothes and the know-how involved in laundering practices. It focuses on how people perceive textiles as a basis for judgement and developing personal laundering competencies and responds to associations made between particular materials and ways of cleaning.

As discussed in chapter 4 (section 4.5) the perception polling found that factors that influence laundry methods respond largely to how a garment is perceived visually. In both the perception polling study and one-year laundry study, protecting the overall quality of the garment (from shrinkage, colour fading, changes in shape and pilling) were the most important factors when deciding how best to launder. Yet it was also observed that there were vast differences between how the study participants perceived materials, their understanding of materials and how they related them to particular cleaning methods, highlighting the significant role that perception (which is not always rational) plays in laundry decision-making.

Indeed, in the one-year laundry study it was observed that material perception often overrode best practice and participants often acted on perceptual impulse when deciding how to clean garments. For example, garments that were made from delicate materials and also *looked* delicate were not machine washed. Yet garments that were made from delicate materials but *looked* like everyday wear were in fact machine washed, despite being unsuitable for doing so and despite the material details given to the participant at the start of the study. This was observed in the case of the black skirt (BS) and navy cardigan (CA) as seen below in figure 6.16, which were both made from wool and were unsuitable for machine washing. However, it is likely that if these

materials looked more delicate the participants would have made a clearer distinction between laundry methods, and would have been more inclined to seek alternative cleaning methods.

Figure 6.16 Black skirt (BS) and navy cardigan (CA)



The observation highlights how our perception of material helps to shape our laundry practices. It evidences how associations between certain garments, materials and routinized ways of cleaning influence judgements made on how best to wash particular garments. Significantly, it reveals the potential for laundry practices to change when associations between garment, material and cleaning practices are shifted.

Provocation

This provocation intends to challenge how garments and materials are perceived. It aims to disrupt common associations made between textiles and laundry practices. It plays on ideas of misappropriation and postulates around the question 'how does

material perception connect to laundry practices and how can material perception be disrupted?’

Animated scenario

Textural transfers

Textural transfers draws attention to the spaces around perception and judgement as an influential yet intangible and experiential element of laundry practices. It taps into visual perception as an element to stimulate more mindful laundry practices through focusing on the use and aesthetic of texture in garments. Here, a variety of familiar textures that are not normally associated with clothes are used to distort how everyday materials are perceived. The misappropriation between material and texture intends to challenge and deconstruct entrenched ways of linking certain materials to particular laundering processes and challenges tacit understanding of textiles and assumed laundry know-how.

Figure 6.17 Textual transfers



6.8 Garment typologies and laundry ideologies

This observation addresses the dynamics between particular garment archetypes (typologies) and associated laundry ideologies. Laundry ideologies refer to entrenched beliefs that affect ways of thinking and doing during laundry practices. They influence how and how often certain garment types are cleaned.

In the one-year laundry study it was observed that participants assigned particular laundry ideologies to certain garment types. For example, B3 commented on the woollen hand knit top C.B3.HK, 'I've never washed this one very often, you know, because it's an Arran knit they don't need to be' and L2 commented on the denim skirt C.L2.BS 'it's a denim skirt so it doesn't need to be washed as often'. However, in the case of B3, the top she referred to, as seen in figure 6.18, had similar features to an Arran knit (it was made from wool and hand knit with a cable pattern) but was not a traditional Arran knit, yet she bundled the garment into a generalised category to which she assigned certain laundry ideologies.

Figure 6.18 Wool hand knit jumper (C.B3.HK) and denim skirt (C.L2.BS)



This observation shows how laundry conventions develop when a garment typology becomes enmeshed in laundering practices. These types of associations are intangible and subjective to the wearer involved, yet they influence how certain garment types are regarded and the norm around how long the garment should be worn for before being washed. They develop from collective knowledge and become distilled in individual laundry practices.

Provocation

This provocation explores the exchange between garment typologies and laundry ideologies. It challenges how archetypes are understood and what they are symbolic of. It postulates around the question, 'what if laundry ideologies are transferrable between different garment types?'

Garment Compilations

Like a favourite music compilation, Garment Compilations mix together different garment types into a single garment. Sections of a grey cotton jersey top, a cotton blazer, a wool Arran knit jumper and a denim jacket are blended together to create a compilation garment. The garment is half blazer and half jumper yet also references the sporty characteristics of jersey and the causal qualities of a denim jacket. Its multiple reference points to both smart and casual garments make it versatile in a variety of contexts of use, whilst at the same time expands possible approaches to fashion aesthetics. Significantly, Garment Compilations fuse together different laundry ideologies that are associated with particular types of clothes into one garment. The assembled garment acts to challenge how garment typologies are understood and

disrupts usual laundry routines by prompting the wearer to reconsider how and how often the garment should be washed.

Figure 6.19 Garment compilations



6.9 Clean social security

This observation responds to laundering as a type of social security. It addresses laundering as a mechanism for social auditing, to deflect social judgement and remain socially neutral. A stock of clean clothes offers a sense of control, self-management, confidence and various other social benefits. Laundry practices are assembled, in part, by a series of social investments.

Provocation

Design is used to challenge social security that is regulated through laundry practices. This provocation hypothesises: what if 'over washing' clothes became a social taboo and detracted social benefits?

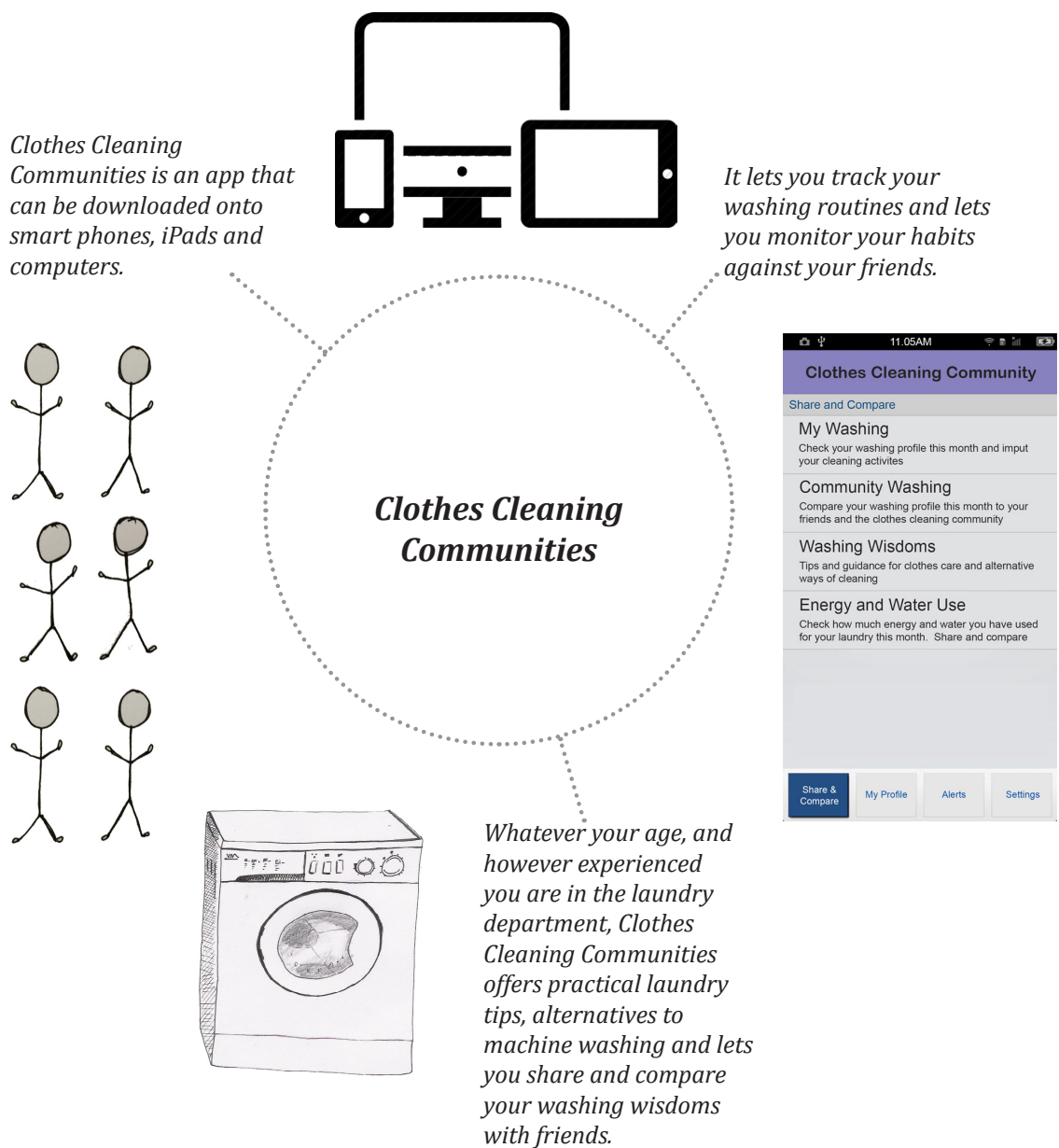
Animated scenario

Clothes Cleaning Communities

Clothes Cleaning Communities is an app that tracks your washing routines and lets you monitor your habits against your friends. Whatever your age, and however experienced you are in the laundry department, Clothes Cleaning Communities offers practical laundry tips, alternatives to machine washing and lets you share and compare your washing wisdoms with friends. Clothes Cleaning Communities can be downloaded onto smart phones, iPads and computers. The community forms part of a larger community campaign to reduce domestic energy and water usage. The data is stored electronically and outputted to the Clothes Cleaning Community website. Members can track their clothes cleaning profiles online and compare their laundry resource profiles

anonymously to other members. Members are alerted if their washing routines become more resource intensive than the community average. The community takes a social norms approach to encourage less washing. It intends to disrupt the meanings of laundry as a form of social security

Figure 6.20 Clothes cleaning communities



6.10 Newness

This observation addresses the relationship between clothes, laundry practices and the condition of *newness* - the physical condition of a garment when it is 'brand new', i.e. unused and unworn. It focuses on the sensation of novelty and the 'box fresh' experience of wearing a new garment for the first few times. It draws attention to how these aspects can influence the initial laundering of a garment and subsequent laundry practices that emerge. In the laundry study it was observed that when garments still *looked* new, they were less likely to be laundered regardless of how much they had been worn.

For example, in the laundry diary B2 commented on the skirt B2.BS 'I don't wash it very often, but it doesn't really need to be. Always looks quite new and doesn't look worn.' For B2, the fact that the garment retained a new and unused appearance reduced the amount that it was laundered. Similarly, participant B4 explained that after twelve months she had not felt the need to wash or clean her trousers. She felt they would get dirtier more quickly if they were washed. This may have been a confusion between 'becoming dirty' and 'no longer looking new'. Alternatively she may have been referring to the finishes or treatments on the material that is lost after the first few washes and changes the appearance of the garment slightly. Either way, by not washing the trousers the certain aesthetic qualities linked to newness were preserved (such as shape, feel, and the crispness of pleats) which she felt prevented them from needing laundering. In period B of the laundry study she commented

I've only worn the trousers for short periods of time and always after a shower and I haven't felt the need to wash them yet. I tend to wash clothes

a lot but when something is new I tend to let it go quite a while before washing it. It appears to me that once you have washed something once, it gets dirtier quicker... The trousers seem to wear well, they haven't marked at all (no stains), they still feel clean to wear without washing/ cleaning. No odours...

Further, participant B4 explained during the post study discussion '... but you know if something was new, like I've even bought a pair of trousers from [whispers] Primark [laughs], Primark for the record, trousers that I've actually worn about six or seven times that are new, that I know once I wash them, then I'll be washing them every time'. The same participant also commented on the trousers that she had during the one year laundry study, '... and then what I probably like most about them more than anything is the fact that I've worn them twenty times and I've not washed them and they still don't need it. And especially for someone who does seven loads a week in comparison'.

Extrapolating from this, when garments show signs of wear and use their aesthetic moves towards a state that is less desirable, and the 'box fresh' sensation of novelty reduces. This observation highlights how perceptions and experiences of newness and novelty in clothes play a part in influencing when and how often certain garments are washed. It evidences that garments that retain a newer aesthetic for longer may be washed less frequently than those that show evidence of use and wear. Most significantly, it shows that when garments retain conditions of newness, it helps to circumvent the symbolic performances and rituals of cleanliness, which are usually expressed through laundering (as discussed in chapter three).

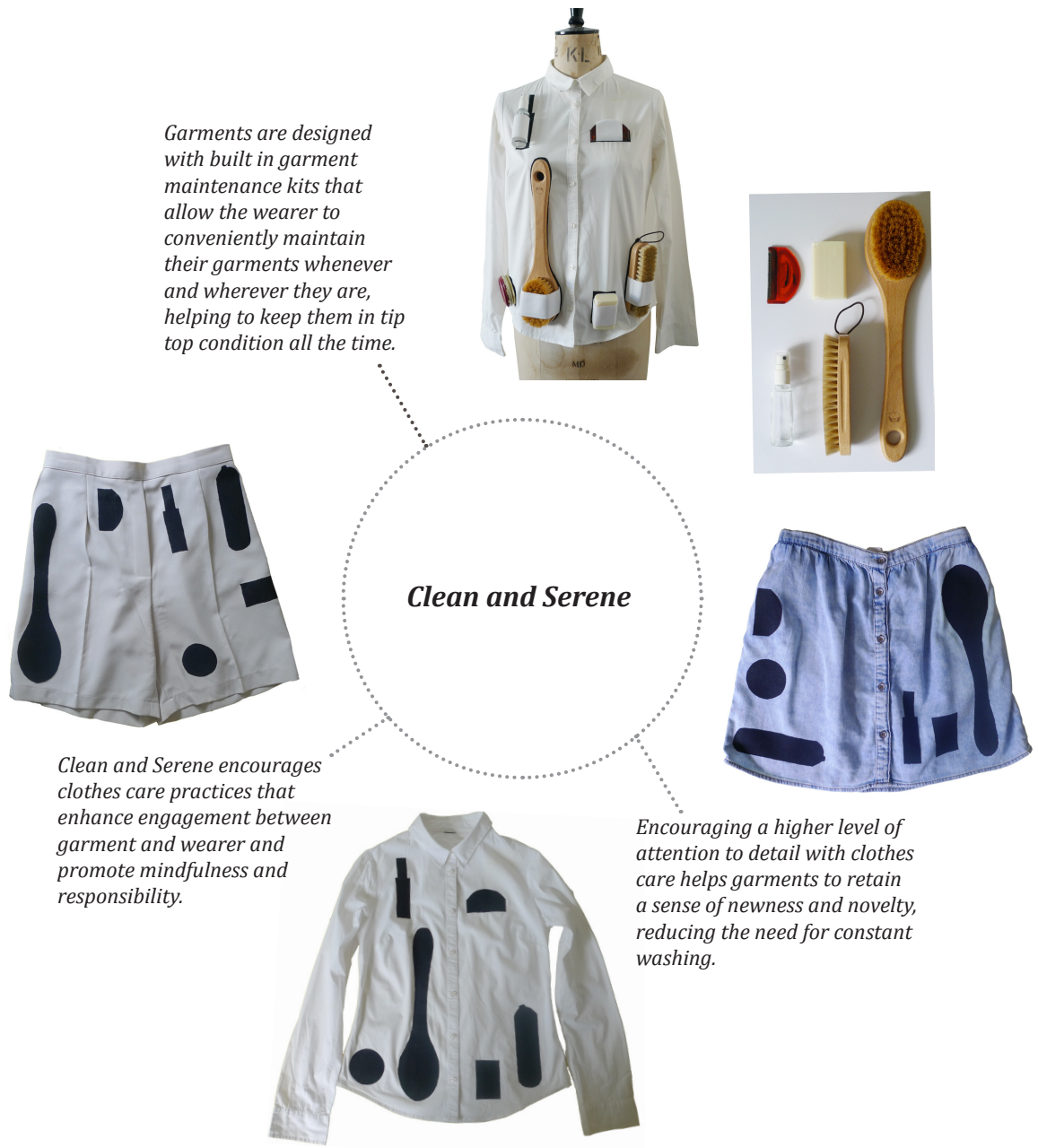
Provocation

This provocation uses design to explore how the condition of newness (physical condition and sensations of novelty) interplays with laundry practices and the potential to effect change within them. It uses design to challenge how newness is understood, how the sensation of novelty can be re-created and how the changing of a garment lifespan can influence how newness is perceived, and subsequent laundry behaviours. It explores the questions: what does it mean when a garment no longer looks new? How can expectations and meanings for newness be shifted?

Clean and serene

Garments are designed with built in garment maintenance kits that allow the wearer to conveniently maintain their garments whenever and wherever they are, helping to keep them in tip top condition all the time. The kits include two different types of clothes brush (one for removing hairs, threads and general fluff and the other brushing off more crystallised strains), a bobble/ flint comb, a bar of stain removal soap and tin of fabric care cream. Encouraging a higher level of clothes care and maintenance helps garments to retain a sense of newness and novelty, which reduces the need for constant washing. At the same time, it encourages clothes care practices that enhance engagement between garment and wearer and promote mindfulness and responsibility.

Figure 6.21 Clean and serene



Laundry Charms

Laundry Charms offer a quirky and practical way to carry your clothes care kit with you all the time. Miniature cleaning and care products are designed to fit on necklaces and bracelets, adding a new, practical and novel dimension to jewellery charms and their functions. Individual laundry charms can be replaced when they have been used up, allowing the wearer to change products or update their care kit. Laundry charms offer a convenient way to care for clothes and keep them in good condition whilst on the go. At the same time they help to redistribute the time arrangements in laundry practices - encouraging shorter yet more regular mini maintenance sessions as and when needed with more knowledge and care in the process, rather than relying on machine washing.

Figure 6.22 Laundry charms



6.11 Conclusion

This chapter has made three major contributions to this research project. In the first instance it has demonstrated how social practices can be used as a 'property of design'. For example, the laundry studies carried out in this research have provided a platform from which to illuminate some of the more inconspicuous aspects of laundry practices. This has provided an opportunity to draw together a series of nuanced observations on laundry practices and points from which to reimagine how laundry might be done differently if certain elements of practices are challenged or rearranged. Different to the idea of designing clothes which encourage people to launder their clothes less often, this approach challenges the way laundry practices are constructed through design. This approach is more rigorous in the sense that it responds to and has been developed out of findings and insights from the laundry studies. This process offers possibilities to reshape laundry practices in less resource intensive directions. So from this perspective, social practices are intrinsic to the design process in not only providing a context for design but also in forming an active ingredient in the design process.

Secondly, through the lens of practice theory, this chapter has demonstrated how theory can be bridged with design practice. It has developed ideas and visualisations for sustainable design through acknowledging the diverse and complex social contexts in which design operates and in which clothes are used. It recognises and advocates that sustainable design must incorporate a distinctly socially orientated trajectory.

The third major contribution this chapter makes is through the series of design provocations that, while highly conceptual, function to illuminate how laundry practices

might be reorganised. They offer a set of alternative approaches to addressing laundry as a resource intensive practice. Stakeholders in the clothes cleaning supply chain most often invest in updating existing technologies, for example washing machines that use less energy to operate or laundry detergents which offer advanced cleaning power at lower temperatures. Yet these initiatives do not challenge the regimes of practices, paradoxically they sustain unsustainable practices. This chapter has revealed some of the hidden elements of laundry practices that must be fundamentally challenged, not in isolation but alongside progress in technology, if laundry practices are to be directed towards less resource intensive futures.

In the following and final chapter the design provocations will be further discussed, along with the key implications and advantages of adopting a social approach to design for a range of stakeholders including: other designers, researchers, educators and members of clothes cleaning supply chain.

CHAPTER SEVEN

Discussion and conclusion

Introduction

Research intention

Limitations

Discussion

Directions for future research

Research questions and key insights

Contribution to knowledge

Summary

7.1 Introduction

This final chapter will review my research intentions as well as my key research challenges and limitations. It will provide a discussion around the environmental agenda, the context of laundry and the way in which the design provocations (as outlined in chapter six) engage with this, offering a different perspective to the broader discussion of fashion and sustainability. Further, this chapter will discuss what has been learnt from researching laundry practices in relation to wider methodological approaches to design for sustainability. I will also offer recommendations for further research into the subject of laundry and design for sustainability more broadly. Finally, I will conclude by revisiting my initial research questions as outlined in chapter one and drawing further conclusions on design for sustainability following from the discussion and implications of this research.

7.2 Research intention

As a designer, I began this research project with the intention to explore the connections between the design of clothing and the methods and frequencies in which clothes are laundered. I was motivated to undertake this enquiry for three main reasons. First, the enquiry responded to research which documented laundry as a practice which can be linked to the consumption of high volumes of environmentally significant resources such as energy and water, as well as detergents and solvents (Hansen, *et al.*, 2007; Bain, *et al.*, 2009). From an environmental perspective, this is a critical area in which improvements can be made to work towards lower impact and more sustainable clothing use. With exception to Fletcher (1999; 2001; 2008:74-92),

there was little research that had been carried out in this area of fashion design, clothing use and sustainable design.

Secondly, the field of sustainable fashion design is in early stages of development with huge potential for progression and expansion. I was inspired by the work of Ehrenfeld (2008) and Fletcher and Grose (2012), who in relation to sustainable design strategies discuss the necessity of engaging with the social contexts that frame unsustainable fashion practices in order to make real, long lasting changes in the way that fashion is produced and consumed. They explore ideas for designing clothes 'that moves beyond minimizing the problems of unsustainability to also create (design) conditions for a new fashion system where the problems disappear altogether'. And further suggest, 'Meeting this potential requires designers to think in terms of platforms that change paradigms rather than products and processes' (Fletcher and Grose, 2012:180).

Following this rationale, I intended to explore strategies for sustainable design that were based on challenging the context of laundry, rather than focusing on singular material or technological aspects. I realised that to do this I needed to develop a broader understanding of laundry as an integrated social practice. I decided to undertake a yearlong laundry study with sixteen participants and while this was initially intended to focus mainly on the design of the garments in the study, it became apparent that I needed to expand my focus and consider design in relation to the use context of the clothes, the every day lives of the participants' and the laundry regimes of the household.

The third motivation for this research was connected to the slow progress made in the clothes cleaning supply chain to invest in approaches to reducing the

environmental impacts of clothes cleaning beyond product and technology based innovation. Focusing on individual changes in the use of products and appliances can only reduce consumption to an extent since environmental savings are outweighed by the continual increase in washing loads that are carried out.

Researchers from the University of Manchester, Evans and Yates (2014), discuss that whilst there have been continuous improvements in the energy usage of washing machines, from 268 kilowatt hours for the average household in the mid 1980s (Shove, 2003) reduced to 166 Kilowatt hours in 2012 (Owen, 2012:11), the total overall energy use connected to doing the laundry has in fact doubled since 1970 due to the continuous increases in the amount of washing that is done (Goodright and Wilkes, 2015). Similarly, researchers from Norway have also argued that environmental savings that are offered from improving technology and products are overshadowed by the continually increasing amount of laundry that is carried out (Laitala *et al.*, 2011: 255). Products and technology only make up one part of the dynamic in our laundering routines and there are many less explored areas with great potential for design innovation.

7.3 Limitations

I have identified two key limitations with this research. The first is concerned with the sample size of the yearlong laundry study, which totalled sixteen participants. The sample size is small and thus the analysis of the laundry study is situation specific and cannot be generalised; the analysis remains specific to the participants involved in the study. The insights from the laundry study are unique to this research. However, whilst

individual and micro observations are unique, my broader macro insights from the study, such as the co-dependencies between design, use and laundry can be more widely generalised because they are supported and legitimised by the historical analysis of laundry as discussed in chapter three.

The second limitation from this research study is nature of the design provocation and scenarios as described in chapter 6. These provocations are intended to tilt towards a conceptual position and the emphasis of these is how they highlight and respond to some of the more hidden aspects of laundry practices. Whilst some of these design scenarios may be more feasible than others to carry out, they remain provocations for sustainable design; they have not been tested and should be understood as anecdotal and circumstantial to this research.

7.4 Discussion

This research study has been developed in context to the global climate change crisis and in recognition of wider environmental sustainability goals – including planetary boundaries. Across the UK, 27 per cent of carbon emissions come from what people do on an individual level in their homes. One of the single largest issues in the UK's climate change agenda is to increase energy saving measures within the home – this means promoting changes in the everyday habits and routines of nearly 20 million households (Energy Saving Trust, 2015:4). Clothes laundry has a significant part to play in this scenario, as it is a practice that consumes high volumes of energy and water. The average household in the UK performs 284 wash cycles per year; equivalent to 5.5 cycles a week, and those with tumble dryers perform 260 drying loads per year (Owens,

2012:11). Changes in household laundry routines towards reduced resource dependency are therefore essential.

In this discussion I will consider how this research has contributed towards a way of engaging with fashion and laundry, and working with design to support transitions away from resource dependency. Further to this, I will also consider how this research contributes to the wider narrative of fashion, design and sustainability. I will begin with a summary of the research journey I have been on and the way in which my perspective has evolved.

Changing perspectives: from object to social

One of the main challenges I encountered in this research related to both how I understood the context of laundry and the design outcomes I expected to achieve. In Chapter 2, I described how my approach broadened during my initial research analysis from a primary focus on garments and the material world to the broader social context of laundry. During this process I realised that many laundry behaviours cannot be explained through reason and scientific logic alone. Here I will discuss this shift and the generated learning in more detail. In particular, I will consider how this links to systems theory (Meadows, 2009) and how the ontological perspective in which this research sits has evolved consequently throughout the research process.

As discussed in Chapter 1 and 2, I initially developed my research agenda around the notion that laundry behaviours are principally motivated by the desire to remove dirt and odour, and the primary utility of laundry is to provide clean and fresh smelling clothing. This logic appeared to be legitimised by the laundry industry's continuous development of technologies that aim to make the washing process more effective,

products with optimised cleaning performance and laundry aids that keep clothes smelling fresher for longer.

Like other researchers (Bain *et al.*, 2009; WRAP, 2012) and industry stakeholders, my research approach was based on this relatively linear and seemingly logical understanding of laundry. Yet as I began to analyse the laundry diaries kept during the one-year laundry study, I realised that laundry practices are only partly influenced by restoring the physical condition of a garment and removing dirt and odour. I realised that there are a huge array of elements that are involved in laundry practices and behaviours are unpredictable and highly subjective. Put simply, I had reduced the problem down to be much more straightforward than it really was. Without a prior understanding of laundry as an integrated social practice, I was unable to comprehend it as part of an interconnected social system. I had misunderstood the context of laundry and consequently had only been focusing on a small part of a much larger and more complex scenario.

As a result, my research findings from the one-year laundry study revealed something very different to what I had been initially looking for. I had been hoping to learn more about the relationship between garment design and laundry behaviours. Individually, the insights from the study *did* describe parts of this relationship, but when reflected on as a whole the insights highlighted a much more involved, dynamic, fluid, interdependent and co-evolving set of relationships that come together at the point in which laundry is performed. It became clear that, if laundry practices are underpinned by factors beyond the physical condition of a garment, then designing clothes that required little or no cleaning was a rational but misleading approach to progressing ideas for design for sustainability in fashion.

As I realised this complexity, I recognised that I would need to relinquish the illusion of control I thought I had as a designer. Whilst my research findings had offered some unique insights into the nature of laundry practices, they had also raised more questions concerning the relationship between design and sustainability. For example, if design cannot be used to predict and change behaviour as much as initially thought, what other functions can it serve? And, can this new knowledge of the subjective social context in which design exists connect to new design action? These broader insights share similarities with systems thinking where problems are understood not in isolation but as part of much larger and more complex systems (Meadows, 2009). To understand more about laundry as a complex social system I draw from Practice Theory (Reckwitz, 2002; Shove, 2012) which allowed me to analyse my research through a practice based lens and identify some of the many different kinds of (inconspicuous) elements that construct laundry as a practice. Some of these elements included: changing textile preferences, increasing stocks of clothing, spaces in which clothes are kept after they have been worn but before they are ready to be washed, personal dressing habits, patterns of clothing use, clothing functions, evolving knowledge and laundry know-how, emotions linked to confidence etc.

This practice-based approach offered a more panoptical perspective on laundry as a social practice and highlighted some of the broader social functions and outputs of clothes cleaning beyond the immediate production of clean clothes. Through understanding laundry as part of a much larger system it was possible to understand that resource consumption is incurred not as a result of singular actions and behaviours, but as an output of a complexity of different types of coexisting and coevolving elements. Reducing laundry down to be a solely functional and logical practice is a

misrepresentation of what laundry is, how it is constructed and, how and why it evolves. Most significantly, it skews insight into how resource consumption occurs and limits the effectivity of interventions to reduce consumption. Thus, design actions that intend to support sustainability goals must acknowledge and respond to laundry practices not in isolation but as an integrated outcome of a much larger and more complex social system.

Design and complexity

Meadows (2009:4) describes systems problems as ‘undesirable behaviours characteristic of the system structures that produce them’, she further states, ‘they will yield only as we reclaim our intuition, stop casting blame, see the system as the source of its own problems, and find the courage and wisdom to restructure it.’ Indeed, as a designer I realised that if laundry behaviours cannot be fully predicted or controlled, then I had to radically rethink my approach to design. I realised that I could only progress ideas for design for sustainability in relation to laundry if I surrendered the illusion of control I thought design could offer and broadened my thinking in relation to the functions of design. Borrowing ideas from systems thinking, I realised that I needed to find ways to extend the function of design beyond designing to change behaviour towards designing to challenge and evolve the social structures from which laundry practices emerge.

Moving forward from this point was challenging and I turned to other design and sustainability theorists. In particular, I found ideas discussed by Ehrenfeld (2013), Doordan (2013) and Davison (2013) to be helpful in allowing me to move forward and reconceptualise the relationship between fashion design, laundry practices and

sustainability. Here it will be useful to briefly summarise some of the thinking from these scholars and how it helped me to move forward in both design theory and practice.

For Ehrenfeld (2013), a central part of conceptualising and developing design for sustainability is in acknowledging complexity and responding to uncertainty. He suggests that failure to recognise complexity in social behaviour, and thus its relationship with design, is one of the key barriers to forging more stable and permanent foundations for design and sustainability. Problems of unsustainability can only be dissolved through changing the underlying system that has created the problem, so that the problem disappears (*ibid.*, p.20-25). Ehrenfeld explains that, once you have distinguished between how much you do know and how much you don't, you can then develop new approaches and artifacts that respond to this uncertainty, and which are developed for change and adaptation. The understanding and knowledge in the design process is developed through 'observing and reflecting on what is happening' (*ibid.* p.20). Ehrenfeld and Hoffman (2013) believe that it can only be through design and redesign that new systems can be developed in which structures to remodel behaviours towards more effective regimes can emerge.

Following Ehrenfeld's work and drawing on transition theory, Doordan (2013:66) also discusses the necessity of using design to create alternative systems and scripts for social behaviours. He considers transitions theory as being rooted in systems, dependent not on control but on unpredictability. He describes design for sustainability as a process of learning and profiting from unpredictability, a process 'tempered by humility rather than driven by hubris' (*ibid.*, p.68). Doordan (*ibid.*, p.69) further describes the change as being 'a more open-ended process in which different processes

such as experimentation, mutual learning, community building, and structural change reinforce each other over time'. He notes that sustainable design will be known for the questions it asks about current modes of being and the interrogations it makes on other disciplines.

So, building on some of these ideas, I was able to reconsider the relationship between design and user behaviour. Reflecting on my research findings, I decentred material products from focus and instead gave attention to the embedded social dynamics that surround laundry practices, and which are set within a nexus of spaces, thoughts, actions, feelings, experiences and materials. From this shifted understanding of laundry: from linearity to complexity, and from objectivity to subjectivity, some new opportunities for design arose. I will continue this discussion with a theoretical outline of how the design provocations in this research project were developed and what the wider implications are for sustainable design. It will be useful to discuss this in relation to some ideas from Davison (2013), who has considered some the qualities of design for sustainability from both a functional and ontological perspectives.

Different design approaches

Similar to Ehrenfeld and Doordan, Davison (2013:48) asserts that we must shift our understanding of the role and function of design if it is to nurture sustainability values. To do this, Davison (*ibid.* p.47) argues that design, at its very core, must probe and question the modern perspective from which reality is understood: our dominant design ontology that separates rational order and subjective experience into different realms of existence. This separating of realms can be traced back to Cartesian philosophy, in which Descartes (1996) argues that the mind is self-governing and

separate from the body, and able to exist without it. This theory is also known as Descarte's dualistic theory of mind and body. However, when the physical and experiential realms are separated out like this, problems are also separated out and responded to in parts, rather than in how the parts work together as a whole or as a larger interconnected system. Thus, Davison (2013) argues, design is disconnected from an integrated understanding of reality and separates humans from being part of nature. Davison (*ibid.*) contends that design must act as a bridge between the fluctuating realm of qualitative and subjective experience and the more linear and consistent realm of quantifiable rational order.

Davison (*ibid.*, p.49) discusses two key points of departure from this ontological view of design. The first is that individual design professions must no longer divide design but rather, design professions must be broadened to encompass 'the practice of everyday life'. What Davison means here is that design must become intrinsically interdisciplinary to respond to the complex and interconnected ways in which objects engage with the social world. The second point of departure from conventional representations of design is that focus shifts to 'non-material artefacts', or in my own words – *the social properties of design*.

From these points of departure design functions as a means of ontological inquiry. Davison (*ibid.*, p.50) describes this as a process called 'designing for ambivalence' in which, without certainty of result, design efforts are focused on: exploring the unfamiliar, asking new questions, unsettling thinking, challenging behaviours, interrogating living patterns and subverting systems. In essence, Davison (*ibid.*, p.50-54) suggests that there is possibility when designing for the unknown. For, when designing from a radically different position, from ambivalence and uncertainty, a

wilderness is exposed that has the potential to bring us closer to a state of sustainability than current reductionist approaches to design.

So, building on these ideas it can be concluded that if design for sustainability is to serve new functions it needs to change ontological stance. It must embrace complexity and reconnect that which can't be predicted and measured (human qualities) to that which can be (logical scientific qualities). The research carried out in this doctoral enquiry actively reinforces these notions. In relation to fashion design, laundry and sustainability, it has highlighted the boundaries and limitations of considering laundry from only an objective and scientific approach. It has shown that without understanding the social context of laundry, only a partial understanding of laundry (and by extension reality) can be achieved. Instead, when design is considered more pluralistically as an active part of laundry practices, nuances emerge from which to develop new ideas for design. I will refer to this as 'the social properties of design' and continue this discussion considering the implications and benefits of adopting this approach.

Implications of research

Working with the social properties of design means understanding and engaging with the (complex) social context in which design exists. It requires developing a macro perspective of the social before zooming in on the material details of design. The design provocations developed in this research study have shown how focusing on and analysing social practices have formed an essential stage in the design process, and as discussed in chapter five, a vital way to understand mechanisms of change and transformation within laundry practices. This doctoral enquiry offers a social practice

approach for developing design theories and design practice in fashion for design for sustainability. Here I will discuss the key implications and advantages of adopting this approach for a range of different stakeholders including: fashion designers, researchers, educators and members of the clothes cleaning supply chain.

For fashion designers, it offers an approach to design and development where the process becomes internally collaborative and cross-disciplinary. Focusing on the social properties of design helps to break down barriers between individual design professions and advocates more dynamic and integrated ways of working. For example, referring back to the design provocations *The Clothing House* and *Clothes Curtain* (in chapter six), both provocations create spaces for different types of designers (i.e. clothes, furniture, product, interior, surface etc.) to collaborate and develop products that literally fit together for more combined purposes and processes of use with the overall affect of challenging the way in which laundry routines are constructed. When design ideas for fashion are developed around social dynamics the design process becomes more experimental, rhythmic and open ended, rather than linear and goal focused. It also opens a much wider space to innovate around garment aesthetics. Whilst this may be challenging to existing business structures in the fashion industry that rely on a relatively linear model of production and consumption, it simultaneously creates new opportunities for designers and possibilities for different types of business structures.

An example for a type of setting to further explore both the design provocations in this research as well as more collaborative approaches to fashion design is Space10 (Space10, 2015). Space10 is a design innovation lab, as shown in figure 7.1, based in Copenhagen. It is open to the public as an exhibition space and its goal is to 'create

opportunities for a better and more sustainable way of living in the future' (*ibid.*). The space nurtures different types of experimental design collaboration and product prototypes that support the future of home design. The space is funded by Inter IKEA Systems B.V. who is the owner of the IKEA concept and worldwide IKEA franchiser. It funds the space to support innovation and inspiration in design and future ways of home living (*ibid.*).

Figure 7.1 Space 10 (Space10, 2015)



Following these implications for fashion designers and businesses, for fashion educators the implications that arise from working with the social properties of design challenges the way that fashion design is taught as a subject separate and independent from other design disciplines. This research advocates that fashion education needs to become more transdisciplinary to allow designers to develop new conceptual, theoretical and

methodological ideas that push the boundaries of discipline-specific approaches and connect clothes more closely to their context of everyday use and domestic care.

Accordingly, this research supports a shift where fashion designers are educated in a way which allows them to move between disciplines and to identify new opportunities for fashion to help solve common problems and underpin a transition towards more sustainable ways of living.

Implications for stakeholders seeking to reduce the impacts of laundry

For other industry stakeholders that are working to reduce the impacts of clothes cleaning this research has further implications and contributes to a wider conversation. It makes the case that industry based efforts to reduce the impacts of clothes cleaning need to be expanded (qualitatively) beyond the mainstream approaches of focusing on technical efficiency and encouraging small incremental changes in laundry habits, such as: reduced washing temperatures, broader use of compact detergent, more line drying and greater acquisition of energy efficient washing machines, fuller wash loads etc. (Bain, *et al.*, 2009; WRAP, 2012). Indeed, whilst these small incremental changes are important and have potential to reduce impact to an extent, as discussed earlier in this chapter, the massive increase in the volume and frequency of clothes that are now washed counteracts the incremental improvements made (Evans and Yates, 2014; Laitala, Klepp, and Boks, 2011).

This research contends that greater efforts need to be made towards developing design strategies to challenge collective laundry conventions and routines. In a study on conventions and cleanliness, Jack (2013) concluded from a social laundry study in which 31 people were tasked to go without washing their jeans for three months, that

shifting collective conventions is more effective for making environmental savings than challenging individual routines. Jack (2013:20) found that alternative laundry practices developed as the new routines of not washing set in and she further noted that recognition should be given to 'individuals ability to embrace awareness and reflexivity in the reproduction of consumption practices'. Further to this, in a different piece of research that focuses on sustainable clothing design, Laitala and Boks (2012) argue that there is great potential for designing clothing to encourage more sustainable use and laundry, however more innovation is required into clothing design and research on attitudes, values and motives linked to laundry behaviour.

This research builds on and supports that of others scholars who have explored the social context of laundry. For stakeholders in the clothes cleaning supply chain who are working to reduce the impacts of laundry this means engaging more closely with the uncertainty of consumer behaviour and embedded habits rather than designing and innovating around the outskirts of this. It encourages stakeholders to respond to laundry as an integrated social practice, and to look for opportunities to support further research into the social dimensions of laundry. This will allow more opportunities to emerge for collaborations that draw upon stakeholders' unique position within the supply chain, to engage more intimately with the social elements of laundry and begin redesigning laundry practices from the inside out.

Wider implications for fashion and sustainability

In this discussion I have considered how the focus in this research project has broadened from a narrow focus on design and objects to the broader social context of design and laundry practices. Following this shift, I have described the advantages of

engaging design with complexity and specifically the social context in which design exists. I have also discussed what I refer to as the 'social properties of design' and described how the design provocations listed in chapter six have been developed around this. Further, I have considered the approaches taken by other designers and researchers to reduce the environmental impacts incurred through laundry and described how this research approach differs. In this section I will continue to consider where this research sits within the wider narrative of fashion and sustainability. It will be helpful to discuss this in relation to Fletcher (2015) who has provided a broad outline of the challenges for fashion and sustainability within the current fashion paradigm and where opportunities lie to tackle these challenges.

To set the scene, Fletcher (*ibid.* p.18-19) notes that for most people, fashion prevails as part of the consumption landscape: it is understood and engaged with through buying clothes and accessories that deliver novelty. The High Street acts to facilitate this and has been developed as an arena to maximise sales and profits through selling low cost clothing in increasingly large quantities. Garments are made from low quality materials and with low quality construction. Accordingly, this dynamic has supported an era of designed obsolescence and can be understood as part of the neoliberal economic model, which supports free trade, privatisation and continual growth. This dominant setting for fashion is largely unquestioned, unchallenged and accepted as normal (*ibid.*).

However, as Fletcher (*ibid.*) discusses, this backdrop for fashion is problematic not least because it perpetuates cycles of consumption and undermines alternative ways of engaging with, practising and experiencing fashion. It also fosters expectations of fashion that are framed by static marketing campaigns, idealised lifestyle brands and

stereotyped sizing; expectations that are far detached from everyday life. In essence, fashion is completely disconnected from its real life context of use (*ibid.*). Yet, as noted by Fletcher (*ibid.* p.19), ‘alternatives from outside the status quo appear inferior, impractical, expensive and unattractive.’ This restricts choices to engage with fashion differently and prevents other systems forming in which fashion can operate on new terms.

Indeed, efforts to work towards sustainability in the fashion sector are most often directed towards reducing environmental and social problems within the existing system. Yet Fletcher (*ibid.* p.20) argues that the net impacts of continually increasing amounts of clothing being consumed (as a result of the growth imperative) outweighs any significant savings made by best practice approaches. In the case of laundry practices, escalating consumption is also problematic since rising stocks of clothing within households increases the amount of clothes in active use and circulation, and adds to the complexity and frequency of laundry practices (Evans and Yates, 2014). These challenges are indicative of a system based on growth. Yet cycles of growth cannot be stopped within the current economic system because of the structural reliance of the system itself on continual growth (Jackson, 2011).

So within this larger picture, Fletcher (2015:20) notes that efforts to drive sustainability in fashion are disconnected from natural systems, planetary boundaries and the social contexts of people’s lives, and thus are far removed from the crux of the sustainability crisis. Fletcher (*ibid.*) argues that a shift is essential to develop new types of relationships with fashion, connect it more intimately with people and social practices, and to ultimately move it beyond the narrow realm of production and consumption - to develop ‘other fashion systems’. Here, fashion systems can be

understood as 'relational', that is, connected to real life experience and the social contexts of use. They nurture different types of expectations for fashion, new ways of valuing it and different sets of relationships (*ibid.*, p.21).

In the research project Local Wisdom, Fletcher (*ibid.*) has uncovered different kinds of 'relational expressions of fashion' (this project is also discussed in chapter two). The project seeks to highlight qualitative experiences of fashion that have autonomously developed outside the quantitative growth imperative. Fletcher (*ibid.*) describes these alternative fashion experiences as the 'craft of use', which materialise as 'the tending, fixing and satisfying use of clothing'. The project highlights the value of these practices in subversion to the current fashion system which preferences consumption of new items rather than caring for and using what is already in ownership (*ibid.*). It encourages fashion systems to reconnect with social relationships and unites design and use as a 'single whole'. This shift in focus realigns fashion from a paradigm based on growth to one of post-growth. Fletcher further discusses these ideas in her book *Craft of Use: Post-Growth Fashion* (forthcoming).

So, in reflection to this broader narrative of fashion and sustainability, it is clear that this doctoral enquiry has provided wider contributions to the field beyond the immediate context of laundry and design. Whilst it has demonstrated approaches to engage design in the restructuring of laundry practices through responding to some of the granular social details of laundry regimes, it has also carved out a methodological approach to working with fashion, design and sustainability that incorporates strands of social theory. Here, fashion design is framed within personal contexts of everyday use, it supports a move away from a system that is structurally reliant on consumption and growth, and can be understood as what Fletcher (2015) has described as 'relational

expressions of fashion'. In my words, this enhanced connection between object and social describes a process of rebalancing where the use context of fashion becomes as (and more) significant and meaningful as the fashion products themselves.

7.5 Directions for future research

My discussion in this chapter has focused on how this research has constructed a different methodology for fashion design that is able to recognise and respond to social practices, the context of garment laundry and the sustainability challenge. Building on this, I will now outline two key avenues for future research.

The first and most obvious direction is to further define and realise the design provocations outlined in chapter six through prototyping and testing. This opens doors for collaboration with other designers and industry stakeholders and would involve a process of deeper contextualisation to link new processes (and products) to contexts of use and begin a process of validation. The second direction for future research is broadening investigation into methodologies that support working with the social properties of design and exploring further ways to draw from social theory to benefit the field of design for sustainability. In particular, this involves developing and defining methods and tools to translate insights from social practices into the basis for design innovation and reinforcing this bridge between design theory and practice. This has implications for other resource intensive lifestyle practices and sustainable design methodologies.

7.6 Research questions and key insights

After describing the research purposes, processes, outcomes, implications and directions for future research, here I shall return to discuss the five research questions as listed in chapter one (section 1.7) that this enquiry initially sought to address and key insights that have arisen. To begin, I will discuss the first two research questions: *to what extent does the design of clothing influence laundry practices?* And, *what part has the design of clothing played in the evolution and development of laundry practices?*

In chapter three I have shown that while the design of individual garments influence everyday laundry practices in the home, collective fashions have influenced much broader shifts in the way that laundry is done, and the tools and implements used to do it. In particular, this was illustrated by the discussion in section 3.6 which explored how and when laundry became a fully domesticated home practice, which was in part attributed to the availability of easy-care clothes made from synthetic fibres. During the middle of the twentieth century, as clothes became easier to wash at home, less households made use of the industrial laundries. The ‘washability’ of clothing for domestic laundering continued to improve during the latter half of the twentieth century, and demand for domestic washing machines increased. Yet, as also shown in chapter three, this shift happened in parallel with wider changes in the sociotechnical infrastructure of the UK: it would not have been possible without the development of the national grid system to connect households to a source of electricity and significantly, the standardisation of electricity voltage and frequency.

Focusing on contemporary laundry practices, in chapter four I used a practice theory approach to provide an illustrative setting to better understand laundry and

consumption. Through analysing the yearlong laundry study, this enabled me to further understand laundry as a social practice comprised of a complex set of interdependent elements such as appliances and products, the methods in which it is done, the frequencies at which it is performed, time, feelings and motivations. From this study I have shown that the design of clothing influences laundry practices to an extent, but there are many contingencies and interconnections between the elements that form laundry practices. I found that, in many cases, the design of a garment is linked to the use of a garment, as illustrated by the case of laundry study participant L1 and the change in use of her study garment from a cycling top to an everyday top, which consequently altered her laundry behaviour towards it.

So, to conclude on these questions, I have found that laundry routines are influenced by garment design to an extent, but most significantly, design exists within a larger social context and it is the structuring of how different social elements come together and co-evolve that ultimately provide the backdrop to our laundry practices.

The third question that this research set out to explore was: *in which ways could design be used to rearrange laundry practices and create conditions for less resource intensive laundry practices to develop?* In chapter four, my analysis from the laundry study provided an illustrative account of the social contexts that design exists within. Understanding laundry as a social practice, and unravelling these social contexts has highlighted that if clothing design is to challenge the way in which laundry is done towards less resource dependent practices then design also needs to challenge the social context of laundry. Thus, design needs to have broader purposes that move beyond directly seeking to reduce the amount that a garment is washed, and challenge the regimes of practice. As discussed in chapter four, findings from the yearlong

laundry study have identified what some of these hidden elements are that construct the broader social context of laundry. They include

- the places in which clothes are kept in the bedroom
- domestic space and organization, the structure of a household and the influence this has on collective household routines
- the construction of social norms that link to odour
- how dirt is perceived and the meanings that dirty clothes symbolise
- how materials and fibre types are understood and the cleaning knowledge connected to them
- the ideologies connected to particular garment types and the sense of social security and currency that wearing appropriately clean and freshly laundered clothes offers

In chapter six I developed a series of conceptual design provocations that responded to this deepened understand of laundering. The design scenarios aimed to demonstrate how design can be used to create novel combinations of elements for laundering that challenge some of the contexts which maintain unsustainable practices.

The fourth question that this research seeks to answer is: *how can social practice theory be used to help develop different directions for sustainable design theory and practice in the field of fashion design?* In this research I have used practice theory as a theoretical backdrop from which to integrate social theory with sustainable design theory and I have demonstrated how practices can be used as a property of design. This is an example of practice-orientated design for sustainability and it illustrates an

approach to connecting design theory with design practice in a way that acknowledges the social context of design. As I have discussed in chapter five, what is significant about this approach is the way in which practice theory recognises consumption as a routine part of and an outcome of everyday activities during the repetitive use of goods and services. This approach takes its point of departure from an individualist account of the consumer to a much broader view of collective culture and the social practices of which consumption is a part (Warde, 2005). Understood in this way, changes in laundry practices are reflective of how elements and components, and the systems of which they are part, integrate and co-evolve (Shove, 2003).

So, social practice theory therefore offers new ways to conceptualise change and stability within laundry practices, and by extension, environmentally significant practices of consumption. For sustainable design theory and practice in fashion, this offers a panoptic perspective of social contexts and reveals the 'inside workings' of how and why environmentally significant consumption occurs. The advantage of taking this approach is that it offers clearer insights into how changes in practices may be provoked when elements are disrupted or challenged. It supports a more exploratory and experimental approach to sustainable design theory and practice in fashion.

The final question that this research study seeks to answer is: *how does this research contribute towards ways of understanding, developing, practicing and teaching fashion in support of sustainability goals?* In the discussion section of this chapter (section 7.3) I have considered how this research project and the analysis of the laundry study prompted a shift in perspective from focusing on materiality and garments to concentrating on the broader social context of laundry. This shift in perspective was driven by recognising that the way in which clothes are used and laundered form part of

much larger social systems and that social behaviour is erratic and not always predictable. Thus, this research contributes towards a way of understanding fashion and sustainability that is contextualised within a nexus of social practices. Subsequently, it has shown that design for sustainability should be understood as a social issue as much as it is an environmental issue. Viewing problems in isolation from social contexts conceals the complexity of the issues.

For practising and teaching fashion in support of sustainability goals, this research study has shown that fashion methodologies will benefit greatly from incorporating strands of social theory. As fashion becomes more dynamic and interconnected to social dimensions this opens a space for fashion designers to work more fluidly between other design and social disciplines to identify new opportunities and innovative approaches to respond to sustainability challenges. Ultimately, in developing fashion and sustainability as a field, this research project advocates new functions for fashion framed within the context of use and laundry that are experimental, playful and open ended. As outlined in the discussion section in the chapter, it supports a move away from a fashion system that is structurally reliant on consumption and growth and opens possibilities for different types of fashion systems to form around the intersections of other disciplines.

7.7 Contribution to knowledge

This doctoral enquiry contributes to new knowledge in the field of sustainable fashion design about design methods and approaches to reducing the environmental impacts of clothes laundering. There are two key contributions from this study.

The first and primary contribution emerges from the yearlong laundry study where a link was demonstrated between the design characteristics of the study garments and less resource intensive laundry practices. Data from this study (documented in figure 4.8 and in appendix six) evidenced that the majority of the study garments were worn more often than their comparison garments and laundered less often and the designs also deterred tumble drying, and higher temperature washing and ironing (discussed section 4.4). The design characteristics in the study garments which induced lower impact laundry practices were developed in previous research (Rigby, 2010), and can be summarised as:

- the use of high quality materials (wool, cotton and silk)
- the use of absorbent materials that are breathable and more likely to resist odour
- the use of darker colours which conceal dirt
- the use of silk linings
- fit and cut of garments that non-restrictive and loose
- openings and fastenings to allow ease of removal
- overall designs that are not particularly suited for machine washing
- wax cotton coatings that resist dirt and are wipe clean

The secondary contribution to knowledge from this research arises from the deeper insights that emerged from the laundry studies as described in chapter four relating to the wider elements that influenced laundry frequencies and processes (sections 4.4.1, 4.4.2 and 4.5) and the corresponding development of a practice-orientated approach

(discussed in chapter five) for developing design solutions to trigger changes in laundry practices. This approach to developing design ideas is novel because it uses social practice theory to suggest laundry practices can be broken down into key elements which have the potential to be arranged, and new elements added at a proto-practice stage (as discussed in chapter five). Examples of how this approach might be realised are demonstrated in chapter six through a series of conceptual design provocations.

7.8 Summary

As reflected in this research, laundry plays an important and vibrant part in both historical and contemporary social culture. From a historical perspective (in chapter three) I have shown how clothes cleaning developed as a handcraft, providing a vital means for trade and a source of livelihood for a large proportion of Victorian women. When laundry evolved from a hand trade to a mechanised industry it redeveloped in economic terms and during the latter half of the twentieth century it evolved again into a domesticated home practice. As laundry has transformed in: how, where, when and why it is done, the meanings, needs, values and competencies associated with laundry and the related conventions of cleanliness have changed discreetly yet dramatically. One outcome (of many) is that standards of cleanliness have escalated and the frequency and volume of laundry that is now carried out in the UK has proliferated, resulting in the large-scale consumption of environmentally significant resources and subsequent contribution towards climate change and global warming.

Efforts to reduce impacts from laundry have been mainly focused on technological efficiency and individual changes in behaviour. These initiatives appeal to a logic of direct reductions in resource use, but they fall short in responding to the meanings and values that are reproduced and enacted through doing the laundry and the social construction of practices as explored in this research. As such, despite continuously improving product and appliance efficiency, the net consumption of energy incurred through doing the laundry has doubled since 1970 (Goodright and Wilkes, 2015).

The insights from this research highlight that design initiatives to reduce impacts from laundry must recognise and respond to the social contexts of laundry and specifically what it means and offers as a service. Whilst design outcomes of such approaches may be less predictable and quantifiable, they promise a more intimate connection to the social realm and potential to yield new opportunities as practices are challenged on deeper levels. Accordingly, this research supports an overall shift in the role of design where the designer works to facilitate new connections between material and social realms. To this end, I believe this research on laundry, fashion design and sustainability can be understood as a microcosm for some of the challenges in the field of design and sustainability more widely.

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APPENDICES

Participant questionnaire

Participant information sheet

Participant consent form

Data coding keys

Participant overview

Laundry study visualisations

Laundry discussion transcripts

Research collection form

Laundry polling visualisations

Appendix 1 Participant questionnaire

Garment Maintenance Study Questionnaire

Thank you for taking the time to complete these few questions. Please answer the questions as fully as possible and write N/A if the question does not apply to you. This should not take longer than 10 minutes to complete. If you run out of space to answer a question there is a spare sheet of paper attached at the back.

Name:

Date of birth:

A. Lifestyle and wardrobe

a1. What is your occupation?

Please circle

Full time / part time

a2. Do you have a distinct set of clothes for different daily activities
(Such as a set for: work/ home/ leisure/ occasions/ sports etc)

Please

circle Yes / No

a2.1. If so please state how many sets you have approximately

a2.2. Do these sets overlap?

a2.3. Which is your most frequently worn set?

a2.4. Are some sets of clothes cleaned more than others?

a2.5. *If so, which sets and why?*

a3. Is the fibre your clothes are made out of important to you?

Please circle

Yes / No

a3.1. *If so, why?*

a4. Do you know what the majority of your clothes are made from?

a4.1. *If so, what?*

a5. Do you have a favorite or least favorite fibre type?

a5.1. *If so what and why?*

B. Living arrangements and garment cleaning

b1. How many people do you live with?

b2. Are they family/ friends/ flat mates?

b3. Do you share washing loads?

b3.1. *If so, who with?*

b4. Do you do your own clothes washing or does somebody else do this? *Please circle an option or answer other*

I do my own washing all the time
time

I do my own washing most of the

I share clothes washing with somebody else
washing

Somebody else normally does my

I never do my own washing

Other:

b5. When does the clothes washing usually get done?
(For example, before work, after work, weekends, no set time etc)

b6. What prompts you to clean or maintain your clothes?
(For example, odors, stains, loss of shape in garment, to freshen it up etc)

b7. How often do you put on a machine clothes washing load? *Please circle an option or answer other*

More than once a day
more

Once a day

5 times a week or
more

Once a week

Once every 2 weeks

Once a month

Other:

b8. What is the make and model of your washing machine?

b9. Which detergent or cleaning agent do you use?
Please explain why you chose this particular product

b10. So you use softeners, whiteners, conditioners etc?

b11. How do you dry your clothes and does this change depending on the season?
b.11.1. If you hang dry is this indoor or outdoor?

b12. Do you follow the washing instructions on a garments care label?

b13. Besides from using a washing machine to clean clothes, do you do any of the following steps as an alternative? *Please circle an option or answer other*

Hand wash
hand

Dry clean

Spot/ dab clean by

Hang garments to air

Use Febreze

Other:

b.14. What setting or cycle and temperature do you normally put your washing machine on?

b.15 Do you iron your clothes? *Please circle an option*

Some clothes

Most clothes

All clothes

I never iron

b14. How do you feel about washing and maintaining your clothes?
Is it something you enjoy/ despise/ look forward to/ don't mind etc?

Appendix 2 Participant information sheet

Garment Maintenance Study

Information sheet

Thank you for showing interest to take part in research that is being conducted for a project about garment maintenance. Please read this information sheet carefully, which describes why the research is being done and what it will involve. Feel free to ask if anything is unclear or if you would like any further information.

Purpose of project

This project aims to understand more about garment maintenance in relation to garment design.

Your participation

You have volunteered to participate in this research in response to a research request notice. You have the right to withdraw from the research programme at any time. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form.

What is involved?

You will be asked to record the use and maintenance of two garments during a 12 month period. One garment will be new and supplied to you and the other is a garment you already own and wear. You will record the use and maintenance of both garments through a basic written diary, which will be supplied with the garment. You are asked to use the new garment as you would use any other garment, and without special treatment or consideration. You are expected to record the garment use and maintenance fully, accurately and truthfully. Once the research has begun, you will be asked to participate in an informal follow up interview every 3 months. The interview will not last for longer than 1 hour. After the 12 month period the research programme will finish and you will no longer be involved.

Confidentiality

Your involvement in this study, and particular data from this research, will remain strictly confidential. Your personal details will be anonymised by separating data through the use of a data coding key. Only the researchers involved in the study will have access to the data. The collection, storage, disclosure and use of research data will comply with the Data Protection Act 1998. All research will be conducted inline with the principles of non-maleficence and beneficence, and will be compliant with the University of the Arts London's Code of Practice on Research Ethics. The data obtained will be used for inclusion in Emma Rigby's research degree and will be published upon degree completion (estimated 2013). The data obtained from this research may be used for additional or subsequent research by Emma Rigby. A copy of the data is available on request.

Gratitude

A sum of £50 will be paid to the you at the end of the 12-month period and on successful completion of the maintenance diary.

Further information

For further information, including information about your rights please contact:

Emma Rigby | T: 07814 882796 | E: e.rigby1@fashion.arts.ac.uk
Director of Studies Professor Sandy Black

UAL Research support office | 6th Floor, 272 High Holborn, London WC1V 7EY
T: 020 75149389 | E: research@arts.ac.uk

Appendix 3 Participant consent form

Garment Maintenance Study

Participant Consent Form

Thank you for showing interest to take part in research conducted by Emma Rigby for a research project about garment maintenance. Please read the attached information sheet carefully, which describes why the research is being done and what it will involve. Feel free to ask if anything is unclear or you would like any further information.

Activity consent

I understand that I have given my consent to be interviewed, complete a questionnaire and record a 12 month garment maintenance diary. I understand and have had explained to me the appropriate health and safety procedures for my part in this research. I understand and have had explained to me any risks associated with this activity.

Data consent

I understand that my involvement in this study, and particular data from this research, will remain strictly confidential. My personal details will be anonymised by separating data through the use of data coding key. Only the researchers involved in the study will have access to the data. It has been explained to me what will happen to the data once the experimental programme has been completed.

Statement of understanding

I have read the information leaflet about the research project that I have been asked to participate in and I have my own copy of the information leaflet. I understand that, once given consent, I have the right to withdraw from the programme at any time without disadvantage to myself and without having to give a reason.

Consent

I hereby fully and freely consent to participation in the workshop for part of the Energy Water Fashion research study, which has been explained to me in full.

Name of participant (BLOCK CAPITALS)

Signature of participant

Date

Name of researcher (BLOCK CAPITALS)

Signature of researcher


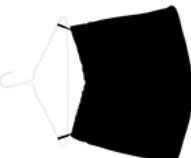


Date





Emma Rigby | T: + 44 (0) 7814 882796 | E: e.rigby1@fashion.arts.ac.uk
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Appendix 4 Data coding keys





4.A London data coding keys

| Visual |  |  |  |  | Period | | | |
|-------------------------|---|---|---|---|------------------|--------------------|------------------|--------------------|
| | | | | | Apr May Jun 2011 | Jul Aug Sep 2011 | Oct Nov Dec 2011 | Jan Feb Mar 2012 |
| Garment Description | Merino top | Black skirt | Handknit vest | Trousers | | | | |
| Garment Code | L1.ME | L2.BS | L3.HK | L4.TR | | | | |
| Comparison garment code | C.L1.ME | C.L2.BS | C.L3.HK | C.L4.TR | | | | |
| Participant Code | L1 | L2 | L3 | L4 | | | | |
| | | | | | Full code | Comparison garment | Full code | Comparison garment |
| A | L1.ME.A | L2.BS.A | L3.HK.A | L4.TR.A | L1.ME.A | C.L1.ME.A | L4.TR.A | C.L4.TR.A |
| B | L1.ME.B | L2.BS.B | L3.HK.B | L4.TR.B | L1.ME.B | C.L1.ME.B | L4.TR.B | C.L4.TR.B |
| C | L1.ME.C | L2.BS.C | L3.HK.C | L4.TR.C | L1.ME.C | C.L1.ME.C | L4.TR.C | C.L4.TR.C |
| D | L1.ME.D | L2.BS.D | L3.HK.D | L4.TR.D | L1.ME.D | C.L1.ME.D | L4.TR.D | C.L4.TR.D |

| Visual |  |  |  |  |
|-------------------------|---|---|---|---|
| | | | | |
| Garment Description | | | | |
| Garment Code | L5.SH | L6.AP | L7.DR | L8.CA |
| Comparison garment code | C.L5.SH | | | |
| Participant Code | L5 | | | |
| | L6 | | | |
| | L7 | | | |
| | L8 | | | |
| Period | Apr May Jun 2011 | Full code | | Comparison garment |
| | A | L5.SH.A | C.L5.SH.A | |
| | B | L5.SH.B | C.L5.SH.B | |
| | C | L5.SH.C | C.L5.SH.C | |
| Jul Aug Sep 2011 | Full code | | Comparison garment | |
| B | L5.SH.B | C.L5.SH.B | | |
| Oct Nov Dec 2011 | Full code | | Comparison garment | |
| C | L5.SH.C | C.L5.SH.C | | |
| Jan Feb Mar 2012 | Full code | | Comparison garment | |
| D | L5.SH.D | C.L5.SH.D | | |
| L6 | | | | |
| | Full code | | Comparison garment | |
| A | L6.AP.A | C.L6.AP.A | | |
| B | L6.AP.B | C.L6.AP.B | | |
| C | L6.AP.C | C.L6.AP.C | | |
| D | L6.AP.D | C.L6.AP.D | | |
| L7 | | | | |
| | Full code | | Comparison garment | |
| A | L7.DR.A | C.L7.DR.A | | |
| B | L7.DR.B | C.L7.DR.B | | |
| C | L7.DR.C | C.L7.DR.C | | |
| D | L7.DR.D | C.L7.DR.D | | |
| L8 | | | | |
| | Full code | | Comparison garment | |
| A | L8.CA.A | C.L8.CA.A | | |
| B | L8.CA.B | C.L8.CA.B | | |
| C | L8.CA.C | C.L8.CA.C | | |
| D | L8.CA.D | C.L8.CA.D | | |

4.B Bristol data coding keys

| Visual | Garment Description | Garment Code | Comparison garment code | Participant Code | Image | Image | Image | Image | Image | Period | | | | | | |
|--------|---------------------|--------------|-------------------------|------------------|---|-----------|---------|-----------|---------|-----------|--------------------|-----------|--------------------|-----------|---------|-----------|
| | | | | | | | | | | Full code | Comparison garment | Full code | Comparison garment | | | |
| | Merino top | B1.ME | C.B1.ME | B1 |  | | | | | | | | | | | |
| | Black skirt | B2.BS | C.B2.BS | B2 |  | | | | | | | | | | | |
| | Handknit vest | B3.HK | C.B3.HK | B3 |  | | | | | | | | | | | |
| | Trousers | B4.TR | C.B4.TR | B4 |  | | | | | | | | | | | |
| Apr | May | Jun | 2011 | A | B1.ME.A | C.B1.ME.A | B1.ME.A | C.B1.ME.A | B1.ME.A | C.B1.ME.A | B1.ME.A | C.B1.ME.A | B1.ME.A | C.B1.ME.A | B1.ME.A | C.B1.ME.A |
| Jul | Aug | Sep | 2011 | B | B1.ME.B | C.B1.ME.B | B1.ME.B | C.B1.ME.B | B1.ME.B | C.B1.ME.B | B1.ME.B | C.B1.ME.B | B1.ME.B | C.B1.ME.B | B1.ME.B | C.B1.ME.B |
| Oct | Nov | Dec | 2011 | C | B1.ME.C | C.B1.ME.C | B1.ME.C | C.B1.ME.C | B1.ME.C | C.B1.ME.C | B1.ME.C | C.B1.ME.C | B1.ME.C | C.B1.ME.C | B1.ME.C | C.B1.ME.C |
| Jan | Feb | Mar | 2012 | D | B1.ME.D | C.B1.ME.D | B1.ME.D | C.B1.ME.D | B1.ME.D | C.B1.ME.D | B1.ME.D | C.B1.ME.D | B1.ME.D | C.B1.ME.D | B1.ME.D | C.B1.ME.D |

| Visual |  |  |  |  | B5 | | B6 | | B7 | | B8 | |
|-------------------------|---|---|---|---|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|
| | | | | | Full code | Comparison garment | Full code | Comparison garment | Full code | Comparison garment | Full code | Comparison garment |
| Garment Description | Shirt | Apron | Dress | Cardigan | | | | | | | | |
| Garment Code | B5.SH | B6.AP | B7.DR | B8.CA | | | | | | | | |
| Comparison garment code | C.B5.SH | C.B6.AP | C.B7.DR | C.B8.CA | | | | | | | | |
| Participant Code | B5 | B6 | B7 | B8 | | | | | | | | |
| Period | | | | | | | | | | | | |
| Apr May Jun 2011 | A | A | A | A | B5.SH.A | C.B5.SH.A | B6.AP.A | C.B6.AP.A | B7.DR.A | C.B7.DR.A | B8.CA.A | C.B8.CA.A |
| Jul Aug Sep 2011 | B | B | B | B | B5.SH.B | C.B5.SH.B | B6.AP.B | C.B6.AP.B | B7.DR.B | C.B7.DR.B | B8.CA.B | C.B8.CA.B |
| Oct Nov Dec 2011 | C | C | C | C | B5.SH.C | C.B5.SH.C | B6.AP.C | C.B6.AP.C | B7.DR.C | C.B7.DR.C | B8.CA.C | C.B8.CA.C |
| Jan Feb Mar 2012 | D | D | D | D | B5.SH.D | C.B5.SH.D | B6.AP.D | C.B6.AP.D | B7.DR.D | C.B7.DR.D | B8.CA.D | C.B8.CA.D |

Appendix 5 Overview of participants

Participant B1

Study garment and comparison garment

Participant B1 was given a 100% merino wool jersey top with $\frac{3}{4}$ length sleeves (B1.ME). She decided to compare it with a 100% cotton jersey top with $\frac{3}{4}$ length sleeves and a similar round neck line (C.B1.ME). The tops have a similar fit, but C.B1.ME has raglan sleeves, which continue up to the neckline. The colour of each top is different. C.B1.ME has a red body and black sleeves and neck binding. On each sleeve is a small Oriental style print of a dragon. B1.ME is natural white in colour. C.B1.ME is worn as a layering top approximately 2 or 3 times a week. It is worn with and without a vest underneath and mostly with other layers on top, depending on how what and how long it is intended to be worn for. Sometimes it is worn for a full day and sometimes it is worn for half a day. It is a core garment.

Lifestyle

Participant B1 is 32 and lives in Bristol in a self-owned flat that she cohabits with her partner. She works periodically as a cycling proficiency instructor and has a variety of freelance jobs teaching sports based workshops and on art restoration projects. She occasionally works away from home for up to three months at a time. Her lifestyle is varied and active. She is a cyclist and regularly goes swimming, running, climbing and attends weekly life drawing classes. The clothes she wears on a day-to-day basis reflect her lifestyle and are largely designed for active wear. They are casual and practical, and she does not make much of a differentiation between work clothes and non-work clothes. Her work is often outdoors and she adapts her outfits for different uses and

weather conditions. As such she has developed a personal garment layering system built around her lifestyle needs. 'I have to be quite clever with what I wear and layer different materials. I know which ones will keep me warmer and which tops are best to mix'. She uses base layers and vests made from merino wool or cotton, layered with cotton jumpers, thicker wool jumpers and usually a pair of jeans. The study garment would integrate well with her lifestyle.

Laundry routines

Participant B1 does not have a washing machine in her flat. She takes her laundry to the local laundrette and shares one coloured wash load with her partner on average once a week and always set on 40°C. This is a job that will usually be alternated between her and her partner on a week day evening. About once a month white and light colours are taken to the laundrette and washed separately. Garments that are suitable for tumble drying are tumble dried in the laundrette until they are almost dry and then they are taken home and hung to air - 'this lets the creases drop out and avoids having to iron'. Participant B1 very rarely has garments dry cleaned but she does hand wash and spot clean items from time to time between washes. She uses the same Ecover liquid detergent for machine washing, spot cleaning and hand washing, and does not use any other laundry products. Clothes are normally washed when they 'too smelly' or have lost shape.

Participant L1

Study garment and comparison garment

Participant L1 was given a 100% merino wool jersey top with $\frac{3}{4}$ length sleeves (L1.ME). She decided to compare it with a 100% cotton jersey top with full length sleeves and a similar round neck line (C.L1.ME). The tops have a similar fit, but C.L1.ME is slightly tighter. The colour of each top is different; C.L1.ME is black and L1.ME is natural white. C.L1.ME is worn approximately 3 times a week, and often in combination with other layers over the top, depending on how what and how long it is intended to be worn for. It is a wardrobe staple.

Lifestyle

Participant L1 is from England, she is 27 and lives in London in a rented flat that she cohabits with two other people. She is training to be an architect and works voluntarily on a building project based in Wales, which she visits approximately every two months. Most of her time is spent in London, but she is an active traveller in Europe and spends weekends hiking, snowboarding, cycling and motorcycling. In London cycling is her main mode of transport. Her clothes are mostly casual and versatile, and easily adaptive to different occasions and for cycling. She does not often buy new clothes and alters or repairs garments when necessary. She prefers to wear skirts rather than trousers, and layers tops according to weather conditions and occasion. She favours natural fibres over synthetic fibres, and most of her clothes are cotton or cotton blends. She owns similar garments to the study garment and the study garment fits her clothing needs.

Laundry routines

Participant L1 has a washing machine in her flat that she shares the use of with two others. She is responsible for her own laundry and does not share washing loads with her flatmates. She does not have a tumble dryer in the flat and air dries all of her clothes on a clotheshorse and on radiators, and never irons. She uses the washing machine approximately once a week for clothes, sheets and towels or a mix of both. She uses Ecover tabs and sometimes uses fabric softeners. She hand washes delicate garments collectively about once every six weeks, and spot cleans dirt marks. L1 does not have a specific day or time to do the laundry; it is done on an ad hoc basis. She likes her clothes to smell fresh and uses Febreze freshening spray occasionally. She likes to know that her clothes are clean and feels satisfaction after she has done the laundry.

Participant B2

Study garment and comparison garment

Participant B2 was given a 100% woven wool mini skirt with an elastic waistband and 100% silk lining (B2.BS). It was compared with a 100% woven cotton skirt without lining (C.B2.BS). Both skirts are black, and C.B2.BS is slightly longer in length and has a concealed side zip. C.B2.SK is worn casually with pumps for leisure time, and dressed up for smarter occasions with heels or flats. When it is worn casually it is worn bare legged or with leggings underneath, and when it is worn for smarter occasions it is worn with tights. Sometimes it is worn for a full day and sometimes it is worn for half a day. B2 describes the skirt as 'basic but reliable' and has owned it for 3 years.

Lifestyle

Participant B2 is from England, she is 30 and lives in Bristol in a rented house that she cohabits with three other people and a cat. She works as a full time midwife on a rotary basis. She lives close to the city centre and walks to work and around town. She goes to the gym about twice a week and spends leisure time reading, out and about with friends and she goes on holiday once or twice a year. She wears a uniform for work so her wardrobe is mostly casual and there is no divide between work and home clothes. She likes to wear dresses, skirts and jeans depending on her mood, and has a few wardrobe favourites that are adaptable for different occasions, C.B2.BS is one of them.

Laundry routines

Participant B2 has a washing machine and tumble dryer in her house which she shares the use of with her housemates. Her work clothes are laundered in the internal hospital laundry system so she only launders her non-work clothes herself. She does her own washing once a week set at 40°C or 50°C and normally on Sundays, but will sometimes share a washing load during the week with her flatmate for high temperature whites. She usually uses Persil Small and Mighty liquid detergent in combination with fabric softeners, and will tumble dry garments when possible as there not much space to air dry. She hand washes delicate garments and takes some items to the dry cleaners. She likes her clothes to be ironed and smelling fresh. She uses a 'cotton fresh' spray before ironing, and sometimes sprays her wardrobe with Febreze. 'I like keeping my clothes clean and in good condition. It's important to look tidy and I hate carrying smells with me'. She does not mind doing her laundry, and likes her clothes to be well maintained. She washes most of her clothes after every wear or every other wear.

Participant L2

Study garment and comparison garment

Participant L2 was given a 100% woven wool mini skirt with an elastic waistband and 100% silk lining (L2.BS). She decided to compare it with her most regularly worn mini skirt, which is 98% cotton and 2% elastane. It has front and back pockets and a front button and zip fastening. L2.BS is black and C.L2.BS is dark blue and it has a snugger fit. The overall aesthetic of C.L2.BS is more casual than L2.BS. C.L2.BS is worn casually about twice a month, normally for a full day with pumps or flats and always with tights. It is not a core garment in her wardrobe but she describes it as easy to wear and comfortable and was happy to receive a similar skirt to alternate it with.

Lifestyle

Participant L2 is from Holland, she is 25 and lives in London in a rented flat that she cohabits with her partner. She works full time as a supervisor in a call centre from Monday to Friday and she describes her lifestyle as fairly routine. When not at work she has an active social life and enjoys going out with friends for lunch, shopping, going to gigs and spending time with her boyfriend. She goes back to Holland to visit family and friends about every three months. Her work clothes are kept separate from her other clothes and need to be smart/ casual. She wears her work clothes more than any other clothes and all daylong. She chooses work clothes that are 'not delicate' and easy to launder. She describes her style as conservative but quirky. Most of her clothes are made from cotton because it is easy to maintain, but wool is her favourite fibre because it 'looks beautiful' and 'feels nice'.

Laundry routines

L2 has a washing machine in her flat but no tumble dryer. She shares washing loads with her partner and puts on a washing load on average two to three times a week. The laundry gets done on weekends and sometimes in the week, mostly on 40°C. L2 sometimes sets a load of washing on before she goes to work or her partner will do it after work. She usually buys a small concentrated bottle of detergent 'as they are not only environmentally friendly but easier to carry home. I would choose a natural one but my boyfriend just chooses any. Now we have Sainsburys Bio'. She does not use any other products for the laundry and clothes are always hung to dry indoors. She also hand washes clothes, spot cleans and hangs certain garments to air, but never irons. Clothes are washed when they build up odour, loose shape and need to be freshened. 'I usually don't mind washing my clothes. I only don't like ironing; that's why I hang my clothes to dry very carefully without any wrinkles'.

Participant B3

Study garment and comparison garment

Participant B3 was given a 100% wool hand knit with no sleeves and a slouchy fit (B3.HK). She compared it with a 100% wool Arran hand knit jumper with $\frac{3}{4}$ length sleeves and a cable knit design (C.B3.HK). Both garments are natural white/ cream in colour and have a similar aesthetic. C.B3.HK is mostly worn during colder months, and normally for full days at a time. It is worn casually with jeans or a skirt, and with or without another top underneath depending on the weather. It is not a core garment in her wardrobe but she describes it as easy to wear, comfortable and warm, and she enjoys wearing it.

Lifestyle

Participant B3 is from England, she is 29 and lives in Bristol in a self-owned house that she co-habits with her partner and their two children of four and seven years old. She works part time in an office for British Heritage. When not at work she is looking after her children and the house. She describes her lifestyle as busy and active, juggling between organising her children's life, spending quality time with her partner and with her own friends. She spends her leisure time going to festivals with her family, catching up with friends, and on creative projects. She has some separate clothes for work that are 'decidedly smarter than some of my other clothes, but all my clothes tend to overlap at some point'. She buys a lot of clothes from charity shops and also swaps clothes with friends. She prefers natural fibres over synthetic fibres and likes clothes that are easy and quick to wash.

Laundry routines

B3 has a washing machine and tumble drier in her house. She tends to do all the washing for her family and puts on a washing load about three times a week. The laundry gets done generally on her days off from work, and she tries to avoid doing it on the weekends. She is quite conscious of the environment and always washes at the lowest temperature she can. She uses supermarket own brand liquid detergent and no other laundry products. She rarely uses the tumble drier, and most of the time she hangs clothes to dry indoors on the clotheshorse or radiator, or if the weather is good outside. She washes clothes when they are 'visibly dirty or quite smelly, but I try to postpone washing if they don't really need to be washed.'

Participant L3

Study garment and comparison garment

Participant L3 was given a 100% wool hand knit with no sleeves and a slouchy fit (L3.HK). She compared it with a knitted acrylic and wool loose fitting cape style jumper (C.L3.HK). The garments are different in colour, L3.HK is natural cream and C.L3.HK is navy blue and fastened with poppers under the sleeves. Both garments have a slouchy and loose fit. C.L3.HK worn mostly in the winter months at work, and always with a layer underneath. She thought L3.HK would be used similarly to C.L3.HK; good for working in and would get a lot of wear.

Lifestyle

Participant L3 is from England, she is 26 and lives in London in a rented flat that she cohabits with two other people. She works full time as an interior designer, and spends half of her time in the studio and half on sites. The studio is quite cold so she likes to wear layers to work, and the dress code is casual. She does not mind looking scruffy at work, but prefers to wear smarter clothes in her leisure time. She does not have a specific set of clothes for work, but does separate certain jumpers and pairs of jeans that are more suitable for work and will often leave jumpers in the studio for when it gets cold. 'During the week I'll wear fairly casual clothes to work and unless I'm going out in the evening I'll stay in the same outfit all day, but on the weekends I often change my outfit once or even twice depending on what I am doing or where I am going. My boyfriend is a barrister so we often go to quite smart places with his work friends'. She spends her leisure time mostly with her boyfriend and with friends, going to exhibitions, wine bars and out for dinner. L3 describes her style as classic and proper. Her

wardrobe is varied and she likes to wear luxurious and high quality materials such as cashmere, silk, fur and high quality cotton.

Laundry routines

L3 has a washing machine in her flat but no tumble dryer. She does her own washing once a week, but sometimes washes clothes at her boyfriend's flat when she is staying there. She usually does the washing on Monday or Tuesday evenings after work, mostly on 30°C. She uses Fairy non bio powder and does not use any other laundry products. Clothes are air dried indoors on a clotheshorse and over the stairs banister, and only a few garments are ironed. She often takes garments to be dry cleaned, and also hand washes garments that are unsuitable for the washing machine. She does not enjoy doing laundry, but does like her clothes to be well presented and neat.

Participant B4

Study garment and comparison garment

Participant B4 was given a pair of woven 100% merino wool trousers with a half leg 100% silk lining (B4.TR). They have a dropped crotch fit with front and back pockets, and sit low on the waist. They are fastened at the front with buttons. She compared them with a pair of 100% cotton trousers, with a loose fit around the top, front and back pockets and fastened at the front with a button and a zip (C.B4.TR). B4.TR are navy blue and C.B4.TR are black, and are worn casually and at work.

Lifestyle

Participant B4 is from England, she is 43 and lives in Bristol in a rented flat that she cohabits with her daughter and a dog. She works part time as a fashion lecturer and part time on a self-employed basis as a designer. She spends her free time with her daughter, with friends and going to social events. She separates her wardrobe into home clothes (tracksuit bottoms and leggings) and smart/ casual clothes for work and 'going out' clothes. Her most frequently worn clothes are smart/ casual work clothes, and most of her clothes are cotton and cotton mixes. She does not like wearing itchy woollens because it aggravates her skin.

Laundry routines

B4 has a washing machine in her flat and does her own washing and her daughters. 'There is no set time that I do the washing but it seems like doesn't end!' She puts on a machine washing load every day. The detergent she uses varies, she is not loyal to any particular brand and she uses softeners. All of her laundry is air dried in an airing

cupboard on clothes hangers, and sometimes hung over the radiator. She likes to follow the washing instructions on garment care labels, but often she will set the temperature lower than instructed. Most of her laundry is set on 30°C and 60°C for the dogs towels. She also spot cleans garments. 'I used to iron everything but gave it up!! Doing the laundry gets on my nerves but I like clean clothes, sheets, towels etc.'

Participant L4

Study garment and comparison garment

Participant L4 was given a pair of woven 100% merino wool trousers with a half leg 100% silk lining (L4.TR). They have a dropped crotch fit with front and back pockets, and sit low on the waist. They are fastened at the front with buttons. She compared them with a pair of mixed fibre trousers (53% cotton, 44% polyester and 3% elastane) with a loose fit, no pockets or lining, belt loops and a button and zip fastening at the front (C.L4.TR). She wears these trousers to work and on formal occasions.

Lifestyle

Participant L4 is from England, she is 35 and lives in London in a self-owned flat with her partner and their child. She works part time as a software project manager. Her work clothes are casual but she always has a smart set of clothes in the office for seeing clients and for going to meetings. She normally goes to the gym twice a week and spends her leisure time with her family and friends. She works long hours in the office so likes to feel comfortable in what she wears. She does not spend a lot of time on her appearance but does like to look stylish. Her wardrobe is mixed and she does not have separate sets of clothes but she does have a few smarter garments that are worn at work or for smart occasions, C.L4.TR is one of them. She was happy to receive the study garment as she does not like to buy clothes especially for work and felt L4.TR were stylish could be worn for work and socially. Comfort is her main priority when choosing which clothes to wear, and she does not have a favourite material.

Laundry routines

L4 has a washing machine and tumble dryer combo in her flat. She does the laundry for herself and her family. She does the laundry about four times a week, usually this is done before work or on her days off. She uses supermarket own brand detergent and softener. It is important for her that 'everybody has clean clothes to wear. We don't really talk about the laundry it's just job that needs to be done and I do it. We have a washing basket at the top of the stairs and everybody puts their clothes in there, normally at the end of each day. Towels and sheets are kept separate from clothes and I normally so this on weekends'. Sometimes clothes are tumble dried and sometime air dried depending on how much laundry there is to do. The washing cycle is set to 40°C for most things, but sometimes lower or higher depending what the wash load is. She doesn't spot clean garments but she does take certain items to be dry cleaned about once every two months, and sometimes her partner will do this. Most of the laundry will also be ironed.

Participant B5

Study garment and comparison garment

Participant B5 was given a semi-fitted sleeveless shirt with no sleeves or pockets and a centre front opening with buttons (B5.SH). It is navy blue and made from 100% cotton with a waxed finish. She compared it to a semi-fitted shirt with full length sleeves and no pockets, and a centre front opening with buttons (C.B5.SH). It is black and made from 100% linen. It is a staple piece in her wardrobe that gets a lot of wear for work and occasionally at weekends. She likes that this shirt is not 'too clingy and goes with almost everything I own'.

Lifestyle

Participant B5 is from England, she is 29 and lives in Bristol with her parents in their house. She works full time as a taxidermist from Monday to Friday. In her leisure time she plays the guitar in a band and fund raises money for charities. She has an active and varied social life, going to see bands, meeting friends in pubs, attending events and goes swimming once or twice a week. She buys her clothes in markets and charity shops. 'I have so many clothes, but I love them all and hate throwing things away. I don't think too much about looking smart, I just like to feel like me, my clothes are quite expressive of my personality. For work I tend to wear darker clothes, but I'm not sure why, maybe it helps me to feel more serious. I don't really have separate clothes for work, it's pretty casual and my colleagues are quite bonkers.' She favours natural fibres over synthetics but isn't sure how many of her clothes are synthetic and this isn't her priority when choosing what to wear. She felt that the study garment would be good to wear to

work, she likes that it is a bit unusual and 'wipe clean' and she can alternate it with her normal shirt.

Laundry routines

B5 has a washing machine and tumble dryer in her house. She does her own washing and sometimes shares washing loads with her parents. She puts on a washing load about once a week at 30°C or 40°C and tumble dries about half of her clothes and dries the rest indoors and outdoors, depending on the garments and weather. Some garments that get very creased will be ironed. She does not buy detergent and uses the detergent her mum has bought. 'Detergents seem to change brand occasionally, my mum buys them and I use them, but it's always a powder detergent'. She does not use any other laundry products and does not mind doing the laundry. 'I'm a bit lazy with it, clothes can lie on the floor for days at a time, I'm not too meticulous about cleaning, only when things start to smell gross.'

Participant L5

Study garment and comparison garment

Participant L5 was given a semi-fitted sleeveless shirt with no sleeves or pockets and a centre front opening with buttons (L5.SH). It is navy blue and made from 100% cotton with a waxed finish. She compared it to a loose fitting wrap around shirt with full length sleeves and an inside button and tie fastening (C.L5.SH). It is black and made from 100% cotton and has no pockets. She wears it about once every 10 days.

Lifestyle

Participant L5 is from Germany, she is 37 and lives in London in a rented flat that she co-habits with her husband. She works full time as a music teacher from Monday to Friday. In her leisure time she enjoys going to exhibitions, reading, the cinema, seeing friends for coffee and visiting family. She likes to look smart/ casual at work and does have separate clothes for work, leisure and formal occasions such as weddings and dinner parties. She always likes to look stylish and describes her taste in clothes as crisp and sharp. Her favourite clothes shop is Muji and she likes to wear natural fibres against her skin. She mostly wears skirts and likes to feel elegant in what she wears. 'A lot of my clothes are black, grey and red, I find these colours easy to mix and they suit my style'. She likes to layer clothes and prefers to wear loose fitting clothes rather than tight fitting clothes. 'I often wear cotton layers next to my skin and I have a lot of wool cardigans that I wear over the top to keep warm. I hate being cold.'

Laundry routines

L5 has a washing machine in her flat but no tumble dryer. She shares clothes washing loads with her husband and does about three washing loads a week. 'Sometimes I do the washing and sometimes my husband does, it just depends how busy we are and who is in the flat'. Clothes are always washed at a low temperature, and she is conscious of shrinking or damaging clothes when they are washed on high temperatures. Clothes are air dried normally inside and sometimes outside if the weather permits it, and most garments get ironed. L5 uses Ecover liquid detergent and always buys the same brand. She quite often airs garments in the bathroom next to an open window between wears. L5 often takes garments to the dry cleaners.

Participant B6

Study garment and comparison garment

Participant B6 was given an apron with one front pocket, a centre front seam, black webbing straps and a back fastening with two poppers (B6.AP). She decided to compare it to another apron with adjustable neck straps and back fastening with a tie (C.B6.AP). B6.AP is navy blue, made from 100% wax cotton and has bust darts for a semi-fit, while C.B6.AP is black and made from 100% cotton with no fitting. B6.AP is worn regularly at work as a protective garment.

Lifestyle

Participant B6 is from England, she is 33 and lives in a rented flat in Bristol that she co-habits with her boyfriend. She works full time as a textiles technician from Monday to Friday. In her leisure time she enjoys painting, going to events around Bristol with her boyfriend and seeing friends. She describes her life as 'quite social and routine'. She has three separate sets of clothing, described as work clothes, home clothes and occasion clothes. Most of her clothes are made from cotton jersey and denim. She does not like 'some synthetic fibres that are static and stick to you, like acrylic wool jumpers'. Most of her clothes are casual and she wears jeans and trainers into work. When she is at work it is compulsory to wear protective garments for carrying out certain duties so she always wears an apron. She thinks that wearing an apron helps to prolong the wears between washes of clothes worn underneath the apron. She was happy to take another apron to wear at work and felt she would use it regularly.

Laundry routines

B6 has a washing machine in her flat but no tumble dryer. She share clothes washing loads with her boyfriend, and does the laundry once a week at weekends. She mainly washes clothes to freshen them up and uses Fairy non bio because 'it's not supposed to irritate your skin, I like the smell and they often do price offers'. She also uses Lenor fabric softener. She always dries clothes indoors over the bath, 'I would prefer to hang outside but we have no access to outside space.' She always checks the washing labels, and most of her clothes are washed at 40°C on a short cycle unless stated otherwise. Some delicate fabrics and lamb's wool jumpers are hand washed. B6 rarely irons – only occasional clothes. She commented 'washing clothes is necessary and I like to wear clean clothes every day (apart from denims). It used to be a real chore when we didn't have a washing machine, now it's not so bad. Worse thing is putting clothes away when they're dry!'

Participant L6

Study garment and comparison garment

Participant L6 was given an apron with one front pocket, a centre front seam, black webbing straps and a back fastening with two poppers (L6.AP). She decided to compare it to another apron with adjustable neck straps and back fastening with a tie (C.L6.AP). L6.AP is navy blue, made from 100% wax cotton and has bust darts for a semi-fit, and C.B6.AP is also navy blue and made from 100% cotton with no fitting. L6.AP is worn three to four days a week at work as a protective garment, and is taken home to be machine washed about three times a year.

Lifestyle

Participant L6 is from England, she is 30 and lives in a self-owned flat in London that she co-habits with her boyfriend and a flatmate. She works part time as an employed ceramist and part time as a free lance art ceramist. She works long hours and often works on weekends. She has exhibitions of her work and undertakes art residencies. She enjoys her work and spends a lot of free time in her studio that she shares with a group of ceramists (including her boyfriend). When not in the studio she likes to spend time catching up with friends and doing things with her boyfriend. Most of her clothes are casual and she has a separate set of clothes to wear to work that she does not mind getting dirty with clay. 'Comfort and warmth are very important as the studios that I work in are often cold, and my clothes need to be comfortable as my work is relatively physical. I mostly wear jeans and jersey jumpers layer with other tops, and always an apron to stop my clothes from getting ruined'. L6 was happy to have an extra apron to use in the studio and liked the style of it.

Laundry routines

L6 has a washing machine in her flat but no tumble dryer. She share clothes washing loads with her boyfriend, and does the laundry about once a week at weekends. She washes garments that are closer to her skin more often than outer layers, for hygiene and when they develop odour. She uses supermarket own brand detergent and does not use any softeners or other products. All clothes are dried indoors on a clothes horse. L6 also airs garments and spot cleans marks. Most of her clothes are washed on a 30°C cycle, but C.B6.AP is machine washed at 60°C to get all the clay and dirt out. She very rarely irons any of her clothes. 'Washing clothes is a pretty boring job but I don't think too much about it, just chuck everything in the washing machine and take it out again, let it dry and put back in the wardrobe. It is a necessary routine that I do to be clean and acceptable.'

Participant B7

Study garment and comparison garment

Participant B7 was given a black fitted sleeveless dress with a funnel webbing neck line and invisible zip side fastening (B7.DR). It has no pockets, is knee length and made from 100% silk satin with a full silk habotai lining. She compared it to a fitted knee length dress with a v-neck, with no fastening, pockets or lining (C.B7.DR). The dress is 97% cotton and 3% lycra, it is black with a delicate polka dot print in white. The dress is worn for smart social events and formal events about once or twice a month.

Lifestyle

Participant B7 is from England, she is 27 and lives in a house that she co-habits with three other people. She is a full time student studying occupational therapy. She spends her leisure time with her boyfriend, meeting friends and seeing family. Her wardrobe is quite adaptable with garments that can be dressed up to look smart and dressed down to look more casual. She often goes on work placements as part of her course and dresses garments up to look a bit smarter. She likes fibres that are easy to wash and maintain, and the majority of her clothes are made from cotton and cotton jersey. She finds synthetic fibres uncomfortable on the skin. B7 usually wears an outfit for a full day and likes to layer garments, including skirts over trousers. She was happy to take on the study garment to wear for smarter events and occasions.

Laundry routines

B7 has a washing machine in her house, and does her own washing only. She puts on a machine washing load twice a week after work and on weekends. Key reasons for washing are loss of garment shape and a build-up of odour. She uses a 30°C or 40°C short machine cycle with Ecover liquid detergent, and no other products. All clothes are air dried after washing, outdoors if the weather is good or otherwise indoors. 'I never iron unless I have to, for my work clothes I do. I don't enjoy washing clothes as it takes up time'. B7 does not maintain clothes in any other way.

Participant L7

Study garment and comparison garment

Participant L7 was given a black fitted sleeveless dress with a funnel webbing neck line and invisible zip side fastening (L7.DR). It has no pockets, it is knee length and made from 100% silk satin with a full silk habotai lining. She compared it with a pink sleeveless 'Regina Rubens' dress, with a fitted princess line, no pockets, and a fastening at the centre back with an invisible zip (C.L7.DR). It has a round neckline, is knee length and made from 68% acetate and 32% viscose. L7 wears this dress about once a month or more and usually hand washes it.

Lifestyle

Participant L7 is from England, she is 35 and lives in a self-owned house in London that she co-habits with her husband and three children. She works part time as a freelance writer. Her leisure time is spent with her family, and she has a fairly active social life going to dinner parties and other work related events. She has four main sets of clothes, but mostly wears home and work clothes. L7 commented: 'I prefer cotton to synthetics as it absorbs sweat better and is easier to care for. For occasions, luxurious fibres like silk and cashmere do appeal more!' Most of her clothes are made from cotton, and to a lesser extent denim and linen. She does not like to wear synthetic fibres; 'if they are for everyday wear as they do not absorb sweat very well and sometimes do not wash well.' She accessories outfits to adapt them from day wear to evening wear and was happy to receive the study garment to wear for work and social events.

Laundry routines

L7 has a washing machine and tumble dryer in her house. She does the washing for her whole family and puts on a machine wash two to three times a week set on 30°C for lightly soiled clothes and 40°C for heavier soiling. The laundry normally gets done in afternoons and on the weekend 'generally to coincide with washing of sports kits as needed etc.'. She washes clothes to refresh them, remove odours and stains and general soiling. She uses Ariel biological powder 'it does a good job, smells not too overpowering and is reasonably well priced.' She also uses Ecover fabric conditioner and occasionally Dylon ultra whitener. She tumble-dries clothes if possible, and if not they are hung to dry on a clothes airer or using a coat hanger in a spare room. L7 also hand washes clothes, dry cleans clothes, spot cleans, hangs garments to air and most clothes will be ironed. She mostly follows garment care instructions 'although I sometimes experiment by placing a hand wash only item in the washing machine on a gentle cycle.' She also commented 'I do not mind washing and drying clothes. I don't always look forward to ironing but I will get the job done! To avoid hand washing many times, I try to buy clothes suitable for machine washing.'

Participant B8

Study garment and comparison garment

Participant B8 was given a navy blue loose fitting wrap around cardigan (B8.CA). It is 100% wool jersey with a black silk satin ribbon around the neck that continues down into straps. She decided to compare it to a khaki green wrap around cardigan that is 100% cotton jersey (C.B8.CA). Both garments are fastened around the waist with ties. C.B8.CA is always worn with another layer underneath, and it worn about twice a month.

Lifestyle

Participant B8 is from England, she is 20 and lives in a rented flat in Bristol that she co-habits with her partner and dog. She works part time as a sales assistant. Her leisure time is spent going to the cinema, shopping with friends, going out with her boyfriend, going to the gym and walking her dog. She has two main sets of clothes that she describes as work clothes and home clothes. She has four uniforms that she wears to work and when not at work she likes to wear mostly jeans, tracksuit bottoms and jumpers. Comfort and softness are important to her and the majority of her clothes are made out of linen and cotton. She does not like to wear polyester as she finds 'it hot and itchy'. She commented 'cotton is much nicer to wear than polyester. It is cool and soft'. She describes her style as casual and sporty and the clothes she wears on a day-to-day basis are chosen for comfort.

Laundry routines

B8 has a washing machine and tumble dryer in her flat. She takes it in turns to do the laundry with her boyfriend, they share washing loads and on average it will get done twice a week. 'There is no set time that we do it, normally it's just done at random'. B8 washes her work clothes more often than her home clothes, which will get washed after every shift. 'They just get a bit sweaty and I like to look clean and smart when I'm at work'. She washes on 30°C and uses Fairy detergent as it is gentle on her skin and also uses softeners and conditioners to make her clothes smell and feel nice. Clothes are hung outside to dry in the summer and in the winter they are either tumble dried or hung indoors to dry. B8 also hand washes clothes, spot cleans, hangs garments to air and irons some clothes. She commented 'I enjoy wearing clean clothes, and not bothered about the process.'

Participant L8

Study garment and comparison garment

Participant L8 was given a navy blue loose fitting wrap around cardigan (L8.CA). It is 100% wool jersey with a black silk satin ribbon around the neck that continues down into straps. She decided to compare it with a black shrug style cardigan that is 38% viscose, 34% nylon, 23% merino wool and 5% cashmere, and cannot be fastened (C.L8.CA). It is worn often around the house to keep warm or during the summer as a cardigan. It is normally worn with a long sleeve top underneath and is hand washed sporadically. Both garments are stretchy, soft and comfortable. L8 was happy to receive a similar garment that is fuller in length.

Lifestyle

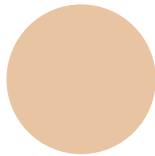
Participant L8 is from Canada, she is 40 and lives in London in a self-owned flat that she co-habits with her partner. She works as a free lance photographer, and her lifestyle is quite varied, depending on her work schedule it can be quite hectic or quite calm and she often travels to work on location. L8 spends her leisure time going to exhibitions, exploring London, visiting family, having dinner parties and spending time at home. She differentiates her clothes into two main sets, one for work and occasions, and one for leisure and home. Cotton, wool and leather are her favourite fabric groups. She commented 'I like to wear fabrics which are flowy and feel like I'm wearing the clothes, rather than the clothes are wearing me.' She often changes clothes during the day and sometimes changes a full outfit. 'I don't like wearing garments for too long as I get hot easily and also I just like to feel fresh.'

Laundry routines

L8 has a washing machine and a tumble dryer in her house. She shares washing loads with her partner. She puts on three machine wash cycles a week on 40°C or a cold setting for more delicate clothes. There is no set time when the laundry is done and she is prompted to do it when 'it gets cramped in my flat with clothes around and I'm not putting them away. It helps to make my flat more tidy'. She uses Bold washing powder because 'it smells nice', fabric softener and Febreze to freshen clothes. Most of her clothes are hung to dry indoors, although occasionally some pieces will be tumble dried if there is already a lot of washing hanging to dry. In addition to machine washes, certain garments will also be hand washed, dry cleaned, spot cleaned, hung to air, ironed and freshened with Febreze. L8 commented 'Most of the time I don't mind washing clothes. It's a satisfaction to wash and have clean clothes. I just don't like putting them away again.'

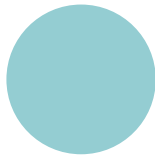
Appendix 6 Laundry study visualisations

Colour code key



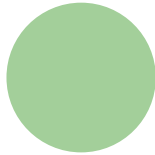
Freshening

Includes: hang to air freshen or artificial freshening spray



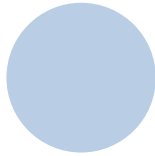
Cleaning

Includes: machine wash, hand wash, spot clean or dry clean



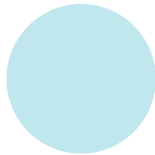
Ironing

Includes: low heat, medium heat or high heat



Drying

Includes: air dry (hang dry, flat dry, indoor or outdoor) or tumble dry



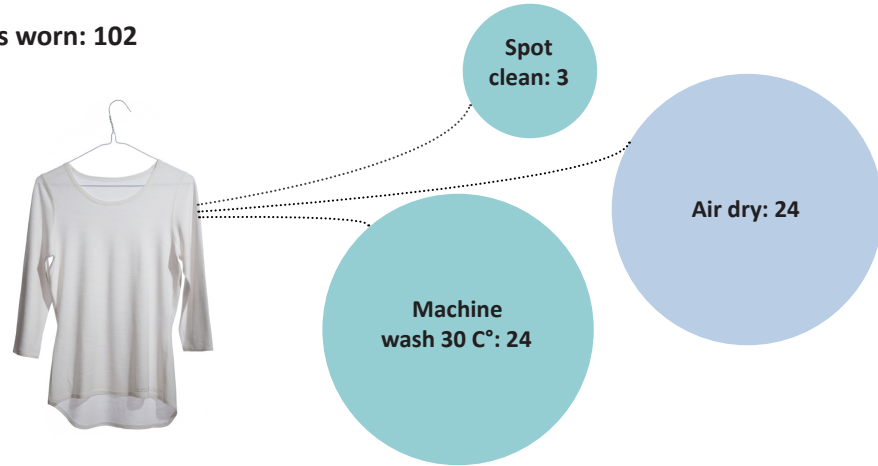
Rewax

Reapply wax

Jersey top (ME)
Participant code: L1
Participant location: London

Garment code: L1.ME
Garment description: fine jersey top with flat seam finish and three quarter length sleeves, natural
Material: 100% merino wool jersey

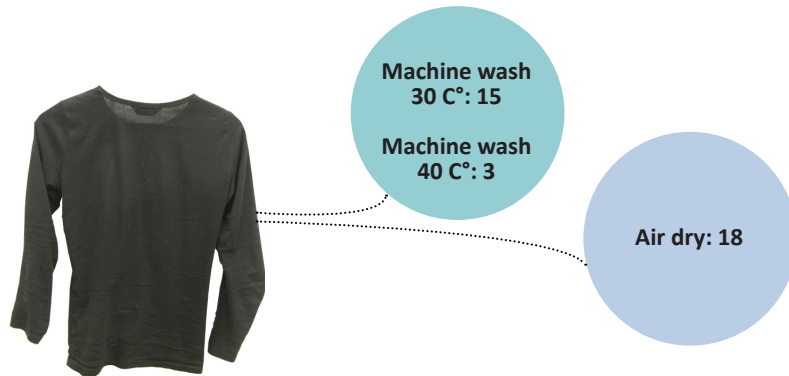
Occasions worn: 102



Average wears per maintenance: 4.3

Comparison garment
Garment code: C.L1.ME
Garment description: jersey top with full length sleeves, black
Material: 100% cotton jersey

Occasions worn: 117



Average wears per maintenance: 6.5

Jersey top (ME)

Participant code: B1

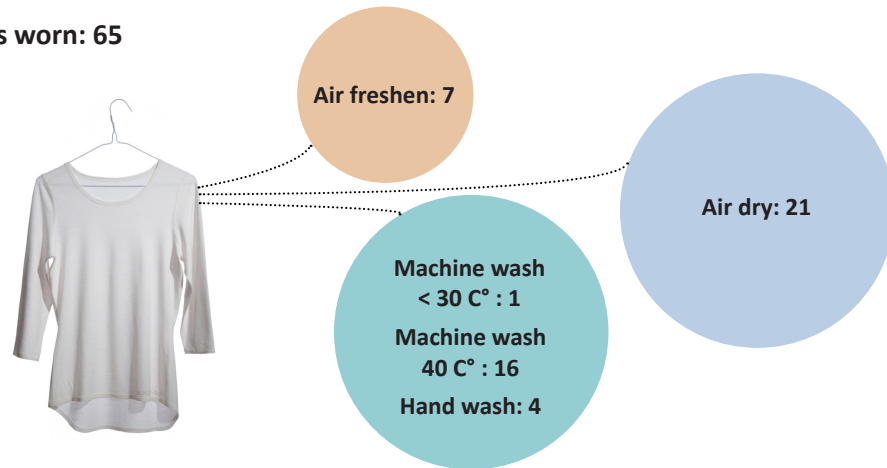
Participant location: Bristol

Garment code: B1.ME

Garment description: fine jersey top with flat seam finish and three quarter length sleeves, natural

Material: 100% merino wool jersey

Occasions worn: 65



Average wears per maintenance: 3.1

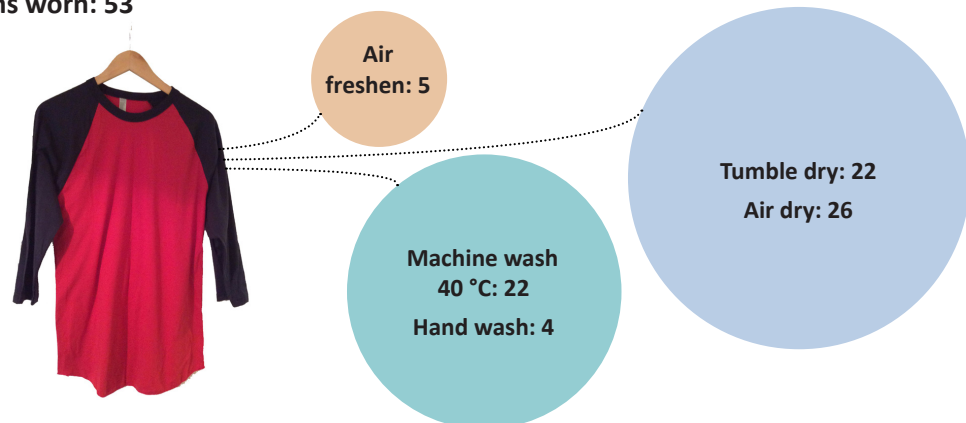
Comparison garment

Garment code: C.B1.ME

Garment description: jersey top with 3/4 length sleeves, black and red

Material: 100% cotton jersey

Occasions worn: 53



Average wears per maintenance: 2

Black skirt (BS)

Participant code: L2

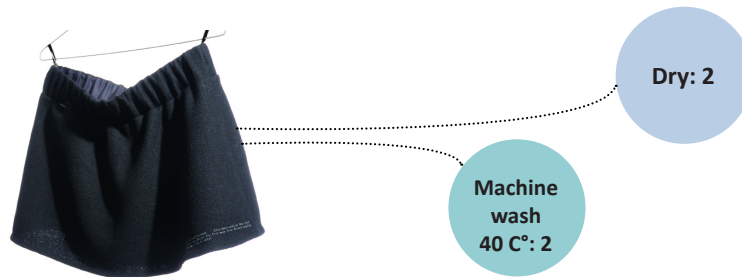
Participant location: London

Garment code: L2.BS

Garment description: mini skirt with elastic waistband, black with navy blue lining

Material: 100% wool tweed, lining 100% silk habotai

Occasions worn: 10



Average wears per maintenance: 5

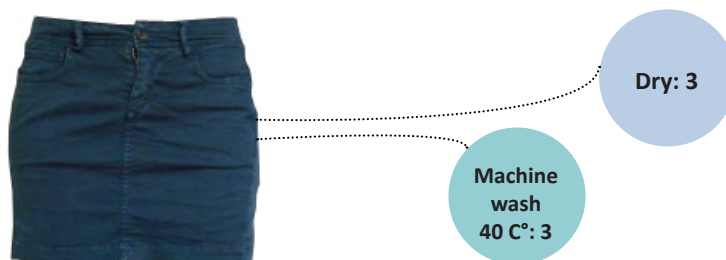
Comparison garment

Garment code: C.L2.BS

Garment description: mini denim skirt, blue

Material: 98% Cotton, 2% elastane

Occasions worn: 9



Average wears per maintenance: 3

Black skirt (BS)

Participant code: B2

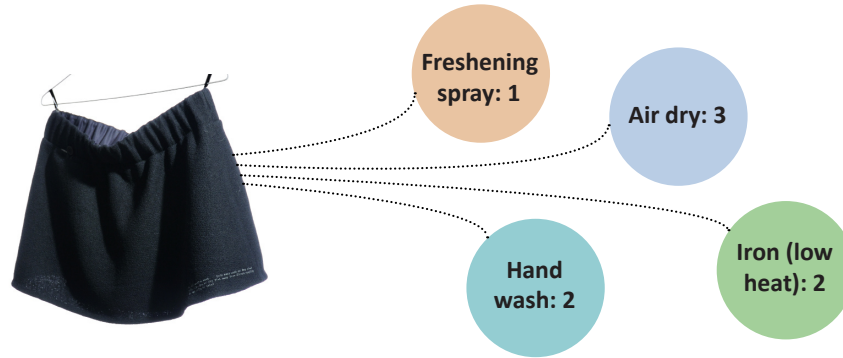
Participant location: Bristol

Garment code: B2.BS

Garment description: mini skirt with elastic waistband, black with navy blue lining

Material: 100% wool tweed, lining 100% silk habotai

Occasions worn: 21



Average wears per maintenance: 7

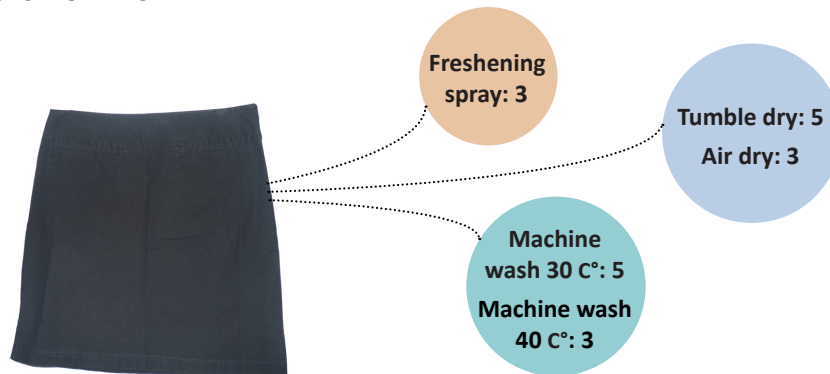
Comparison garment

Garment code: C.B2.BS

Garment description: mini skirt with invisible side zip, black

Material: 100% cotton

Occasions worn: 19

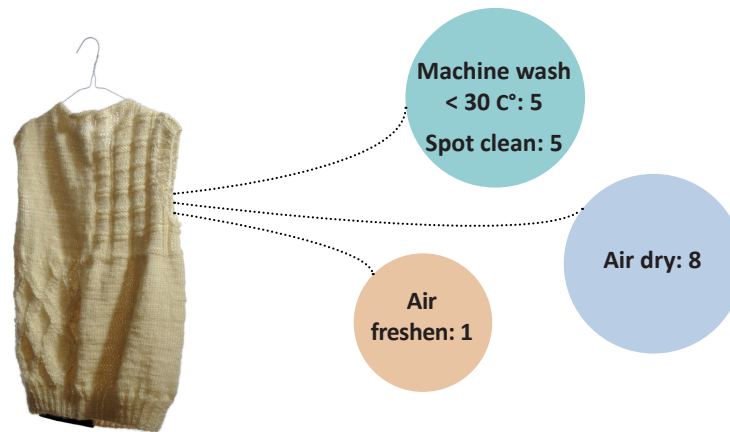


Average wears per maintenance: 1.7

Hand knit vest (HK)
Participant code: L3
Participant location: London

Garment code: L3.HK
Garment description: Chunky hand knit tank top, natural cream
Material: 100% wool

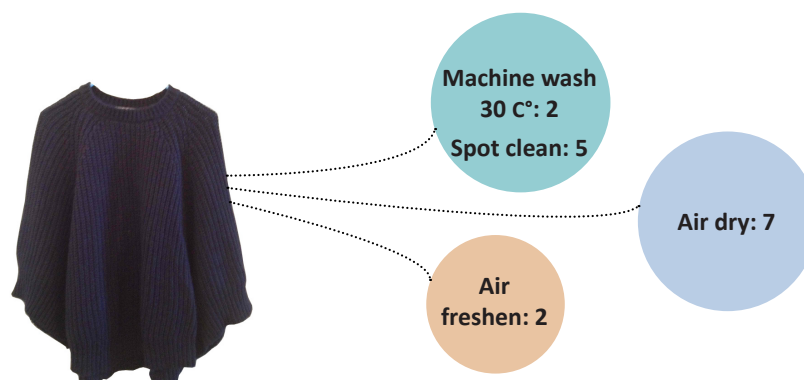
Occasions worn: 52



Average wears per maintenance: 5.8

Comparison garment
Garment code: C.L3.HK
Garment description: Loose fitting knit cape jumper, navy blue
Material: Acrylic and wool

Occasions worn: 38

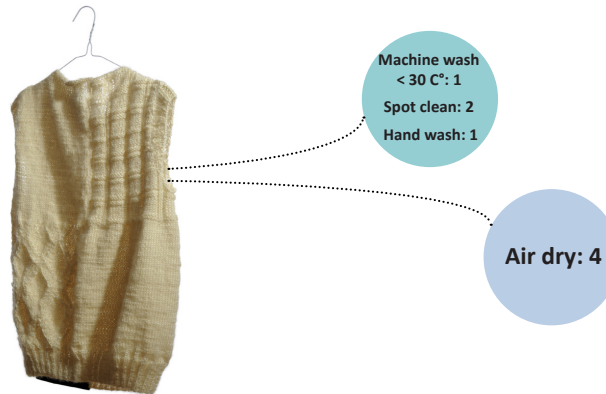


Average wears per maintenance: 5.4

Hand knit top (HK)
Participant code: B3
Participant location: Bristol

Garment code: B3.HK
Garment description: Chunky hand knit tank top, natural cream
Material: 100% wool

Occasions worn: 17

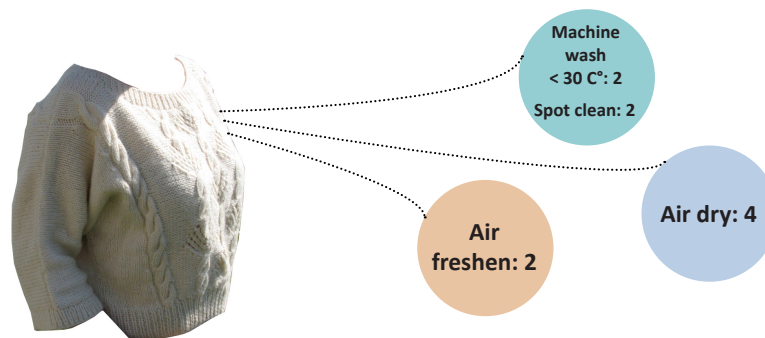


Average wears per maintenance: 4.3

Comparison garment

Garment code: C.B3.HK
Garment description: Arran jumper, cropped slouchy fit, 3/4 length sleeves. Hand knit with a cable design
Material: 100% wool

Occasions worn: 21



Average wears per maintenance: 3.5

Trousers (TR)

Participant code: L4

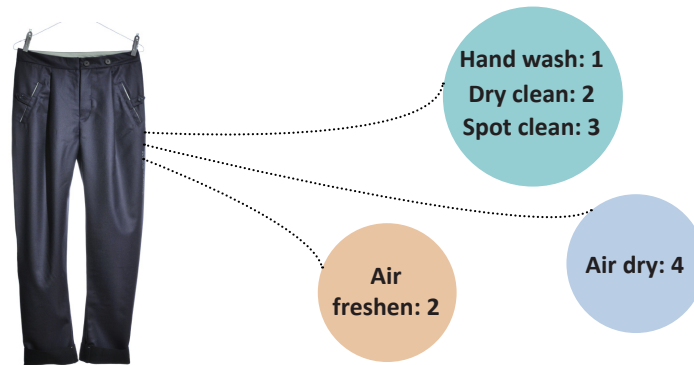
Participant location: London

Garment code: L4.TR

Garment description: Dropped crotch trousers with front and back pockets, navy blue

Material: 100% woven merino wool, lining 100% silk habotai

Occasions worn: 30



Average wears per maintenance: 5

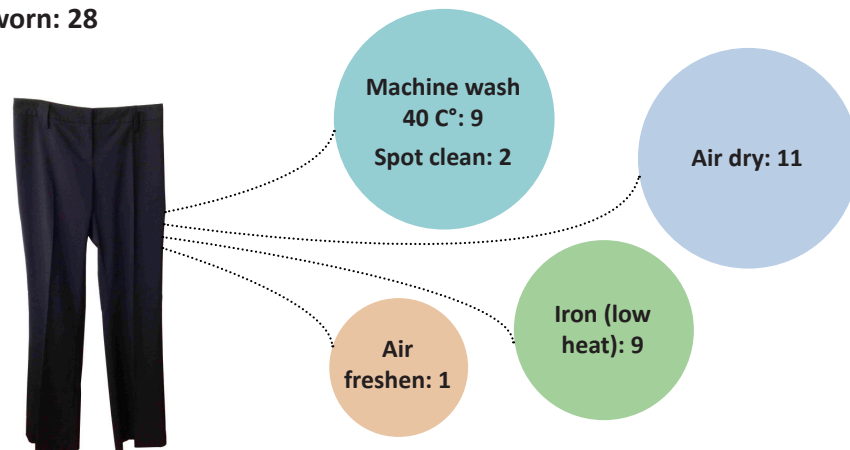
Comparison garment

Garment code: C.L4.TR

Garment description: Loose fit trousers, Zip and button fastening at front, black

Material: 53% cotton, 44% polyester, 3% elastane

Occasions worn: 28



Average wears per maintenance: 2.3

Trousers (TR)

Participant code: B4

Participant location: Bristol

Garment code: B4.TR

Garment description: Dropped crotch trousers with front and back pockets, navy blue

Material: 100% woven merino wool, lining 100% silk habotai

Occasions worn: 15



Average wears per maintenance: 2.1

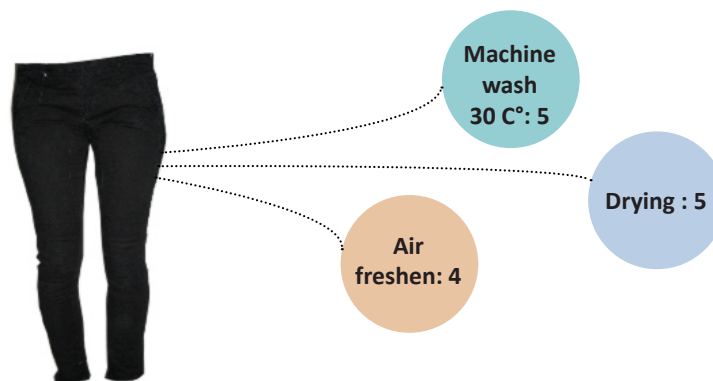
Comparison garment

Garment code: C.B4.TR

Garment description: trousers, loose around top, button and zip fastening at front, black

Material: 100% cotton

Occasions worn: 11



Average wears per maintenance: 1.2

Shirt (SH)

Participant code: L5

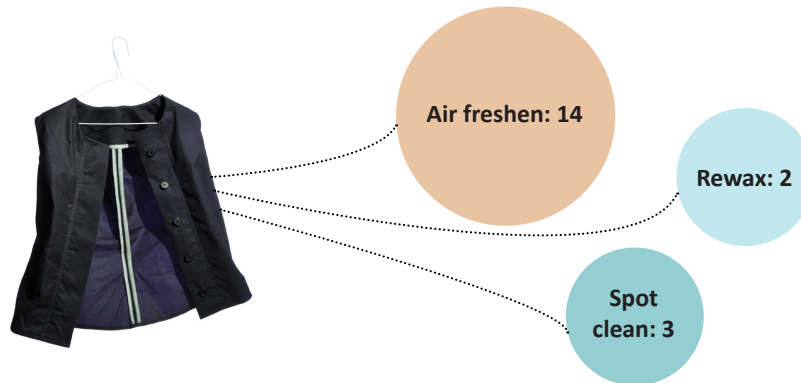
Participant location: London

Garment code: L5.SH

Garment description: Semi-fitted sleeveless shirt, centre front opening with invisible button wrap, navy blue

Material: 100% organic waxed cotton

Occasions worn: 17



Average wears per maintenance: 3.4

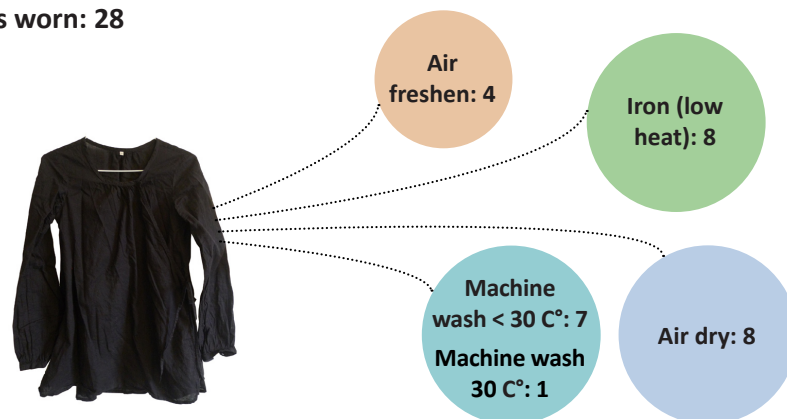
Comparison garment

Garment code: C.L5.SH

Garment description: Loose fitting shirt, wrap around, full length sleeves, side fastening with tie and two inside buttons, black

Material: 100% cotton

Occasions worn: 28



Average wears per maintenance: 2.3

Shirt (SH)

Participant code: B5

Participant location: Bristol

Garment code: B5.SH

Garment description: Semi-fitted sleeveless shirt, centre front opening with invisible button wrap, navy blue

Material: 100% organic waxed cotton

Occasions worn: 102



Average wears per maintenance: 9.7

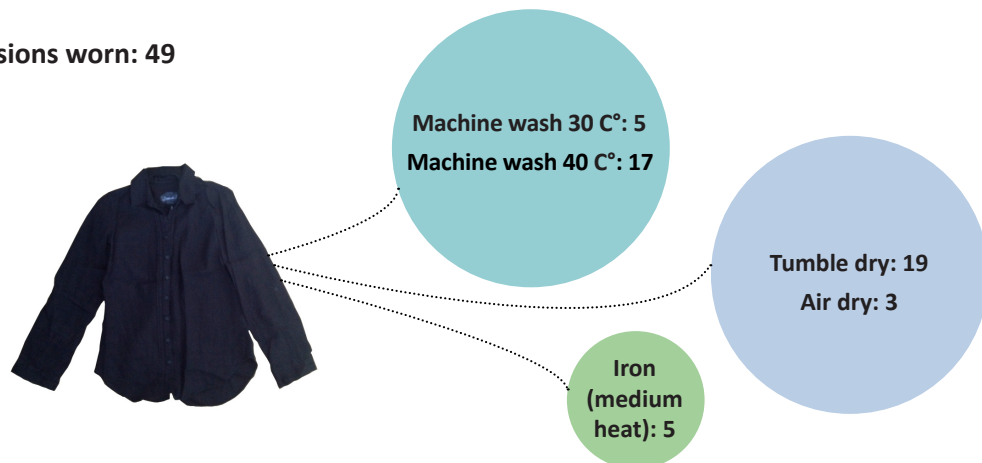
Comparison garment

Garment code: C.B5.SH

Garment description: Semi-fitted shirt, full length sleeves, centre front opening with buttons, black

Material: 100% linen

Occasions worn: 49



Average wears per maintenance: 1.8

Apron (AP)

Participant code: L6

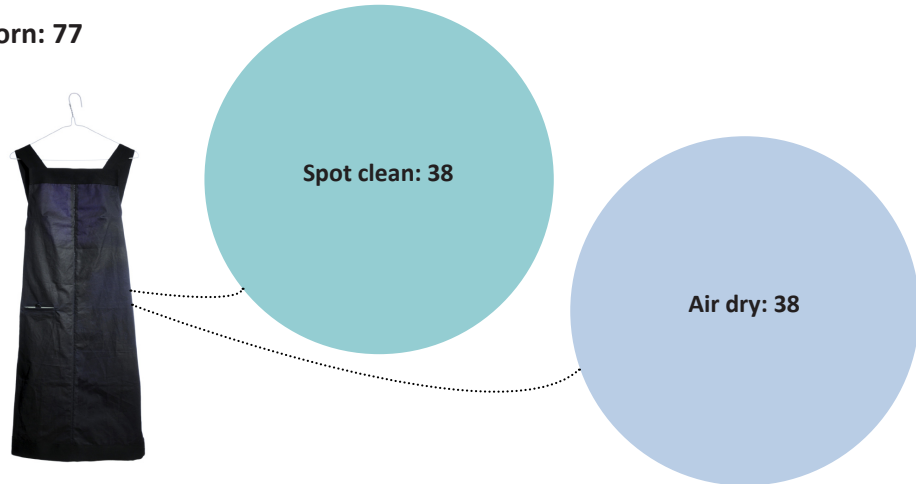
Participant location: London

Garment code: L6.AP

Garment description: Apron, hip pocket, fastening at centre back with 2 poppers, black webbing fixed length straps, navy blue

Material: 100% organic waxed cotton

Occasions worn: 77



Average wears per maintenance: 2.0

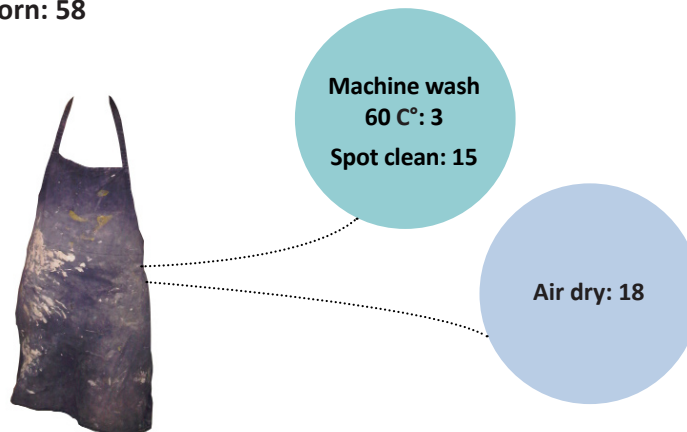
Comparison garment

Garment code: C.L6.AP

Garment description: Apron, navy blue

Material: 100% cotton

Occasions worn: 58



Average wears per maintenance: 3.2

Apron (AP)

Participant code: B6

Participant location: Bristol

Garment code: B6.AP

Garment description: Apron, hip pocket, fastening at centre back with 2 poppers, black webbing fixed length straps, navy blue

Material: 100% organic waxed cotton

Occasions worn: 39



Average wears per maintenance: 6.5

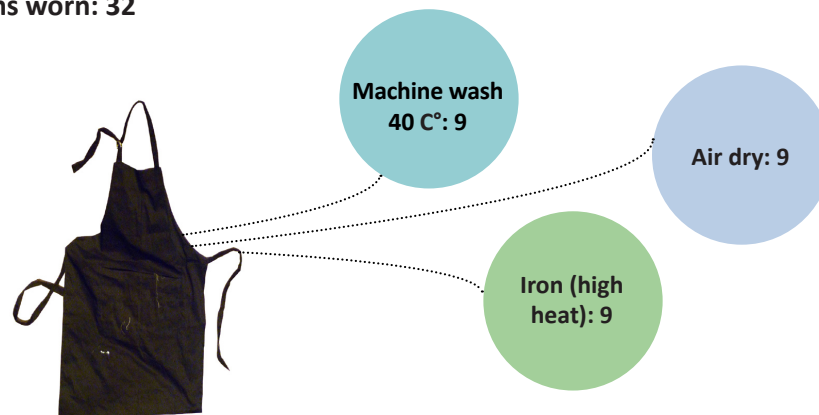
Comparison garment

Garment code: C.B6.AP

Garment description: Apron, adjustable D-ring neck strap, fastening at centre back with tie, black

Material: 100% cotton

Occasions worn: 32



Average wears per maintenance: 3.6

Dress (DR)

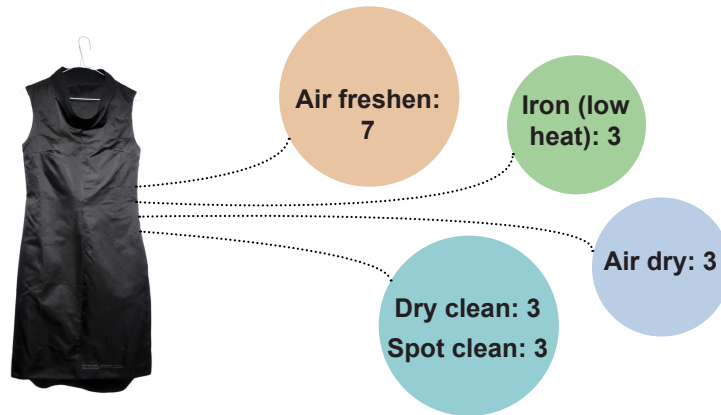
Participant code: L7

Participant location: London

Garment code: L7.DR

Garment description: Fitted sleeveless dress, funnel neck, invisible side zip, full lining, black
Material: 100% duchess silk satin with 100% silk habotai lining

Occasions worn:



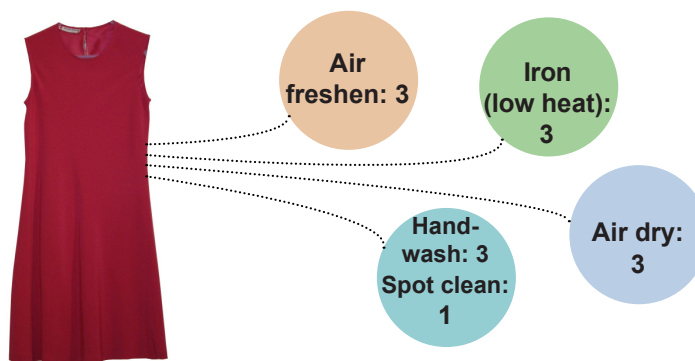
Average wears per maintenance: 1.1

Comparison garment

Garment code: C.L7.DR

Garment description: Sleeveless 'Regina Rubens' dress, princess line fit, centre back invisible zip, full lining

Occasions worn: 9



Average wears per maintenance: 1.3

Dress (DR)

Participant code: B7

Participant location: Bristol

Garment code: B7.DR

Garment description: Fitted sleeveless dress, funnel neck, invisible side zip, full lining, black

Material: 100% duchess silk satin with 100% silk habotai lining

Occasions worn: 6



Average wears per maintenance: 1.5

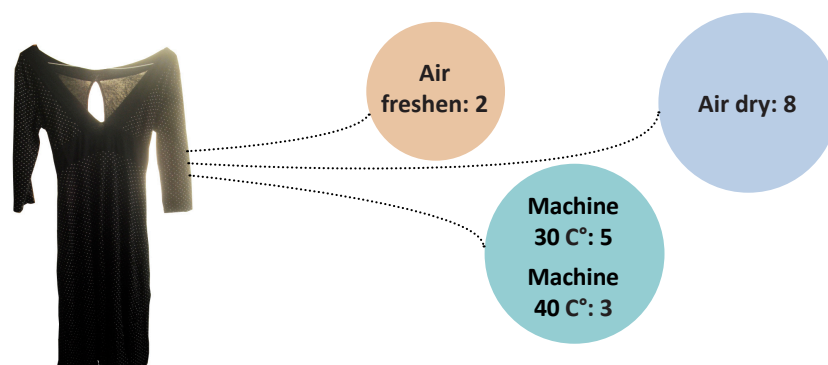
Comparison garment

Garment code: C.B7.DR

Garment description: Fitted dress with 3/4 length sleeves, v-neck

Material: 97% Cotton and 3% lycra

Occasions worn: 19



Average wears per maintenance: 1.9

Cardigan (CA)

Participant code: L8

Participant location: London

Garment code: L8.CA

Garment description: Loose fit wrap around cardigan, navy blue and black ribbon

Material: 100% wool jersey with 100% silk satin trim

Occasions worn: 29



Average wears per maintenance: 4.1

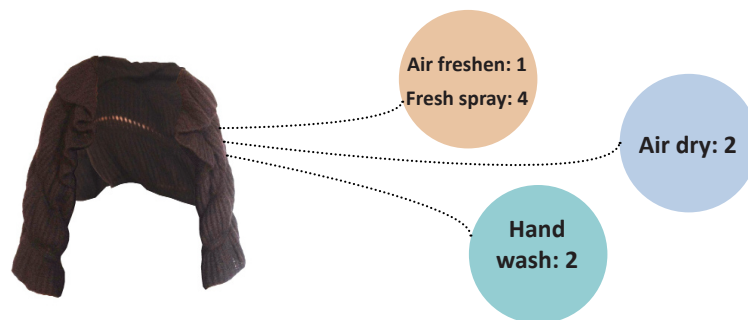
Comparison garment

Garment code: C.L8.CA

Garment description: Slip on shrug cardigan, no fastening, black

Material: 38% Viscose, 34% Nylon, 23% Merino wool, 5% Cashmere.

Occasions worn: 26



Average wears per maintenance: 3.7

Cardigan (CA)

Participant code: B8

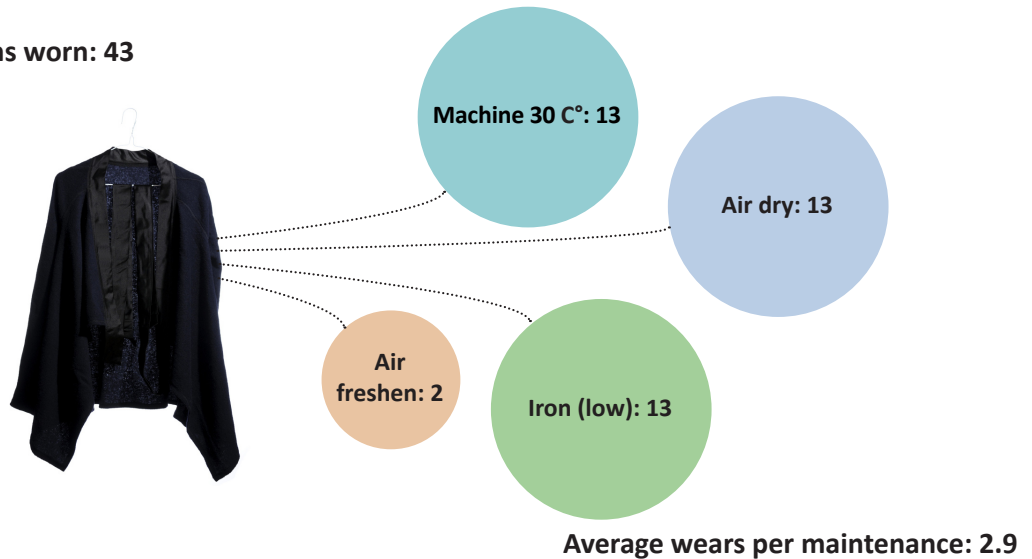
Participant location: Bristol

Garment code: B8.CA

Garment description: Loose fit wrap around cardigan, navy blue and black ribbon

Material: 100% wool jersey with 100% silk satin trim

Occasions worn: 43



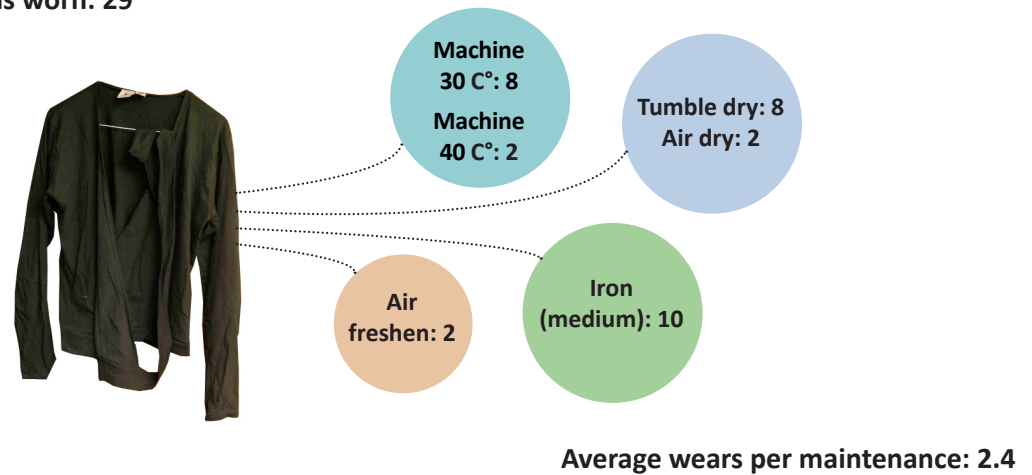
Comparison garment

Garment code: C.B8.CA

Garment description: Wrap around cardigan, dark green

Material: 100% cotton jersey

Occasions worn: 29



Appendix 7 Laundry discussion transcripts

4.A Laundry discussion transcript, London

Location: Here Today Here Tomorrow, London N144U

Date: 8.12.2012

Participants: L4 and L7

Moderator: Emma Rigby (I)

I: Right so to start with I wanted to discuss laundry decisions with you and why it's important that you have clean clothes. I mean obviously it's important for hygiene and health but on an emotional level how does it make you feel to have clean clothes? Can you think about the gut feelings that come into play when you wash your clothes for you and your family? Are there different feelings or is it just one core feeling?

L4: Well I guess when you clean clothes and you feel clean then you feel happier in yourself. Like you feel more confident, like if you're wearing dirty clothes and stuff it makes you feel a bit crap [laughs] but I'm not sure what other feelings.

I: Sometimes it's linked to anxiety when you feel like things are getting on top of you. I've spoken to some people who wash clothes to help keep their house tidy when clothes get everywhere

L4: Oh yes that's true

I: And some people do it for a kind of censorship, to not offend other people, and of course it's probably a mix of a lot of things

- L4: Well I guess, yeah for me it would be if you can't get your clothes cleaned and washed and ready, then your not really coping with things, do you know what I mean?
- I: Yeah so it makes you feel confident and reassures you?
- L4: Yeah and well like you say, so things aren't getting on top of you because you can manage to go about your daily business and still get your clothes washed and clean, and not be walking around in smelly clothes [laughs] and yeah you know, people not be thinking... well I guess you just don't want to offend people by being dirty
- L7: For me, it's just part of who I am. I was brought up early on to be clean and neat, and I'm quite fastidious myself, I tend to be very tidy so you know I wouldn't dream of going out in dirty clothes, or clothes that haven't been aired. You know, I am not obsessed to the point of having to press every single thing, but you know appearances do count and I always make sure my daughters kit, all her kit and uniform, are always sorted, washed and clean on time. It's just the way it is, I'm not one to discard clothes and just leave them, they have to be hanging in the right place, and you know it's got to be... I'm not very fond of hand washing but you know it has to be done. But generally I wouldn't go out in things that are dirty. Not saying I wouldn't wear something, and then wear it again, but I'd make sure that it is wearable and I wouldn't dream of wearing smelly clothes and getting on a bus and sort of sitting next to somebody, it's just part of, well I was brought up to be neat and tidy, you wouldn't dream of throwing clothes around and get away with it. It's possibly a bit old fashioned but that's the way it is.

- I: Do you have any, or where is the gauge when clothes become too unclean to wear? Does it depend entirely on the garment or...
- L7: I think it's a mixture of the garment, I mean jeans for example, I wouldn't wash every time, they would be ruined! So you know, it's important that they air, I have quite a lot of pairs so I would never wear them on consecutive days. Personally I am not a smelly person but I do sweat so I tend to wear more cottons rather than polyesters and things. And these are evidently washable, so I will wash them. Not necessarily on a 40 degrees cycle, sometimes on just a 30, but I will, generally if I wear a t-shirt it will go in the wash, I won't wear it again. If it's a dress and it's not been worn for the whole day and it's not something that I can easily wash and iron then I might consider just airing it rather than washing it. But every day items will get washed frequently [laughs] not hang around. The rule is, if the hamper is 2/3's full then wash, do not wait for it to be overflowing, you know you will get there and the machine will rattle terribly if it's over full.
- L4: Yeah that's the thing, I tend to do a wash every week, but stuff like jeans and skirts and like pants generally, I wear them a few times, but t-shirts and well, also with synthetics which I do own, like t-shirts, they get really smelly when you wear them so you like have to wash them, so there's no way you could wear it more than once, but anything that's loose, like loose knitwear I don't, well not necessarily wool, but cotton or acrylic, or something like that, if it's loose you can get away with not washing it, but I tend to wash most things at 30 degrees, um unless there are t-shirts that are really smelly, [laughs] but they do get really smelly and its not like I'm not smelly cause all my other clothes are fine, but like

yeah t-shirts sometimes I spray them with antibacterial spray and then just still wash them at 30 degrees. But I don't really own that many pieces that you would dry clean and stuff like that, but things like coats I never wash really, but hang them outside and sometimes spray the inside with something if they are getting a bit smelly but I never really wash them because I don't think that there is any need.

L7: There's a few tricks I think I have learnt over the years, if I am going to wear a nice woolly top I'll make sure there is a sleeveless t-shirt inside, and that way I can just wash that and not hand wash, I hate hand washing. It's not hand washing, it's just drying it flat and all that, you run out of space in a flat so

L4: Yeah exactly

L7: It's not ideal and I tend to look labels when I buy clothes now. When I was single it was easier but when you have loads of other people's washing to combine and thinking if they are going to need this tomorrow and it needs to be washed and dried and factoring in oh this can't be tumble dried, it has to be air dried, so it's almost like a plan so I do, I tend to wear more cottons now, it's just easier to take care of rather than the polyester things. And I tend to, I've noticed unless its expensive the polyester and rayon mixes don't really last

L4: And it's just not nice

L7: Yeah

L4: Although there is some nice new polyester fabrics out there which, well you would never know that they are polyester and they look and feel like nice natural fibres, but cottons are much easier to take care of definitely and they don't get so smelly as synthetics.

- L7: And the ironing is so much easier [laughs] not having to turn the iron temperature up and down, up and down.
- I: And how do you separate your clothes when you do washing, is it by colours or perhaps materials?
- L7: [laughs] Sadly no, I do occasionally a really dark wash, sort of the dark blue jeans and um bed sheets that might be dark I'll do it all together, but the rest, another reason why I wear cotton is that the colour does not run so much so I put in all the colours. For that reason I only have two white shirts [laughs] so I don't have to worry about mixing it with the rest. No I don't really colour separate
- I: OK
- L4: Well I tend to do a dark and a light but sometimes I put it all in together because I don't really, well all of my dark clothes aren't really colourful they are all either grey or black or brown or something like that, and I don't really have that many white things, but if I have enough white things I'll try and wash only white, but generally it is kind of white and light, but if there's not enough then I will just put it all in together and just wash it on a lighter cycle
- I: Is that for convenience or saving time, or...
- L4: Well I don't want to do little loads cause I feel like its really wasteful so I try and just squish as much as I can in, but if there's enough to do two separate washes then I do.
- L7: Sometimes it's just practicality as well. The other day I did something really naughty, I took off the shower curtain and I thought right you're going in with the clothes now [laughs] it is a washable one and it is a nice shower curtain but I just thought you know what I haven't got time to wait for other things to turn up

and wash with it separately so I was like don't look just put it in [laughs]. It came out fine but it got conditioned obviously.

I: So my next question is, how important is cleanliness and that you have clothes in good condition and clothes that look freshly laundered and what the difference in importance there is between social environments, work environments and home environments? Is there a scale that changes when you are in different situations or...

L4: See I don't really care that much about the appearance of my clothes, apart from when I'm at work or I guess it depends on the social people because I guess there is some people that I would think ahhh with, 'cause I know they you know care a lot so, if I'm around people that care a lot I'll make slightly more of an effort. But personally [laughs] I don't really care that much. And I don't really care around my family, but when you see them and you haven't seen them for ages then its nice to look nice. But generally it's just work and if you know people notice things then I start to notice things. But then I do still wear t-shirts with holes in sometimes [laughs] but I try not to 'cause that's bad, and people are probably judging you, but personally it doesn't bother me if people wear clothes that are like, well I don't look badly on people so I don't really care, but I'm aware that other people care if that makes sense!

I: So do you think you make more of an effort for other people rather than yourself?

L4: Yeah 'cause I personally don't really care very much and I know that other people do so...

L7: I think that I, well looking clean and presentable is the thing, I'm not necessarily the most fashionable person, I'm not very fashion conscious and I don't buy into every trend so that doesn't bother me, and in that sense I don't really care what people think, if they think something is fifteen years old or whatever, which I do, I have the occasional piece here and there which I've had for ages and I am still wearing them. But as long as they are clean and tidy and presentable, and obviously once you do have children and things you do want to try and look slightly cleaner. I wouldn't roll up at school and look like I had just fallen out of bed, I couldn't do that. I know some people wear their pyjamas underneath their winter coats, when you are coming up in a car that's fine, but we live close to school so I walk her to school and so I have to look fairly presentable, it doesn't have to be full top to bottom, but you know in that sense yes, look presentable does matter, especially if you have your ten year old daughter looking at you saying mummy! [laughs] So in that sense yes but I don't have to be you know, I'm not fashion conscious, I wear what I like but it has to be clean and tidy and presentable.

L4: Yeah it does have to be clean, I care about cleanliness but I don't care about tattiness as such. So I do always want to be clean and I don't like wearing dirty clothes, but I don't care if there are holes and things and if things look old and worn, just as long as they are comfortable.

L7: Well that's the thing exactly, it doesn't matter if it looks old or its not really bang up to date or whatever, but it's got to look clean and presentable. And obviously before I didn't care too much how the fit was or whatever, but now I tend to sort of wear slightly more fitted or even presentable. Before it used to

be my jeans all trawling along the pavement [laughs] and probably because I am short my jeans seem to always tend to scrape the bottom, and I'm not doing that anymore [laughs]. But we didn't answer a part of your question, we didn't say about home and work. I mean at home I'm pretty much in the same t-shirt or tracksuit bottoms, or t-shirt and leggings but even then it has to be clean I wouldn't wear it, you know, 'cause once you cook and everything the smell is transferred to you, so as a rule even at home I wouldn't wear it without washing, but maybe the tracksuit bottoms if them were clean I would wear them again, like two or three days. But it's mostly the cooking; once I've done the cooking then it tends to be in the wash now.

I: Is that because of the smell?

L7: Exactly yeah, and you can't get rid of that, so that I would just put in the wash so even at home...

L4: Yeah I guess 'cause that's the thing, I have like sloppy clothes but I never really wear them outside of home...

I: What are your sloppy clothes?

L4: Like baggy pants and t-shirty things, I guess like pyjamas, but I would always get dresses, I wouldn't just hang around in them. So I guess I do care a little bit, even when there is no one around you want to be wearing semi respectable clothes, you feel a bit crap if you are wearing...

L7: Yeah having said that, I mean I have few t-shirts that I wouldn't wear to go out, I would wear them just at home but they still need to look fresh. They tend to be quirky t-shirts, I have one with a Mexican man and his moustache and if you were to look upside down it would be his face as well [laughs]. So I tend to wear

some of the funnier stuff. Once I had to quickly go to school and I just through my jacket on top of my clothes and my daughter said mummy your wearing the Mexican t-shirt and I was like I know but no one can see it! [laughs] So I tend to wear some of the funnier stuff, but I wear it with leggings and these sort of two tracksuit bottoms which I've been wearing to death but they're still OK [laughs] they're clean! One is from Gap Kids I'm saddened to say, it was the thirteen XL I think that's about as big as they go! [laughs]

L4: That's amazing [laughs] great!

I: Laughs

L7: It was there in the sales and I thought OK that could fit me I'll take it and I'm still wearing them. But yeah at home I certainly don't walk around in jeans or skirts or dresses. Unless it's summer, now that's a completely different proposition and it's really hot and it happens like two days in a row or something. Then maybe I'll wear a dress cause I know I might be going out quickly and might not have time to get changed again. I don't do the shorts anymore 'cause the last time I wore really skimpy shorts and then a whole lot of builders turned up and I was mortified [laughs] I thought oh [laughs]

16.08mins

I: [Laughs] Suddenly the context changes! [laughs]

L7: [Laughs] Well that was just the once so...

I: So am I right in the impression I have, in different social situations the importance you attach to cleanliness changes.

L7: Definitely. I think I like clean clothes throughout but at home I definitely have a few comfortable things that I'll wear when I'm sort of working at home, or just

cleaning and cooking, it's just not practical otherwise. If I were to cook in my jeans I would be washing my jeans every day.

I: Yeah

L7: But generally as a rule clean and tidy, whether it's at home or out. Just different set of clothes when I go out.

L4: Yeah I think the same. As long as things are clean, but as I said I don't really care if there are holes or if they look old or something, it's just if it's clean, and then obviously at work I do care and if you are around other people it does change, my levels of tolerance change depending on the circumstances.

I: OK, and when you go through the physical process of at the end of the day taking your clothes off and deciding if you are going to put them in the washing bin or back in the draw, is there an in between point or an in between place, what I mean is that I'm quite interested in the different places people have for clothes, the in between stages before washing and places where clothes are kept where you know that has a few more wears but it's not quite clean enough to go back in the draw or wardrobe, do you have any 'holding' spots?

[All laugh]

L7: Yeah I'm a bit lucky I have a spare small bathroom, so what I do have there is hangers hanging off the shower rail and I have an airer. That is for drying clothes, but also if I've got something that just needs airing I will hang it in there. At the end of the day its either going directly in the laundry hamper or it's going to be hung there so that is handy for me, sort of, to have that. For a long time there was a leak from the bathroom upstairs and I couldn't do that, but now its all sorted and dry and clean after the ceiling has come off like three times

[laughs]. But it's very handy because I can just open the window and leave things there to air and shut the door, and you know there is a towel rail there if I need it, if it's close to dry I can just hang it there and leave it to dry. In summer it gets great sunlight it all dries in there. It's very handy to have a spare space and I do really need it, 'cause with my daughter now we've got so many bits and pieces and it's all... She has all these amazing kinds of party dresses which are all so fiddly and you know, she probably has nicer clothes than I do [laughs] so they all get hung there and what knot and so I definitely do have a space for the airing things and even my coat and things like that I'll just take it off and put it in there.

I: And how long do things get left in the for, does it depend in the garment or does it depend?

L7: Um, it depends, I mean if its something that I've worn and I can't wash I'll leave it to hang there for a day, if, if possible. Depending if I'm going to leave some other washing in there to dry then I may have to adjust a few things. Like this coat I'm wearing now I'll probably go home and hang it in there and then I might go out later and put it on again, or I might wear a different coat, I don't know yet, it depends. But I definitely never ever just wear things and then put them straight back in the wardrobe, [laughs] I just can't bear the thought of something going straight back in, I'm quite fastidious that way [laughs]. It doesn't take long, it's just habit I think

L4: And having the space to be able to do that is great

L7: I'm originally from Mauritius, um and it's quite humid there, so if you've been out and you know you wear denim, it would of absorbed the humidity so you

wouldn't dream of putting it straight back in the wardrobe, that's just a recipe for disaster, so its just a habit of hanging things. Obviously out there, there is more space and you've got loads of outdoor space to hang things but you know even though I don't have the outdoor space, luckily we do still have the space to hang things. It is habit, it's not really me being to picky... [laughs]

L4: [laughs] Well for me if it's dirty then I chuck it into a basket, but if I can wear it again, well cause I have limited space in our little flat, but I kind of have things that are clean and folded on shelves and they are at the back, and so at the front I kind of just chuck stuff in, or else if its something that can be hung I'll just hang it on the outside of the wardrobe on a hanger. But then if I haven't worn it by the time that its like, the next time to wash things then I'll just wash it 'cause I'm washing stuff anyway and I'd rather have it just clean, but if I can wear it again in the mean time then I will, but otherwise I'll just wash it.

I: OK, and do you ever use freshening sprays or have any ways to prolong a garments wearing time?

L4: Um, well just hanging it outside, airing...

L7: Yes just airing, no I don't spray anything else on...

L4: And like I said, with jackets and stuff, because I have this blazer, and if that gets smelly, like on the inside, then I turn it inside out and spray it with antibacterial spray and kind of wipe if off and then hang it inside. But I don't have any smellies, like Febreze type things or anything, that would be it.

I: OK and is that an antibacterial spray specifically for clothes?

L4: [Laughs] No it's just a regular anti bacterial spray [laughs]

I: Ok right OK

L4: I just use it on clothes and it seems to work! I guess its, well it's the bacteria that makes the smell so I just... or if I'm at home at Jay's parents house then his mum has a steamer that's even better and it's really good for just turning things inside out and steaming them, and that works really well but...

I: To get the smell out?

L4: Yeah, so if you just spray it with the bacteria stuff and then leave it, and then steam it, it really gets it out.

L7: Yeah somebody said to me, after you've taken your shower if you quickly hang your clothes in there and get the steam in it helps.

I: Yeah, I do that sometimes actually!

L7: Does it work?

I: It does, it does, but only with thin materials where the creases can drop out easily, not with the really thick ones

L7: For me I shower for like two minutes flat in the morning and then that's it [laughs] there's no time for the steam to build up [laughs] but I've always wanted to try it, and I keep saying I must try that one day [laughs]

I: Yeah it does work, and it works better with silk as well, really thin silk, it's a very good trick if your like I am and don't... um, OK, and I wanted to ask as well, to what extent do the washing guidelines on a garments washing care label influence how you would wash it if you, well how much attention you pay to those or...

L7: Well I have rules for that. If it's the first time ever I will follow the guidelines religiously, and the next time I will of gauged by then if it looks like a shrinky material, does it look like I can just get away with doing it all on 30, and as a rule

in any case I wash mostly on 30, unless it's a slightly more stained load and then I will do 40 degrees, and as it is the washing machine has a reduced time setting, if I were to put it on the full time it would take over an hour which is ridiculous so um, it's mostly 30 degrees and I'll ignore the label mostly but if it's the first time... and it depends, if it is a cotton thing then I will put it in regardless of what it says, it's got to be something I've never worn before or slightly nicer and then I'll pay attention to the label. If I can get away with not doing hand washing then I will gladly do that. So if it says hand wash only I will kind see if I can still put it in on 30 degrees [laughs] sometimes I will put it in a little laundry bag and think hope for the best! [all laugh] So that's it, I don't pay too much attention to care labels I'm afraid.

L4: Yeah no neither do I, well I'm, apart from if it's nice and a different, well delicate fabric then yeah, but I don't own that many things that are delicate so I don't, and also, cause at work I do the care labels and I know that often we put stuff on the care labels to over compensate, cause you know the guidelines on them or the manufacturers might say wash at 40 degrees and blah blah blah, but we'll say hand wash at 30, even just to kind of cover ourselves more. But hand wash, I don't hand wash anything, I'll just put it in the machine on a delicate cycle

L7: Yeah that's why when I buy now I look at the label as well. If it looks like a slightly more sensitive fabric I just check, if it already says hand wash I might just think twice about it, I'll factor that in when thinking is it worth the money, is it worth the time and effort to wash it, cause I do factor that in now.

- I: OK. And have you noticed on some of the washing labels, like Marks and Spencer's garments, they might have a little line saying something like think climate wash at 30...
- L7: Yeah I've seen it
- I: Does that ever make you think...
- L7: Is does nothing for me because I was washing at 30 anyway, so...
- L4: Yeah I generally wash at 30 anyway, and for that reason 'cause it said on like Ariel ads once that, well it says on lots of things that washing on 30 is better so I do, and generally it's fine so you don't need to wash any higher so um, yeah.
- I: And have you always washed at 30 or was that more recent?
- L7: I have been washing on 30 and 40 for a long time. I do remember maybe about ten or fifteen years ago when we were not so conscious and we used to wash everything on 60 and 40, rather than 30 and 40, so it's sort of come down a lot. I remember once putting in that whitening thing and you put in a load of whites to try and get it more white which I know in the mean time, I've learnt it's just an illusion really [laughs] but that used to have to do it on 90 [laughs] which again is a ridiculous thing. But yeah I would say that maybe fifteen years ago I was washing everything on 60 and 40, but now it's mostly 30 and sometimes 40.
- L4: I think that I've mostly washed at 30, since I've had a machine that says 30 on it I've washed things at 30... I think, but I don't know it's possible I may of washed things more on 30.
- L7: I think it's mostly towels and things like that I used to wash at 60 degrees.
- L4: Yeah I do wash towels at 60 and t-towels at 90, 'cause once my mum came round and our t-towels were disgusting [laughs] and she said 'L4anie you need

to wash your t-towels on 90 degrees!' [laughs] and was like OK, and it really works, so I do wash my t-towels high but I only do that once a month, I kind of wait for them all to get dirty and then wash them all together so I'm not doing 90 degrees washes all the time then like bath towels and stuff I wash at 60 and separate to the clothes, just because I am washing them higher than the clothes otherwise I would wash them all together.

I: OK, and do things like energy bills and water bills influence any of your washing habits, as in perhaps shorter cycles or...

L7: Not really for me, I don't think the difference would be very noticeable at this point, if you factor in the energy use is probably more from all the gadgets that are running rather than from the washing machine I'd say, but you know I suppose more from an eco point of view I do more at 30 degrees and the occasional 40, not really out of concern for saving on my own bill, I don't want that to sound crass but that's just it, you know

I: Oh no, everyone has different motives...

L4: I guess I wouldn't consciously think about it, but it's, you know, it's got to be something that I subconsciously think about so I won't

L7: But yeah, I mean exactly, it does count obviously, I'm sure it does reduce your bills as well, but I would say I wash on a lower cycle for an environmental aspect of it, rather than the energy saving bills.

L4: Yes, I suppose I would be the same but yeah, I wouldn't wash loads of stuff anyway, so it's not enough to really think about your bills, that's the thing I guess.

I: Um, and have you always, or had it always been from an environmental point of view that you wash lower, is that quite recent or has that been for a while?

L7: No it's been for a while I think, I think I've probably been aware more over the last ten years, we've been recycling and stuff for a long time and that's probably when we made the switch from washing on 60 and 40 to washing on 40 and 30, I don't wash anything on 60 now, even the towels go in at 40. What I do is wash maybe more frequently in the sense that I will not leave a towel out there for days on end, but in any case I wouldn't like to use a towel for more than two or three days without washing, so yeah I would say I have been conscious of it for quite a long time now, probably before it got all green washing [laughs] before it all became very mainstream and appeared on Ariel and all that, I do remember doing it before it appeared on Ariel.

30 mins

L4: That's the thing, yeah, I think I have been washing on 30 since as long as the washing machine... well since I kind of left home because the washing machines that I had then had a 30 degree cycle, but before they didn't. Like mum's old washing machine didn't have a 30 degree cycle, did it not? I don't know to be honest, I can't remember when I started doing my washing.

L7: I think they did come, but probably it would be indicated as your delicate wash and you didn't have to really think about doing it. I remember even the old machines did have them, but you probably didn't really think about using it.

I: Yeah I remember they looked like...

L7: They looked like they wouldn't really do enough [laughs] that's what it felt like [laughs]

L4: I guess as well because lots of clothes, or more clothes now say wash at 30 than wash at 40, as because 40 used to be the standard on a care label. But most of them now do say wash at 30 even though you could get away with washing them at 40 so I think that probably influences it as well, just what they say they don't even need to put the eco message but lots of them do just say 30 degrees. [laughs] Sorry I don't know, I guess my memory isn't that good!

I: [laughs] OK, so now are the questions about the garments you had during the year. To start with I wanted to ask about the design of the pieces. Was there anything very particular about the design which influenced how you washed it?

L7: It's not the design that influenced me, rather the fabric

I: Ah the material

L7: Exactly, so I made sure that I aired it as much as possible. There was one time I went out and a bit of chocolate or something got on it and I just spot cleaned that rather than washed the whole thing. It's not the design per se, it would be the material in this case so you know I tried to air it as much as possible before sending it to the dry cleaner. I thought I'm not going to mess with that and wash it, I was thinking I could wash it and maybe the colour wouldn't run but the creasing on that would be a nightmare, and sort of ironing it! [Laughs] I thought no no no no, it's just going to go to the dry cleaners! You know, again, I am environmentally conscious knowing that dry cleaning is not very good because of the perchloroethylene that they use, so I try to avoid dry cleaning, it really has to be when there is no other way but to dry clean that I would dry clean.

I: OK, and what about the fit and feel of it? How did you find that?

L7: Well I tend to wear it on nights out and you know I wouldn't wear it all day long, being conscious that I would probably end up sweating in it or having sticky arm pits and all that so that I was conscious about, but it never got to the point where my skin couldn't breathe enough, so it was fine from that point of view but I did factor in that I wouldn't wear it all day long or for a very very long night, and um my friend had her 40th birthday party back in February and I wore it to that and obviously there was some dancing and at the end I was a little bit sweaty [laughs] but that was predictable [laughs] so it had to go to dry cleaning the next day, but that was the only time when I... but I was dancing so I can't fault the dress for that! [laughs]

I: OK, and was there anything with the trousers?

L4: Well, yeah it was mostly the fabric but also because they are a bit special and I knew that they were handmade I kind of took extra special care of them than I probably would of otherwise

L7: [Laughs] Yeah that's the other thing, knowing someone made them, made you handle it all the more carefully!

L4: [Laughs] yeah exactly

I: So with the dress, were you conscious that it wasn't the same as other garments?

L7: Yeah definitely, definitely! I got a lot of compliments which is always nice and I would be able to say well you know it's this young lady who actually made it herself! And then my friends would be even more impressed and be like woow! [laughs] Yeah so it was nice, and it definitely gave you a great feeling because

you know that you were wearing something that nobody else was wearing

[laughs] you know, it's one of a kind

L4: Yeah, yeah exactly

L7: So it was definitely nice to wear

L4: Yeah so that's the thing, that's kind of where I noticed...

L7: So yeah I was definitely more careful with maintaining it [laughs] at the back of my mind I kept thinking I've got to give it back! So you know it has to be in good condition.

I: Yeah so you did you take less chances if you think something needs to be...

L7: Yeah.

L4: And I guess it's the same as when you borrow people's clothes as well you take better care of them than you would your own, so I guess it's a similar kind of thing I suppose. Yeah cause I tried not to wash them a lot.

I: And did you feel like they didn't need to be washed?

L4: Well they were quite comfortable because they had the lining I suppose, and again I did turn them inside out and left them to air out but just they really needed it, when I felt like I needed to for an important meeting, but I didn't like to wash them much, they just didn't seem to need it, but I took extra care when I did.

I: Um, was there anything that you didn't like about the design of the garment?

L7: No, absolutely nothing

I: Or if you could change one thing on it slightly

L7: Absolutely nothing [laughs] it was perfect the way it was

I: OK

L4: [Laughs] No I really liked everything about the trousers, they just seemed to be well thought through and things that I find annoying in other trousers, like when they loose their fit or hang, or go a bit scumby on the bottom, these ones didn't at all.

I: OK

L7: It didn't even occur to me so... [laughs]

I: I'm not sure if you know this, but that dress was replicated again and the other girl that wore it found the neck a bit too high and would sometimes fold the neck down.

L7: Ah yes, well I wore it up and down, and it didn't bother me

I: OK, when you first received the garments was there any initial delay in washing. Well I found through talking to other people about when they have clothes that are new, some people have a tendency to delay washing them because they feel like it would take away some of the qualities that make them look new, if you understand what I mean?

L7: Yes I understand what you mean

I: And I wonder if that is something you ever think about or thought about with the garments you received?

L7: I think it depends when you've worn it, if it doesn't look new anyway. If you've already creased it then there's no point in trying to maintain that. I know what you are saying though, I understand. But I just aired the dress as much as possible and it didn't crease too much to start with, possibly because we were at a drinks do and we were standing around, so there wasn't much scope for, sort

of, messing it up! [laughs] So in that sense it stayed pretty pristine and I didn't have to do anything until I aired it, put it away and wore it again. The next time was probably a sit down or something so I, well I don't think I would think of it in terms if its new and trying to keep it as new looking as possible. So for me, once you wear it if it's creased it's creased and if it's dirty it's dirty.

I: Yeah OK.

L4: Yeah I guess it is similar. The trousers I wore for occasions and never for very long so um, but with the washing stuff I guess, I did try to keep them new but generally I don't know with normal clothes I used to do that, but now with new clothes I wash them before I wear them.

L7: Sometimes it smells odd, like too new

L4: Yeah exactly

L7: And if you know people have been trying it on, especially if its on sale, you know a few people have been rifling through and its been tossed around, then I would definitely wash it before wearing it.

L4: Yeah so I generally tend to wash stuff before I wear it now, but with your trousers there was no need

L7: I think it depends if its going to be touching your skin directly, but if it's a coat and it's brand new then your obviously not going to wash it, but if it's a t-shirt then you know.

L4: Yeah and lighter things

L7: Exactly, I'd definitely wash it before wearing rather than keeping that new look.

L4: Same here, and well also I guess again because it's just come from a factory and even though it looks pristine in the shop, my friend works for a fashion company

and says sometimes that samples com in with food stains or smelling of smoke. In some printing factories apparently they just hang it all outside, almost in the street...

L7: [Laughs] Outside, yes I've actually seen it

L4: She said one time they were drying this fabric over the central reservation of a motorway! [laughs] I was like what! And then you see...

L7: Yeah a lot of it is hanging in back alleys and sort of you can see...

L4: Yeah it just seems to get hung anywhere, so yeah I guess sometimes it doesn't get washed properly, but that's when you pay for the quality. If it's good quality they should wash it.

L7: And anyway, even if it wasn't dyed I think once you have been to India and your clothes come back its like you have absorbed all the humidity and the smells and everything. Everything needs to be washed first.

L4: Yeah [laughs] so that's why I tend to wash things first when I didn't before

I: OK, and what about the quality, talking in terms of the garments you had but also more generally about other garments, in terms of quality if something is better or worse quality does that change the amount you wash something?

L7: Absolutely

L4: I think yeah, because you just don't care about it so much when it's cheap, so it doesn't really matter if it shrinks 'cause it only cost you know...

I: OK so you are more likely to take chances and be less thoughtful with it?

L4: Definitely, most definitely yeah. If it's something much more expensive you are going to take much more care and the fabric is probably a lot nicer so you know

if it's, well you kind of what to maintain the quality of something that is really nice, but if it's something that is not that good then yeah, I don't care.

L7: I try to stay away, well for the last few years I've tried to stay away from the too cheap stuff, I'd rather, I think twice before buying it. It's not that the money is an issue, it's just that I would rather not buy something cheap and disposable, I know I could wear it and through it away or recycle it, but I just don't think its worth it, I don't... I'd rather go without than buying something, so from that sense I try and get something that is at least moderate quality or good quality. I do tend to think now how long will it last? So in that sense I do need to take care of all my clothes in the same way really.

I: Um OK that's interesting. For the dress and the trousers, well for different garments like dresses, and t-shirts, and trousers and tops, are there different rules that you apply to how often these different garment types get washed. Do different things have different times that you wear them? How do you think about dresses and trousers generally and how did the garments I give you compare?

L7: The dress like I said, I aired it as much as possible because I did not want to ruin it by dry cleaning it too often, and partly because I'm conscious of dry cleaning is not very, very good for the environment. Comparing it to my other dresses, I don't wear too many dresses, I'm not exactly a dress person, although I'm wearing one today [laughs] sort of, but yeah this an example of, this is cotton and this is washable so I do have nicer dresses that I would treat the same way as I treated yours, airing as much as possible, either hand wash or dry clean. Then I have a few dresses like this which are definitely washable. I tend to wear

more dresses in summer and spring rather than winter. Well this is funny, this I wore this last Sunday very quickly and I, OK I left it there to air and I thought OK I'll see the next day if it's you know, wearable again but then I thought OK fine I'll wear the dress again, it was fine I put it back in the wardrobe so in that sense, how did your dress compare, well I definitely took more care and aired it for longer, but I have a few similar dresses, another silk dress and you know a fiddly Monsoon dress that I hate washing and ironing so you know I do air it as much as possible, the other cotton ones will be aired and washed, or just washed immediately.

L4: Well I guess generally, most of my trousers are skinny jeans or leggings, whereas your trousers were a bit of a looser fit so they didn't, I didn't feel restricted, also they stayed really nice after I wore them so they did keep their new looking thing so you didn't need to wash them as much. I've kind of forgotten the question [laughs] what was the question? [laughs]

I: I suppose, how did they gauge in comparison to other trousers?

45 mins

L4: [laughs] So I did start off in the right direction and then completely forgot what I was talking about, but um because they were a bit looser and sort of nicer, well I do generally wear trousers less than other clothes anyway like I'll wear them a few times before I wash them, but tops I wash more...

I: And is that because they get less smelly or less dirty or...

- L4: I think because, less smelly, and also less, well I don't know you just kind of don't notice so much, like I'm just much more sensitive to putting on a top that's been worn, rather than jeans or...
- L7: Oh same here, I wouldn't wash trousers and jeans so much, for me I think its because I sweat armpit wise, so once I've worn, it doesn't matter if it's a t-shirt or a top, once I've worn it for an hour or so I will put it to wash. Whereas trousers, there's no such thing, I mean I don't really sweat all over [laughs]
- L4: Yeah that's the thing, if you get hot and sweaty it's under your arms...
- L7: The sweat will be here in the collar or under the arms, you know I could get away if its something not sitting so straight underneath my armpits, but then I would probably notice the collar would probably, if you avoid washing them often then how would you clean the colour and all that. So tops as a rule and t-shirts need to be washed and trousers and jeans get aired. Leggings are more washable so that's OK. Thank god for leggings though [laughs]
- L4: Yeah see leggings you'd wear more, but that's the thing, these are kind of like leggings but I'd wear these more than once, but a normal pair of thinner leggings I'd only wear them once before washing.
- L7: Yeah, exactly, same here I don't know why [laughs]
- L4: There's no logical explanation!
- I: Do you think that's because of the material, because it's jersey, the trousers you are wearing now look a bit more durable, and normal leggings are a bit tighter.
- L4: Maybe, because maybe you are in them more so maybe they seem to get more smelly.

L7: I think for me, I have two pairs of Marks and Spencer leggings, one in black and one in light blue, and I know they are tumble dryable and do not shrink, I feel no problem about washing it because I know I will just tumble dry them and it tumble dries really quickly as well because they are thin, whereas these ones I wouldn't tumble dry this leggings, these were from Uniglo and I'll wear them a couple of times more knowing, they are slightly thicker and I know I can't tumble dry them, whereas the other two I have no problem chucking them in.

I: So it's easier

L7: Exactly

I: OK

L7: So that is another consideration, knowing that I can wash and dry the other ones super quick.

I: Yeah OK. And my last few questions are actually about the process of keeping a laundry diary and having to remember to write things down in between wears and washes

L7: OK [laughs]

I: So I am wondering, did the process of keeping a laundry diary make you more conscious of how you are washing it or maintaining it or airing it, or not at all, maybe it didn't.

L7: It didn't change anything for me, I just had to remember to jot it down so once or twice I found myself maintaining it and then a day later found myself saying oh I didn't write it down [laughs] quickly, where is it? And sort of writing it down, but no it did not change, I would of treated it exactly the same way without the diary.

I: OK

L4: That's the thing, I think because of the garment and because I was taking extra care, although I was aware that I was writing it down it didn't change what I was doing because I was taking extra care anyway, do you know what I mean? So then I didn't feel like I was doing anything wrong, so it wasn't like I needed to change, but maybe if it was just a regular piece of clothing then maybe I would have been like, oh I need to think more about this

I: OK

L4: Like how it will be perceived, do you know what I mean?

I: Yeah, yeah I do

L4: But yeah so that was it

I: Did it make you think more about how you washed any of your other clothes or not?

L7: Not really. I think I've got such a routine set in [laughs] it's sort of, I don't really think about it anymore, it's just automatic and I'm probably thinking of other things while I'm doing it, so yeah.

L4: It did make me think about it, but it didn't make me change anything like, I suppose I did think there were probably ways that I could be more eco-friendly about things, but then it's just sort of time and what you're used to, you have your routine and what you do and the way you wash things...

L7: The only thing it made me realise it that people will probably use fabric sprays for freshening up and things, and I did not think about that ever, but when I saw the options in the diaries I thought oh so maybe people do, do that. Though it

did not make me want to do it, it just made me pause and think oh some people do this completely different, you know

I: Yeah

L7: So in that sense, I thought about it while filling it in but it didn't change anything the way I did it, no I wouldn't go out and but Febreze and all that, no.

I: OK, well I think that's all my questions. Was there anything else you would like to add or that came to mind?

L7: I just hope the diary proved to be OK and it was, I couldn't gauge if I was writing too much or too little

I: [laughs] There was no right or wrong way, everyone did it in very different ways. It was very interesting, some people would write the bare minimal and I needed to contact them again to ask more questions.

L7: [Laughs] Well I suppose that you didn't contact me with more questions I'll take that as a good thing [laughs]

I: No it was very thorough.

L7: Oh good, I'm glad

Appendix 7.B Laundry discussion transcript, Bristol

Location: Watershed, Bristol, BS1 5TX

Date: 3.12.2012

Participants: B3, B4, B6 and B7

Moderator: Emma Rigby (I)

I: I wanted to talk about two things, firstly your general washing habits and then talk about the study you were all part of and ask you a few questions about that. So to start with I wanted to talk about more general washing decisions and how you do your washing, not the garments that were part of the study.

B4: Yea

I: I've been looking a lot in my PhD at emotions associated with wearing clothes and what you feel like when things are dirty. I mean of course when things are dirty you want to wash them, but what it is you actually feel, for example anxiety or maybe you feel it's offensive to others, or maintaining integrity, or if it's a feeling linked to being domestically responsible. So I suppose my first question is, why is it important that you wear clean clothes on an emotional level.

B6: Yea that's quite a thought provoking question actually, cause some of the points you made there you kind of feel like, yea I identify with that, I want to be, you know, um, for my clothes to smell nice, it makes me feel like I'm keeping on top of everything, and I'm presenting someone that's in control, and...

B4: It's really odd because I was stuffing things in my wash bin yesterday and I was thinking those exact things, why does this bother me so much, and I'm stuffing it full of things that properly don't need washing and what's wrong with me partly,

and ur, I do clean a lot and I'm quite obsessive about things like that, so I did really ask myself that question and to hear you say that, you just said that you can identify with it, I think a lot of men would properly laugh at us if they could over hear our conversation – *emotional washing*, what's wrong with these women? But I do thing its really important, plus I smoke so even the thought of people smelling smoke on me, or even when the dog jumps on me a sits on my lap then my tracksuit bottoms will get washed. So ur...

- I: And is it different, do you feel more, or safer when you are wearing clothes at home that are dirty as supposed to in public or at work.
- B4: Oh definitely, yea but I still was putting my tracksuit bottoms in the wash when I only wear them once for maybe six hours, because the dog had been lying all over me and I'd been cooking and I just thought I don't want to put them on when I want to be clean again. That's the thing as well, I think when I feel clean; I can be really dirty if I haven't had a shower, I can do all the cleaning before I've had a shower and I can wear... I don't care what I'm wearing then.
- B6: Yea I definitely think it is about, um, like also about, our like society as well, 'cause um, just at the weekend my friend, now her friend has just been, is lucky enough to be out in the rain forests, yea, filming orangutans, [laughs] ok but she said, like, you know, little Clare turns up and she hadn't been, you know, like washing her clothes or *needing* to wash her clothes or herself for a week, and she found that, she said 'oh it was just so liberating and so brilliant to think ah I don't have to worry about that. So it definitely is a thing where, why is there a worry?

I: Yes different social contexts, that's interesting. But what are the main emotions you connect to having clean clothes? Do you feel satisfied or content, does it make you feel confident? Or does it completely depend on different situations?

B4: It's strange isn't it because I don't know why I do it, maybe, but maybe some of all those things, just about feeling clean, feeling like possibly you look better. Sometimes I have a shower and actually all my make up comes off, I look pale, my hairs all wet and I think I look loads worse than before I had a shower, but *you feel better* and I think it's the same with clothes.

I: Yea

B4: So for me anyway, more how I feel rather than how maybe I *look*.

B6: I suppose as well, if your clothes are clean you're not giving anything of yourself away. Your not giving, if like, you've been out smoking, you know it can be that kind of thing as well really, if your just presenting this like, laundry smell and that's like. Well I'm not saying that's how I feel its just more of concept. It's about being sterile.

B4: Yea it's funny that, cause saying your trousers for instance, they've never been washed, I wouldn't lie on the sofa watching TV with the dog on my lap. They come off when I get back home, hung up and then the tracksuit bottoms come out. So my tracksuit bottoms properly do get a lot dirtier than anything else you know.

I: Okay, and in contrast, how do you feel about wearing unclean clothes, what are the immediate gut response that come to you, if you went to work wearing something that was really dirty?

B4: Ahhh! Work!

B6: [laughs] I'm just trying to think if I've done it!

B4: Argh no feel I've got to be relatively... I could never go how I might be at home, or down the shops or you know, some places I don't care what I look like. Like Asda [laughs] I don't care, I could just get up and go there kind of thing, but for work I always have to have a shower and I'd always have clean clothes, yea.

6m 14s B7 arrives

I: Hello Lucie

B7: Hi, sorry I'm late

I: That's alright, nice to see you

B7: I haven't seen you in ages!

I: I know! Lucie this is Lisa and Sam. This is Lucie

B7: Hello! Nice to meet you. I think Rachel is running a bit late too.

B4: [Laughs]

I: Okay not to worry. Well what I thought is I'd start running through some questions and the discussion is sort of in two halves. I guess we'll run through the first half before Rachel gets here and then we can run through the second half all together, and then perhaps go back to some of the questions from the start.

B7: Yea, cool yea, sorry to hold you up.

I: No don't worry it's fine, but would like a drink or anything? I have opened a bar tab.

B7: No I'm fine thanks I've got one.

- B4: This just reminds me of a lesson actually, when I'm teaching and one student comes in, and then another, and then you get the fourth one and you think what do I do with you now then?! [Everyone laughs] A little taster for you!
- I: So I just actually asked the others, well we were talking about cleaning generally and I was asking what kind of emotions come to mind when you think about how important it is to have clean clothes. If it links to your identity, or if it's to do with confidence, or if it's to do with censorship and not wanting to offend other people by not being clean, or if it makes you feel satisfied or if it links to anything else?
- B7: Yea, um, I'm quite lazy [laughs] I dunno um, I guess...
- I: It can be in the simplest of terms, like the smell of fresh washing if that makes you feel anything.
- B7: Umm, I suppose like the smell of fresh bedding makes me feel happy, but yea I don't know really other than that, sorry I'm not a very clean person as you can see from the amount I've cleaned [laughs]
- B4: Well you look really clean though
- B7: Ah thanks!
- B4: You'll have to take a picture of us all as well
- I: It's really interesting because everyone has such a different sensitivity to cleanliness.
- B4: Yea, different ideas
- B7: I don't think I have that much, like I feel horrible if I feel smelly, but I don't, and I do tend to drop quite a lot of food down myself, if I'm obviously dirty then I'm conscious of it but otherwise then I just don't think about.

I: And how does it make you feel when you have got, when you are wearing smelly clothes, and your out publically or going somewhere important and suddenly think god I stink.

B7: probably self-conscious and a bit horrible, like uncomfortable

I: Ok

B4: But I think there are things like some people sweat more than others don't they, and um, I've never sweated under my armpits, so I, although maybe other people might not say that [laughs] maybe I have a real problem and I just don't know [laughs] but generally I don't get wet even under my armpits, my face wets a lot so that wouldn't ever be the reason that I go 'oh' you know, it might be more my breath, or ur, dirty hands, I hate having dirty hands, those types of things, so you know, I think it's different isn't it for different people as well

B7: Yea definitely, I sweat loads, I've been trying to not use deodorant, well to not use, well to use natural ones like the crystal ones, I've just been finding it quite hard because it makes me really self-conscious if I, cause I wear a horrible uniform as well which just makes you sweat, do you know what I mean?

B4: Yea, it's like my daughters got these black tops and I put them through the wash, like Lycra tops and I can still smell them and she doesn't really have a problem but it's just, I'm wondering if it's the black dye in it.

I: Yes I get that in my running stuff as well!

10 MINUTES

B4: Oh right, and I don't know what temperature you need to put it on but I generally wash at 40 and it's like well that's going back in, and sometimes she says I haven't got my black clothes but little does she know they've gone

through the wash like three times [laughs] She'd kill me for saying this [laughs].

You know I do think its some clothes as well, and there's some people thing, you know.

I: And also, do you bend the rules at home as well, do you have a different set of clothes at home for...

B7: yea definitely, I just wear really dirty clothes at home [laughs]

B4: Me too, right there

B7: Yea definitely

I: Okay, and do you have a different set of clothes at home?

B7: Yea, probably, yea I like, well especially at the moment cause I wear a uniform and that's really uncomfortable but I normally change as soon as I get home into tracksuit bottoms and a stained hoody [laughs]

B6: I sometimes put tracksuit bottoms on but actually I also just wear what I've worn at home at work, cause I just wear stuff like this at work. Unless it's something that I perceive to be slightly nicer like shirt

B4: Yea just to feel more comfortable though as well. Everything gets chucked off and then tracksuit bottoms and something comes on, something easy

B6: Yea

I: Okay, and when you are deciding when clothes are going to be washed, is there an in between point, some people have chairs or specific places in their bedroom or maybe in another room where clothes are kept and they are not quite clean enough to go back into the wardrobe but not quite ready to go into the wash either. Is there any kind of staggering process you go through when

making decisions. Or is it just sometimes things are washed more, and sometimes they are washed again and sometimes they're not.

[everyone laughs]

B4: Yea it's funny cause sometimes my daughter left all her stuff on the floor but I've now got a basket. And now it's like well if you can't get it back in the wardrobe or the draw, get it in the basket. Mine end up on the floor sometimes, but I don't have any place for storing things that might get washed, you know they either get washed or they don't.

B6: I think I do, I just put stuff anywhere, end of the bed, futon, on a chair, anything if I think I might wear that again in the next couple of days, but I'm not going to wear it the next day, cause otherwise people go 'oh, you've worn the same thing for two days in a row' [laughs]

B7: That's interesting I've never even thought about that

B6: Cause my rooms like, I don't know, a kind of junk shop with everything is everywhere.

B7: I haven't really got any furniture at the moment to put clothes on! [laughs]

I: Hi Rachel! How are you?

B3: Hi everyone!

I: Would you like a drink? I have a bar tab so your welcome to get whatever you want.

B3: Oh okay, thank you [laughs] I'll be back in a second

B7: So yea, I don't have one. I just... well I've got a wash basket so I might get something out of it again but I otherwise... well I've just moved house and I don't really have any furniture, so like I've got these open shelves that were on

the wall anyway and they are really wide so I can see what's there and put things back or not.

I: Okay, um and on garments to what extent do you follow the washing guidelines? Do you regard them at all or is it, do you kind of trust your own instinctual knowledge?

B4: I do look if I think it might be a 30 wash, but the most I put my clothes on is 40 reduced anyway, so like most things aren't below that unless it's wool and then I might think ah what do I do with this, or your trousers for example, that kind of thing and then I'd look cause I might expect then it might be dry clean or it might be 30.

I: Okay

B6: Generally I will look if something is new to check that it's not hand wash but then I'll just bung it all in at 40

B7: Yea I don't look at washing labels [laughs]

[Rachel returns]

I: We are just talking about general washing habits at the moment

B3: [laughs] As little as possible! [laughs]

I: I just asked to what extent do people follow washing guidelines

B3: Ur, not to a very great extent really, um, I don't know, I wash most things in the washing machine on a cold wash if it said dry clean

B4: What do you class as cold?

B3: Um, mine just has got one that says 'cold' well, delicate/ cold wash I don't know what that is

B4: So 30 then

B3: I think it's even colder than that cause I've got like a delicate 30 wash

B4: Oh right

B3: So but you know I'd occasionally wash things like shoes and ...

B4: That's why your top is so red still! [laughs]

B3: I've had this top since I was sixteen actually!

[gasps from the group]

B4: Ah wow!

I: Really?

B3: Yea and it's still red [laughs]

B4: It's funny cause I do a pink wash and a red wash with no other colours in it.

B3: Oh really?

B4: Yea

B3: I generally wash everything together, I'm quite, well if I've got a lot of laundry stacked up then I'll separate it but otherwise I'll just wash it as I go along

[laughs]

I: And on average how many washes do you think you do a week

B3: Umm

B7: I do two I reckon

B6: Yea

B3: Three to four but then I live with my boyfriend and children

I: Yes obviously it depends how many people you live with

B4: About seven probably [laughs] there's two people so...

I: Yea okay

B3: My machine has quite a big capacity so it fills a lot

- I: Okay. And when you are doing the washing do you ever think about things like water and energy costs? Would this encourage you to fill the washing machine up more? I'm just asking this because it's something that when I have been interviewing other people I found fuller wash loads were quite common to help keep costs down and it's something I hadn't ever considered. And some people don't think about it at all and some people do.
- B3: I usually only do it when the machine is full because it seems a bit wasteful to do a half load and I don't have a half load setting, um, but I wouldn't tend to, choose my cycle on that basis I guess I'd hardly ever wash on 40 unless, unless I had some whites that were looking a bit grubby and I'd occasionally do them on 60 or you know, if I know there is some stuff that's really muddy or messy I might occasionally do 60 but hardly ever.
- B4: Yea I tend to try and fill the washing machine, and also if say I'm doing whites and it's not quite full I'll go around getting white things [laughs] so the dressing gown will go in...
- B3: Yea I do that [laughs]
- B4: You know, I'll just do that along side it rather than have the dressing gown on its own.
- B3: I'm never so on top of my washing that I don't have a full machine's worth to be honest though! [laughs] It's not an issue in my house
- B6: Yea the washer always tends to be full, unless it's going to be whites, I don't think I have enough white things to actually fill it up.
- B3: I've got some white bedding that I just top it up with
- B4: But I do try and do it to save money. Money is probably the main thing

- I: Do you think you would do more washing if energy bills were cheaper?
- B4: Well no but to fill the washing machine up, that's why I try and do fuller loads
- B6: Yea, I know live in a flat where it's all rent included so all my energy bills as well, but I still only do short washes cause I used to have to actually use the launderette and then you are really conscious of only doing a wash every two weeks and hauling everything, and how much it costs to dry so I used to be very aware and now I have gone to the other extreme, but still I only, that's why I do short washes
- I: Okay
- B7: Yea I do short and full. But I guess I would put it on a eco wash if there was an option, but like for me, its probably more time.
- B3: Yea I would use short, but it's not an option on my washing machine. Well, there is, there's an easy care cycle that's shorter but it doesn't spin the clothes so then when you don't have a tumble dryer, in this time of year it's harder to dry, so it's not really for time economy in the long run.
- B6: I mean there didn't always be these settings on washing machines, and you know what they do and whether they actually make a difference
- I: Yea, there are some really amazing models of washing machines coming out with really intelligent devices where they can weigh your washing and dispense appropriate amounts of water, like smart phones, but smart washing machines! But I think on average a person will replace their washing machine every fifteen years and whether they are more environmentally friendly who knows, perhaps people do more washing loads if they feel it's 'better'.

B4: Have you heard of that washing powder, like catalytic washing powder? It's like a catalytic converter in a car and if everyone washed their clothes in it then it would eliminate exhaust fumes?

I: Yea I think I know what you mean, it's the same chemicals they put in sun tan lotion, I can't remember what the chemical is called, it has some kind of purifying effect

B4: Interesting though isn't it

I: And how does everyone feel about tumble drying?

B7: I wouldn't do it

B3: Actually I don't have one

B7: Actually I wouldn't do that for environmental reasons

B3: Yea, I do sometimes, I have felt tempted over the years cause as you say when you've got washing around the house in winter, but yea, I think environmentally, but also from a bill point of view that would put me off a tumble dryer

B7: Although when I went to the launderette there is tumble drying [laughs]

B4: And also having washing all over your radiators I'm sure your heating isn't so effective is it, but I don't have a tumble dryer, I don't really have the space and actually it is that added bill, but I do think sometimes, when all my radiators are covered in laundry, things on top, things in front of them...

B3: I would consider it but yea, I never have this far but yea it's probably the cost that puts me off as much as anything but I don't know how expensive they actually are.

I: Yea

- B3: I'm sure if you tumble dried everything from scratch, like from wet, it would be quite costly. I know people that dry it for a bit and then just finish it off in the tumble dryer... gets the creases out
- B7: It is expensive in the launderette isn't it
- B6: Yea it's really expensive, it's something like, something like 50p for... I don't know, you normally end up spending about, sort of three or four quid just to get your load not even dry
- B7: So it must be quite a lot
- B6: But I don't have a tumble dryer at the moment, I just dry it on one of those
[makes hand gesture of pulling rope]
- I: Oh one of the old pullies
- B6: Yea! So that dries really quickly and it's out the way as well
- B3: Yea I'd like to get one of those as well, but I don't have an obvious spot for one in my house [laughs]
- I: Okay, so now I'm going to ask you a few questions about the garments in the laundry study. The first thing I wanted to ask you was what did you like about the garment design that I gave you, or what were the positive things that influenced the way you used it or why you didn't use it so much, or washed it or didn't wash it.
- B4: What did everyone have actually?
- B7: I bought mine actually
- B6: I bought mine!
- B3: I bought mine too!
- B4: So did I!

[All laugh – rustling sound as everyone gets the garments out]

B7: That's why I'm late! [laughs] I went home to get it!

B4: It's funny cause you never asked us to do this did you!

I: No! It's great though!

B6: Oh hang on mines inside out!

B4: Oh that ones nice! [laughs] Is that a dress is it? I don't remember seeing that!

B7: Yea

B3: Oh you have the trousers!

B4: I need to put my glasses on!

B7: Oh cool!

[all laughing]

I: Let me take a quick photo!

B4: We must look so funny! If anyone could hear our conversations! [laughs]

[all laugh]

B7: Yea look at all these women comparing clothes!

B4: Monday night as well

B7: I feel like a...

B4: Don't forget your being recorded, watch yourself

[all laugh]

I: Okay so lets talk about the designs and the positive aspects of these garments.

B3: I liked the knit and the colour, and yea, I just quite liked the chunky knit. I quite often used to wear it backwards actually

I: Oh really?

B3: Yea well cause it's quite low and cause it's a jumper, I don't know, day to day I won't tend to wear really low cut stuff, and I didn't necessarily have a top that I felt looked good layered underneath or looked quite right so I...

B4: Yea I was going to ask if you had tried a top underneath it

B3: I did a bit but then it felt, I don't know, I didn't have a top that felt like it quite works so I quite often reversed it. I think I sometimes turned it inside out as well

B4: It's quite nice though

B3: Yea it is nice

B7: Did you make it?

I: I designed it, but somebody else knit it for me. My knitting skills unfortunately don't stretch that far.

B6: Hand knitted things are nice

B4: Have you washed it?

B3: I have a bit yea, but not very much, I don't wash wool very often so

I: When did you decide it was time to wash it?

B3: Um, I think it just smelt a bit sweatyk

I: Was it to do with visible stains or was is more the...

B3: I think I may of got sort of a food smear on it as well, not that it was really visible, but you know you can just feel that you've got stuff on it, but generally I just aired it or put it back in the draw

I: What about the trousers?

B4: Um, probably the main thing of me was the way that they were made, um I really like the pockets, I like the fly front, I like the bias binding inside, and I did like the cut, but I found that there was only certain things that I could wear them

with, I got a bit stuck with shoes, but I think that was partly maybe my age [laughs] and getting stuck in a certain style and not really knowing what to wear with them, but actually they look really nice with high shoes I thought, um, and I put weight on and lost weight while I has them as well. I didn't like them when I put weight on but I like them when I'm slimmer. And although, you know, I put quite a lot of weight on actually, it was more about, cause you know some things you just can't wear anymore if you've put weight on but I found when I lost weight they were sitting down lower and when I put weight on they were kind of higher and tighter if you know what I mean, so um. But yea I think the thing that I liked the most was the way that they were made and the design features on them, the lovely details and things like the bias binding and they are lined, it's a silk lining isn't it. And the fabric, the fact that they were wool. And then what I probably like most about them more than anything is the fact that that I've worn them twenty times and I've not washed them and they still don't need it. And especially for someone who does seven loads a week in comparison, although I suppose there is two of us so its. Sorry what was your questions?

I: Um, how often then do you normally wash trousers?

B4: Well, maybe I'd wear them twice. But you know if something was new, like I've even bought a pair from [whispers] Primark [laughs] Primark for the record trousers, that I've actually worn about six or seven times that are new, that I know once I wash them, then I'll be washing them every time

I: Yes perhaps it takes away the finishings that keep them nice and new looking

B4: Yea! And I think that if I was to clean these, I'd dry clean them I wouldn't wash them

- I: Okay
- B4: So I think I would of liked to of used a dry cleaners to see how they were done, but I think if I used a good dry cleaners they'd probably come back looking really good, and if I didn't use a very good dry cleaners they would probably take the life out of them a bit. You know, so I think it's where you get them dry cleaned as well.
- B3: See I'd wear jeans for easily a week without washing them. Just wipe off marks. I don't wash trousers that much at all really, in fact it's only if there's visible marks on them
- B7: It depends on the material as well though, cause my work clothes I like have to wash them, cause they are really thin and cheaply made and just get horrible, but my jeans I haven't washed these for like three weeks, but then I don't wear them every day, but still jeans don't really get dirty, unless I've spilt something on them
- B6: How do these feel on? Do they feel like quite hot?
- B4: No I think because it's a natural fabric, I suppose I didn't really wear them in hot summer but then some of time I was still wearing them in like April May because it's quite cold still
- B3: I think that was my issue with this because it had short sleeves I found, it wasn't warm on a cold day, but it was too hot, so I probably would of worn it more if it had sleeves, even if it had just been cropped sleeves it would of just...
- B4: Yea cause I've got a lot of tops like that and I really need to get some tops with long sleeves and things that I can actually wear underneath

- B3: Yea cause I don't really feel the cold that much so for it to be mild enough to have bear arms I wouldn't need to be hot in my body so much
- I: Okay, and what about with the apron?
- B6: Um, similar thing with Lisa really, I really liked some of the details and how it was finished and the inside, I probably should of worn it the other way round. I really liked the bias binding and detail on the pocket, although I didn't, well I put keys in the pocket a couple of times, but then I didn't find myself using the pocket. I'm not really sure what your intention for the apron was, if it was to be worn as a functional apron or um, a like a fashion item
- I: Oh it was a complete experiment
- B6: So I started wearing it like an apron, I felt very proud of my apron, I work as a teacher and a technician at Filton College in the art department there, and the first time I wore it and I got a bit of paint on it I was like [gasps] this is this bad! This is too smart and um because we've got those other aprons that can be easily washed, or actually those aprons never get washed at work, and I've got a similar top which is more like a tunic, um so I started just using this for when I was like demonstrating with the FDA students because it's cleaner work. But I really like that thought of having it, I guess in a way its like a uniform, but it's a bit like I'm putting on my special apron, I felt quite proud and yea I liked the cut of it, the way that it is quite high, it's a little bit big on the shoulders for me so it did sometimes fall off and because I was in and out of it quite a lot the popper, I had to re-sew the popper a few times, um but I love the look of the fabric and the matt waxed
- I: And did the wax coating come off, or does it still feel quite waxy?

B6: No it still feels quite waxy

B4: Have you washed it?

B6: It was just wiped down only like this, it was just sort of spot cleaned so it's had fairy liquid on it, um but other than that you can still feel it on it. And I guess it wouldn't be something you would wash cause in a way it doesn't get dirty in the sense of oh I've sweated on it

B4: Armpits

B6: Or um...

I: Yea it's a different kind of dirt

B4: Yea cause you've got clothes on underneath, well hopefully

[all laugh]

B6: Well at work at least [laughs] but yea I really like the design, sorry the poppers still broken here

B4: Does it have a dart there?

I: Yea. If it was just cotton and not waxed do you think you would of put it in the washing machine?

B6: Definitely. It felt, just kind of like that stiffness. If it had been, like I wouldn't ever screw that up if you know what I mean, you would almost like fold it, whereas the cotton aprons at work they just get screwed

I: Because they are lightweight?

B6: Yea exactly

I: Okay. And how did you find the dress?

B7: Oh I love it, I really love it. I thought it was really really nice and um, and its really fitted, I wore it only on special occasions and I felt really special, it made

me feel really dressed up, it's quite elegant cause its really nice material and its really, it's just... it's got the same kind of thing on the inside, blue lining, and its just really soft, and it's a really nice shape

B4: Yea it feels really nice

B7: Yea and it's not clingy, its just very nice

B3: What's it made of?

B7: Ur, silk isn't it?

I: Yea, it's silk satin

B7: I found that like, I didn't wear it that much, but because I don't dress up that much, and also because with the collar, I couldn't always work out what to wear with it, so like if it wasn't warm enough

I: In terms of a cardigan or something?

B7: And yea I would always tend to wear a cardigan. So like the times I could just put a coat on and wear it, I would be more likely to, yea because, and I tried wearing the neck in different ways, I think folded down worked the best. But yea, and I didn't wash it, because I didn't want to risk it. I probably wore it four times maybe. On like, for my Birthday and stuff

B3: It's quite a dressy dress

B7: Yea it is, yea

I: And did you ever want to wash it or did you always feel like it never really needed washing after you wore it?

B7: No, I mean it got quite wrinkly so I felt like I needed an iron, but did do that, I just hung it up. but it feel like it got dirty really, 'cause it's quite thick. Even though you are wearing it close to your skin it doesn't feel tight or

- B4: It's that thing about natural fibres though isn't it, with especially silk or something
- I: Yes it regulates your body temperature quickly
- B7: It's nice because it's something I would never buy myself, but I actually really enjoyed wearing it
- I: Okay, and was there anything out of all of the garments that you really disliked? Perhaps something you found annoying or...
- B7: Perhaps the neck, cause for this one I couldn't really work it out but more just that I couldn't work out what to wear with it
- B6: Yea and maybe buttons would of worked better on this, cause as I say I sewed the poppers on a few times and maybe its just that constant in and out, but other than that no!
- B4: Were these lined just on the front because that's where it creases more? Can you tell me a bit more about that?
- I: Actually I didn't want to make a full lining so they weren't too hot to wear, and on the front of the leg tends to be where they rub more so I wanted to use a lining there, the wool can be a little itchy
- B4: Oh right. Well it could be nice if the lining was all the way around to the knee and the top of the trouser, that's the only thing, and possibly it could be a lining that you could wash, and not the whole trousers. Might as well be a removable lining actually
- I: Yea
- B4: Cause then you'd never have to wash them actually and just wash the linings.

- I: Yes I've been looking at the ideas around making modular clothes and detachable sleeves. You know that's such a Victorian idea because that's exactly what people used to do.
- B4: Yea, and that's why the under garments were so big as well wasn't it, and you just had those cottons...
- B3: I think for me, it was just the weight of the garment with short sleeves, and I think that's partly why I used to reverse it as well, because again, on a day where it was cool enough for me to wear that I also found I would have to wear a scarf or something, so that's why, but don't know I tend to get more cold around my neck, I like to wear big cardigans. I guess it's the kind of top, as I say, I didn't tend to wear stuff under it, so if you got hot...
- B4: Did it itch?
- B3: Um, not particularly, only a tiny bit, I suppose when I got too hot...
- B4: Sometimes when I put something on I go ohhh, and then I forget all about it
[laughs]
- B3: I think it didn't feel too comfortable with things under it because that really made me too hot, so but then yea, if I was sweating then it was a but itchy cause wool just prickles when you are sweating, but um, yea, I think for me personally, as I said, I'm quite a hot person, I think I'm more likely to get hot than cold, yea so for me it would of worked better with longer sleeves but I did really like it generally
- I: Okay, um, I think we have touched on a lot of the questions I have written down already, but one of the questions I wanted to ask was when did the appearance

of the garment become no longer pleasing, or sufficient in that you had to clean it? But you said with this it was more to do with the smell?

B3: Yea, and the wool has quite a strong smell and after a while I wanted to wash it because yea, I don't know just to get that smell out

I: Okay, and did anyone notice anything physical, in terms of loss of definition in creases, especially with the trousers...

B4: There was no crease down the middle anyway and I used to hang them over the wardrobe if I couldn't be bothered to hang them up, I would never drop them on the floor. And then I just hang them up, to maybe let them air a bit and then put them in the wardrobe again, so the creases would just drop out and these have been folded up in my bag as well, but I bet if I'd of washed them, they wouldn't still look like that would they, that's the thing.

I: Yea perhaps seams start to twist slightly and...

B4: Well yea and they just crease easier don't they

B3: depends on the fabric though, cause sometimes with jeans they look better once you've washed them cause they shrink a bit again and the knees have started to sag

B4: Yea

B3: So some clothes need to be washed once and again just to kind of...

B4: That's because they were washed in the first place

B3: Even with wool sometimes, it starts to stretch

B4: Mold. But I never sort of sat around in these trousers, if you know what I mean, so probably they wouldn't sag in the knees

- I: Okay, and another question is because they were actually garments that I gave you to test, did you treat them as normal garments, did you forget I gave it to you, or was it in your consciousness when you...
- B3: I was more conscious about when I washed it and things
- B4: Loads of people commented on them though
- B6: Yea they looked really nice on you Lisa!
- B4: Oh did they, thanks, when I put weight on or when I lost it? [laughs] But yea loads of people did say I really like your trousers and it was really nice to say oh one of my old students made these [laughs] But there you go, see I got a lot of comments on them
- B7: I did too actually. But I think cause it's like, quite, well more expensive than some of my other stuff, if felt better quality than anything I probably own, so I was quite aware in that sense, it made me feel like I wanted to keep it safe.
- B4: So I think the mix of those two things, the fact that you gave it to us, and it's also really good quality, if it was just a t-shirt or an every day thing then I would of washed it with no problem, but yea it was the quality and the fact that you made it.
- B6: I was just agreeing!
- I: I realize these garments may not of been things you would of actually bought, but did you feel like you made an effort to wear it less or more?
- B4: Yea I did make an effort as first to wear it more, because I thought these trousers, they are really nice, and even though I didn't think they were me at the start, but once I started wearing them cause I wanted to fill in the diary but I got into a real pattern and I really liked them .

- B7: That was the same with me! I didn't think it was be to begin, but then once I wore it I actually really liked it. Cause you know when it's something your not used to.
- B4: Yea it's just changing your usual style a bit isn't it
- B7: Yea and then I was like actually this feels really nice on and it's a nice thing to wear, cause you don't buy it yourself I guess
- I: Yea its really interesting to hear actually, a lot of people of said actually do you know what I probably wouldn't of worn it that much, but when they do they start liking it more
- B4: Yea but I did really like the trousers its not that I didn't
- B3: A lot of my trousers at the moment are quite high waisted so it didn't always sit well with, you know if you've got especially
- B4: Well your quite tall as well aren't you
- B3: Yea ish I guess yea, sort of medium, but I don't know, I 've got some trousers that are fitted at the waist and then bellow out slightly so then you can't really wear something that baggy so then you have the bellowed out bit here and it just looks, you loose any definition of the outfit, so but no, I guess it's more to wear with jeans. I wore it with a skirt a bit too actually. Like a little cotton mini skirt.
- I: Okay, and when you were thinking about the diaries and filling in when you used and washed the garments did it make you more conscious of when you wore the dress or trousers or top you were comparing it to in any way at all?
- B4: I felt because I didn't really have a pair of trousers just like them and the only closet thing, do you remember because I photographed them were the black

cotton trousers to but they were so different to these trousers, I wore them for similar things, but they were difficult to compare cause those ones I would of washed nearly every time I wore them really

I: Yea okay

B3: I was probably a bit like that. Similarly the top I was comparing it to I really wouldn't wash very much either, but I was probably a bit more like, well it was one I got in a charity shop so I didn't feel quite so conscious about washing it carefully. I was a bit more like, ah well it doesn't matter so much, if I shrink it it's not so important, just one of those things, do you know what I mean?

B4: At least if it's a wool jumper its something to compare that's more similar, but I suppose if you feel differently and treating them differently

B3: Yea it was sort of like an aran jumper

B7: I definitely treated them really differently. The other one is one I would just wear a lot, throw in the wash, throw on the floor. Yea were as I wouldn't of done that with this one so they were quite different. My other one is more like cotton, it's just a completely different material.

I: So the cotton one that you were comparing it to, would you wear that three or four times before you washed it, or was that more...

B7: No because it was more clingy and it felt like it got dirty, like when I wear it out dancing so it gets more smelly, do you know what I mean, so then I probably wash it straight away. But also it had different sleeves, it was tight under the arm, wear as this one isn't so that affects how much I would wash something as well

B6: The garment I compared this to I kind of swapped from my apron to my tunic, that is actually dry clean only and its wool and I haven't washed that either so I guess I have treated them the same. Because if I got anything on it like food I would just kind of sort it out, I wouldn't go to the dry cleaners

I: Okay, the last question that I wanted to ask you is, being part of the laundry study and me as sending you the diaries to start with and follow ups, has that in any increased your awareness of how you use and wash your clothes or not?

B6: I think this has more,

B7: Yea

B4: Yea

B3: Yea

B6: Just meeting other people actually and hearing about, you know what other people do

B3: I don't think I wash my clothes excessively. I used to perhaps, I think, when I lived at home and wasn't doing the washing I probably would of almost put stuff in the wash to tidy up my bedroom, just like argh I can't really be bothered to invest too much into tidying so I'd just shove that in the wash when I was in my mid teens or whatever, were as now I'd be much more like no that's alright I'll fold that up and put it back in the cupboard or whatever. You know because otherwise, well I'm quite lucky that my kids wear school uniform which I was really upset about to begin with but actually it's great because if they don't get it mucky I just spot wipe it and some weeks they'll wear the same jumper for the whole week 'cause it doesn't smell and because its uniform you don't, no one knows you are sending them in in the same jumper because they all look the

same anyway, whereas if they were wearing normal clothes you'd feel a bit like ah she's worn that for two days on the trot it looks a bit bad. Oh that sounds bad but...

- I: No no no, it's really interesting most people don't like the idea of people seeing them in the same clothes on consecutive days
- B4: And I even taught some people last Tuesday, and I'm teaching them this Tuesday and I'm thinking what did I wear last Tuesday because they might be like, last time I saw her she was wearing that so it might not even be just the next day, it could be a certain group of people
- B3: But it also depends, like I'm living in this cardigan at the moment but its more a throw over one so I don't feel so conscious about this sort of garment it just sort of
- B4: Yea Yea, it's more like a jacket or a coat
- B3: Yea and I can wear it with a skirt or you know whatever
- I: So do you think some clothes are more okay to wear more often than others, in terms of you wouldn't mind so much if somebody saw you wearing a particular skirt or coat, but if its an under garment or something closer to the skin that's...
- B3: I suppose it's just like that thing, you wouldn't want someone to think oh s he's wearing the same thing again, does she not wash any of her clothes ever
- B4: Yea its mad though because I have a skirt that I hardly ever wash but I'd still never wear it the day after cause it would look bad
- I: but how would it make you feel, or what's that emotion that prompts you to say, ah I wouldn't wear it or I need to change it?
- B4: That's a society thing

I: Is it embarrassment?

B3: I think so yea, or like living up to a certain standard

B4: Yea that you don't wear the same thing the next day and that's probably how we've all been bought up as well

B3: I would wear things a couple of days quite happily but yea I suppose as you say you think, yea if I wore that last week to that place then you want to wear something a bit different

I: So it's more to do with social norms?

B3: Yea but it's also that I enjoy dressing and I like clothes so it's nice just changing your clothes around and things like that

B6: Do you think notice what other people wear, do you think, well maybe if I wear this again tomorrow Lisa you might be like so you're wearing that again

[laughs]

B4: I was just about to joke about that [laughs]

B7: I would never notice if someone was wearing the same things

B3: I wouldn't really but then I had one friend that just always seemed to wear the same top and it was nice but it was like wow you do always wear that same top, it was like a loose North Face top

B4: I think it depends what the person is wearing, 'cause I suppose someone like Dave at work, you know the blokes just wear trousers and shirts, but I don't really notice, unless he's got a tie on, he wears his bright ties and he has got a lovely pink tie, well then I know he has a pink tie on, but the rest of the time I couldn't tell you what he is wearing. Um, but then other people might have something I might like and I'd say ah, you know if it's a top then I will notice that

the next day if there is something you like. If you wore your red time next time I saw you I'd remember that because we've been talking about the red top.

B7: I wouldn't notice, well I notice if, probably the only time when I really feel like I should wear something different is if I'm going out. Like I would happily wear the same, well I might change the top or the trousers at some point but otherwise I'm not really that bothered. But if I'm going out like next Saturday then I wouldn't wear what I wore last Saturday night.

B4: Yea

B7: And I would probably notice if someone was wearing the same dress maybe. But I wouldn't on like day-to-day basis think oh you're wearing the same skirt.

I: And if you did see someone wearing the same thing, like your friend you said Rachel, what perhaps you might be frightened of people noticing as you notice?

B3: I think there is part of me that wonders well why do you do that because as I say I quite enjoy wearing something, I guess I would get bored and feel a bit u-r-g-h if I wore the same thing for too many days. It's just about reinventing yourself after a few days and wearing something different

B7: There's such a pressure though, 'cause I hate shopping, I really hate shopping and I don't go shopping really and I couldn't facilitate having that many clothes that I could always look that different. If I find something that I like and I do feel comfortable then I really enjoy wearing it again, because then you know you look alright, you know what I mean? Sometimes wearing a new thing can make you really self-conscious. It's quite a pressure [laughs]

B3: I hate shopping in main stream shops but I do love charity shops. I'm lucky I live near quite a lot so I do just, you know if I'm walking to a bus stop I'll just nip into

a few on route, so I do have a lot of clothes but I don't spend a lot of money on them and if I go to Cabot Circus then it would start to make me feel anxious and I'd be looking at the prices and thinking you I can only buy one thing. I don't know, it doesn't feel as good to just go in and spend quite a lot of money on one item, when you could get a whole outfit, you know if you go to a few charity shops and buy bits and bobs.

B4: Well yea you can go to a charity shop and get something really good for ten or fifteen quid couldn't you, if your paying that then it would be a good label a lot of the time

B3: Yea

B4: I love that as well, and I love TK Maxx

B3: Yea

B7: I like clothes swaps 'cause then you get your friends clothes and you know you really like it. I've got five older sisters so I've always had hand-me-downs so that feels a lot more natural, something you've liked for ages and then you finally get to wear it [laughs]

B3: I quite often buy stuff, if I see something in a charity shop that I like but it doesn't fit me, then I take it in, or you know you just rework it a little bit and then it's mine and I get a really strong feeling of, or sense of satisfaction from doing that whereas if I just go and buy something then I don't

B4: Well also I think there are so many shops that just don't really impress me actually and they all look so much the same so your thing for not liking shopping I can really understand when its like...

B7: The thing is I don't even want things

- B4: And all the high street shops are all doing the same thing and really rubbish quality. But I wonder if that's getting older as well that you just look at quality more or if things are becoming poorer quality
- B3: But I do sometimes buy stuff in Primark, partly on the basis that the quality, if you are selective, isn't always worse than TopShop or H&M
- B4: Yea I know
- B3: But I perhaps look at the label to see what something is made of, that's the sort of thing I often do, and if it's, you know if it's viscose then I probably wouldn't buy it but if it's cotton then I might think oh actually I do quite like that
- B4: And for basic vest tops, or you know socks and things like that I would buy from there
- B3: Actually Primark is quite good for, it does sell a lot of natural fibres, as I say if you are selective, there is obviously lots of hideous stuff
- B7: If I could teach myself to tailor my clothes, or do what you do I would be much more likely to buy more clothes than I do
- B4: And what would you like to change about them?
- B7: Like the shape probably, 'cause often clothes just don't quite fit. It might be something really basic
- B4: Would you like to do that would you?
- B7: I'd love to
- B4: Well I'll have to give you my number as I have a workshop down in town and we are going to do classes in it
- B7: Oh cool, excellent, yea that would be great
- B4: Next year

- B7: Because it's nice if you see something you really like and you can just make it work, I just know that I won't and that's what really stops me
- B4: I buy things from charity shops, but never think about changing them really
- B3: You know sometimes when you have ideas in your head about, I have things that I'm slightly on the look out for and then if I see them, like I have this high waisted mustard pencil skirt that I love and it was two sizes too big, but it had a really nice belt, like vintage M&S and it's got kind of a 'V' here and I really like it, so I tried it on and I thought oh it's way too big but I held it in to try and work out what it would look like and now it's just really nice cause I changed it
- B7: Yea and something you actually really want you're not just...
- B3: It was definitely worth the effort because it was quite a quirky item, I guess if it was a bit more run of the mill I would wonder if it was really worth the effort
- B7: But even stuff like jeans, I only have one pair of jeans because I can never find any that fit me and then I buy them, and I think I'll just make them work even if they are too long or too big or too whatever and then I can't so I take them to the charity shop and I still only have one pair of jean [laughs] 'cause I just can't find any that fit me
- I: Yes I have about eight pairs of jeans, but I only wear two of them. I might buy new jeans every two or three years but then never end up wearing them and they just go into my jeans pile
- B7: And then they break! My one pair breaks and like my trainers, I only have one pair of trainers and they break as well!
- I: [laughs] Okay well I'll turn the recorder off now as the laundry discussion has finished.

Appendix 8 Research collection form



GARMENT ELECTIONS OFFICIAL POLL CARD

POLLING DAY SUNDAY 22ND SEPTEMBER 2013



Number on Register: 00125845

Instructions: for each garment please state how many times you would wear it before washing and how you would launder it, including drying or ironing. Please provide a brief explanation for your chosen laundry method.

| Garment number | Wears between wash | Laundry method | Please explain briefly why |
|----------------|--------------------|----------------|----------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |

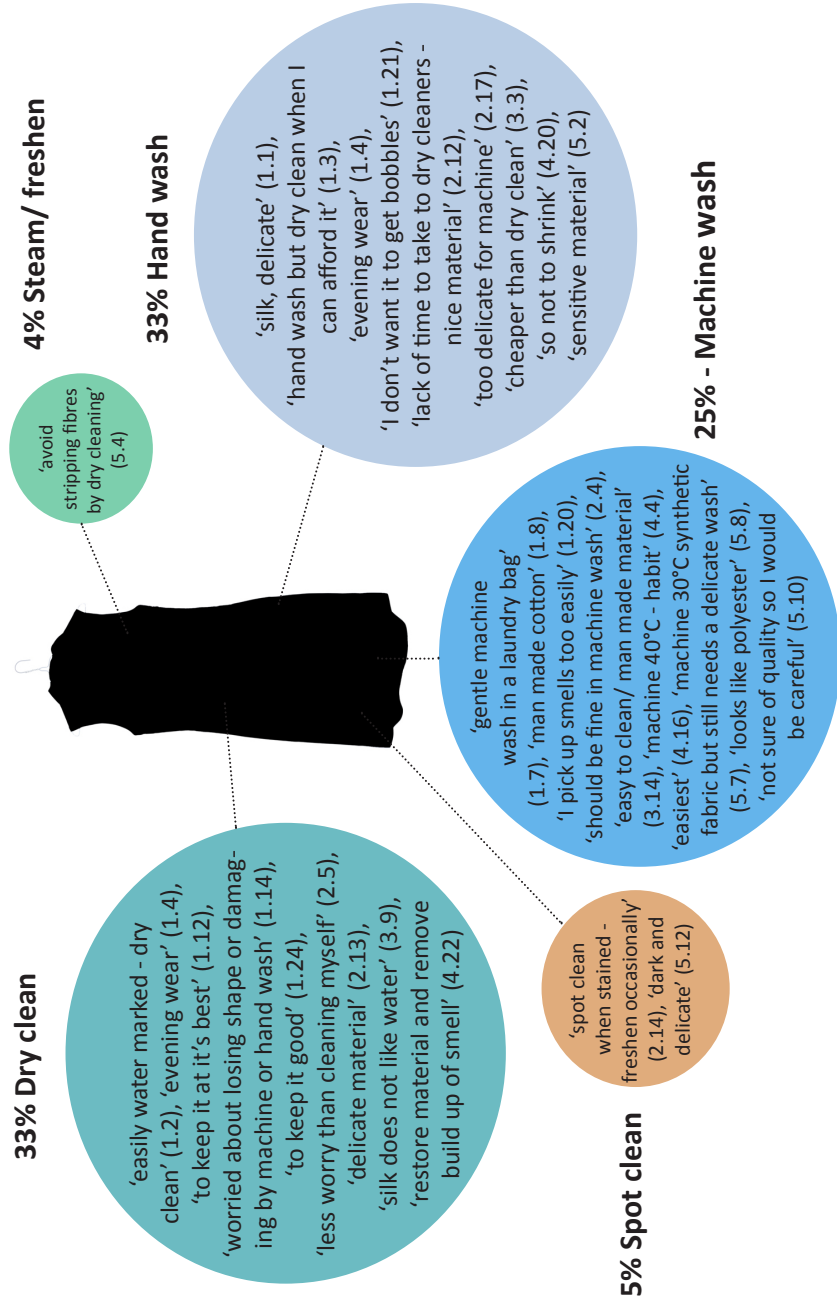
Appendix 9 Laundry perception polling visualisations

Black dress (DR)

Garment description: three quarter length dress. Fitted with an invisible side zip. Black with navy blue lining.

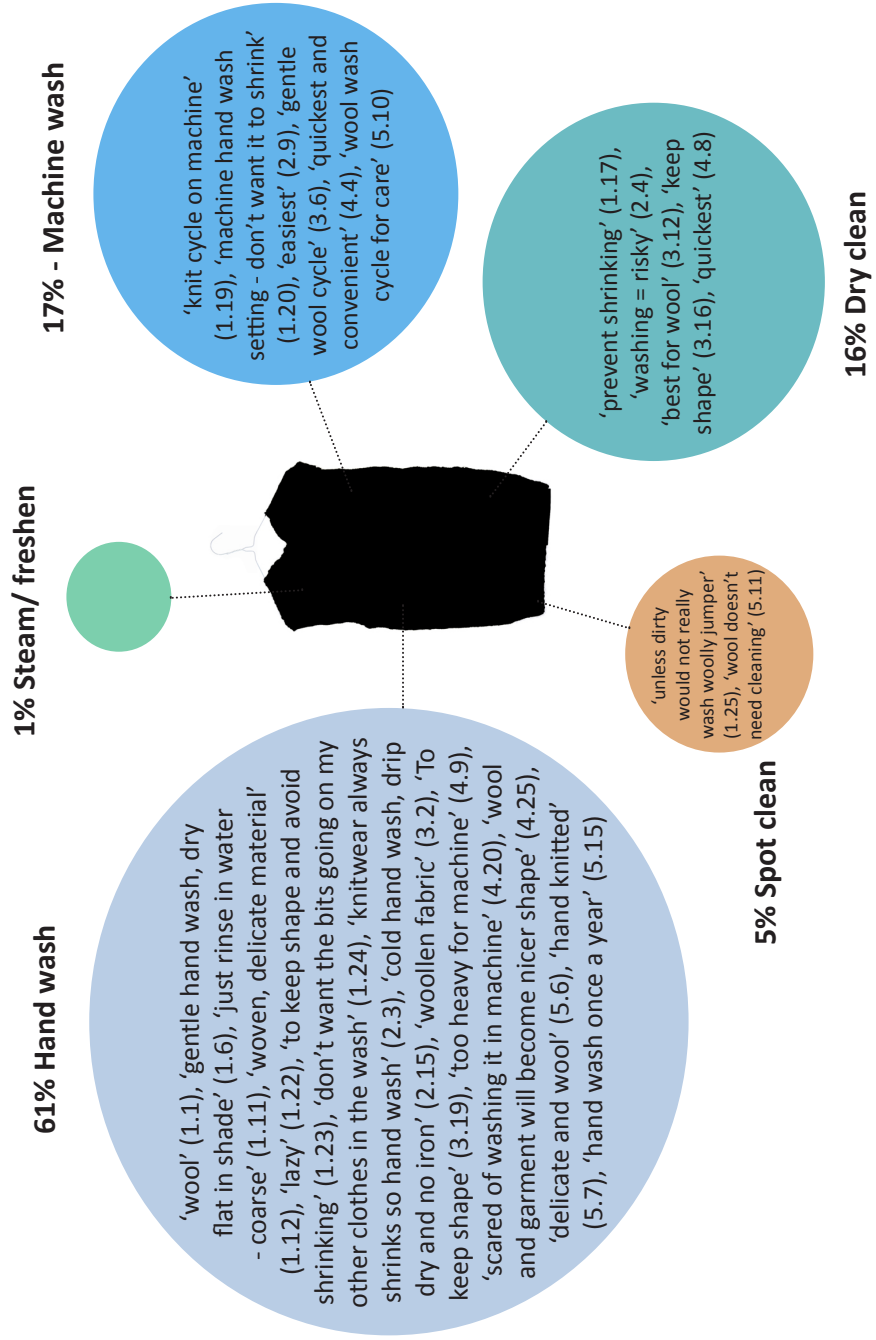
Material: duchess royal satin, 100% silk, 100 g/m², lining 100% silk habotai, neck webbing 100% cotton.

Average wears between wash: 3 (high: 12, low: 1)



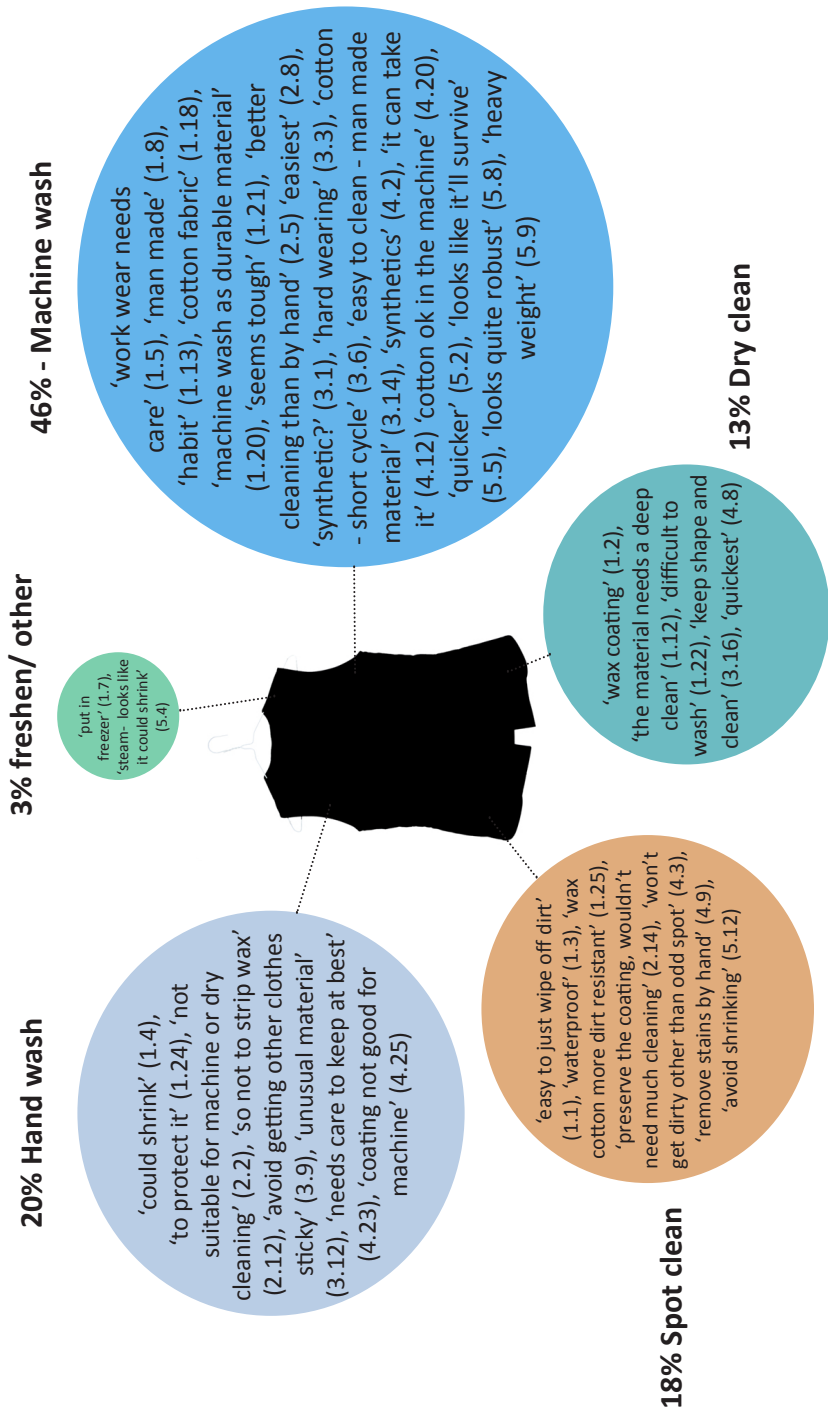
Hand knit tunic (HK)

Garment description: chunky hand knit sleeveless tunic, natural colour
 Material: 100% wool, 100 g/m², 32 microns
 Average wears between wash: 10 (high: 100, low: 1)



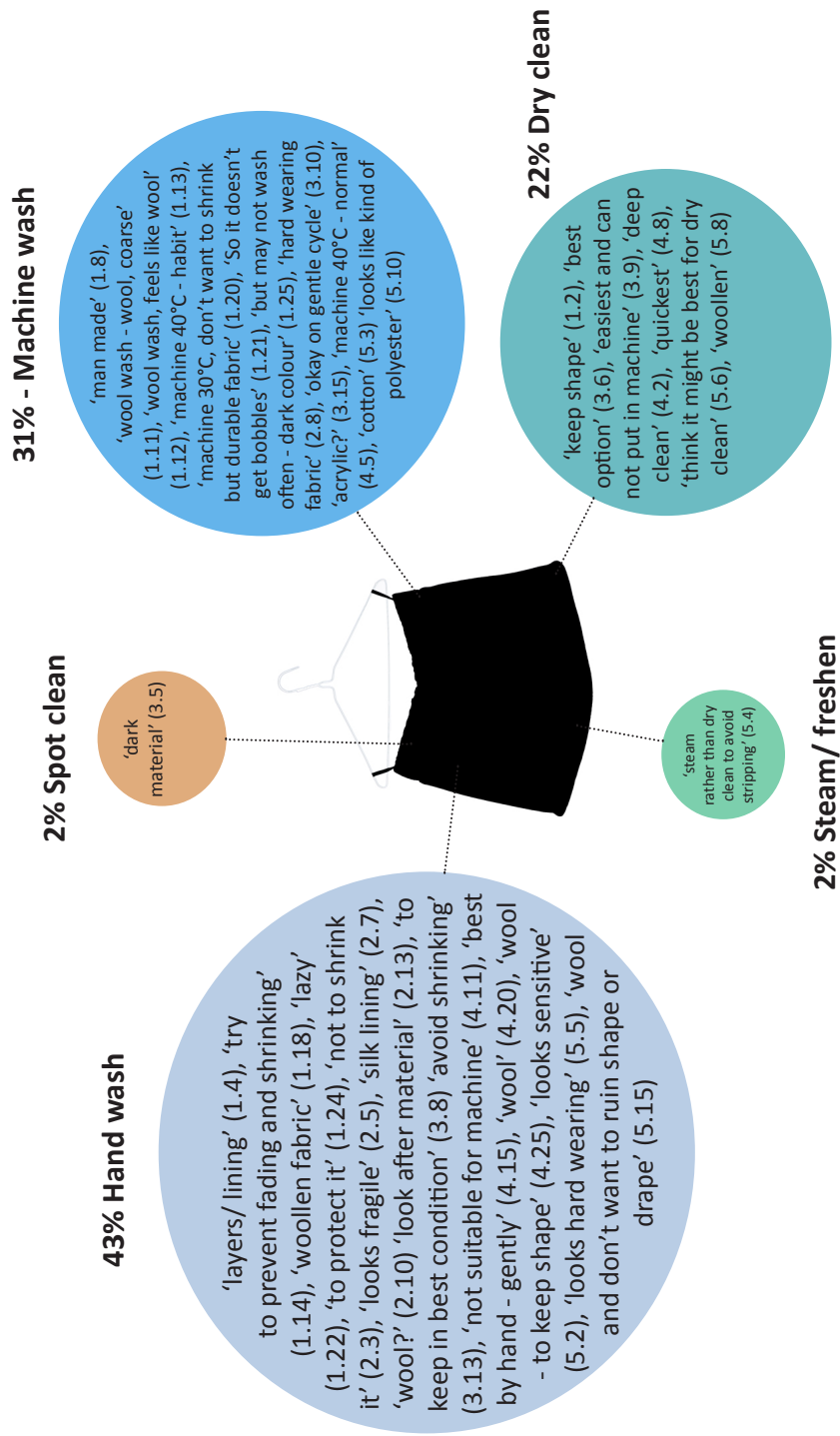
Navy Shirt (SH)

Garment description: sleeveless shirt with invisible centre front button wrap, navy blue
Material: 6 oz organic cotton, wax finish, 270 g/m², 70% cotton, 30% wax
Average wears between wash: 7 (high: 50, low: 1)



Black skirt (BS)

Garment description: mini skirt with elastic waistband, black with navy blue lining
Material: 100% wool tweed, 360 m/m², lining 100% silk habotai, pocket bag 100% cotton
Average wears between wash: 7 (high: 30, low: 1)



Jersey top (ME)

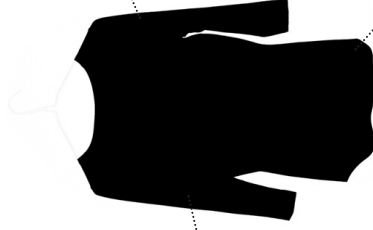
Garment description: ultra fine jersey top with invisible flat seam finish and three quarter length sleeves, natural colour
Material: 100% merino wool, 17.5 microns, jersey 180 g/m²
Average wears between wash: 3 (high: 30, low: 1)

28% Hand wash

‘cotton and white dirty quickly’ (1.4), ‘normal 30°C/ 40°C cycle’ (1.5), ‘man made fibre’ (1.8), ‘wool wash, white’ (1.11), ‘white wash, avoid damaging shape’ (1.12), ‘machine 40 °C - habit’ (1.13), ‘machine 30 °C, don’t want to shrink/ pick up smells’ (1.20), ‘everyday top’ (1.22), ‘30°C easy to wash’ (1.24), ‘close to body, pale colour shows dirt’ (1.25), ‘to remove smells’ (2.1), ‘cotton okay’ (2.4), ‘gentle wool cycle’ (2.5), ‘easiest’ (2.9), ‘jersey’ (2.13), ‘regular machine wash garment’ (2.16), ‘cotton’ (3.1) ‘machine wool wash’ (3.17), ‘quick and convenient’ (4.4), ‘normal’ (4.16), ‘okay in machine’ (4.20), ‘machine wool’ (4.25), ‘machine 40°C - white’ (5.3), ‘looks a bit like wool/ cotton mix’ (5.8), ‘cotton, durable’ (5.24)

67% - Machine wash

‘close to body/ wash carefully’ (1.1), ‘wool - delicate’ (1.3), ‘cold hand wash’ (1.7), ‘light colour and woollen fabric’ (1.18), ‘keep shape’ (2.6), ‘delicate and soft’ (3.3) ‘wool’ (3.9), ‘needs gentle clean’ (3.12), ‘fragile material’ (4.1), ‘not suitable for machine’ (4.11), ‘looks like it could shrink’ (5.2), ‘delicate’ (5.4)

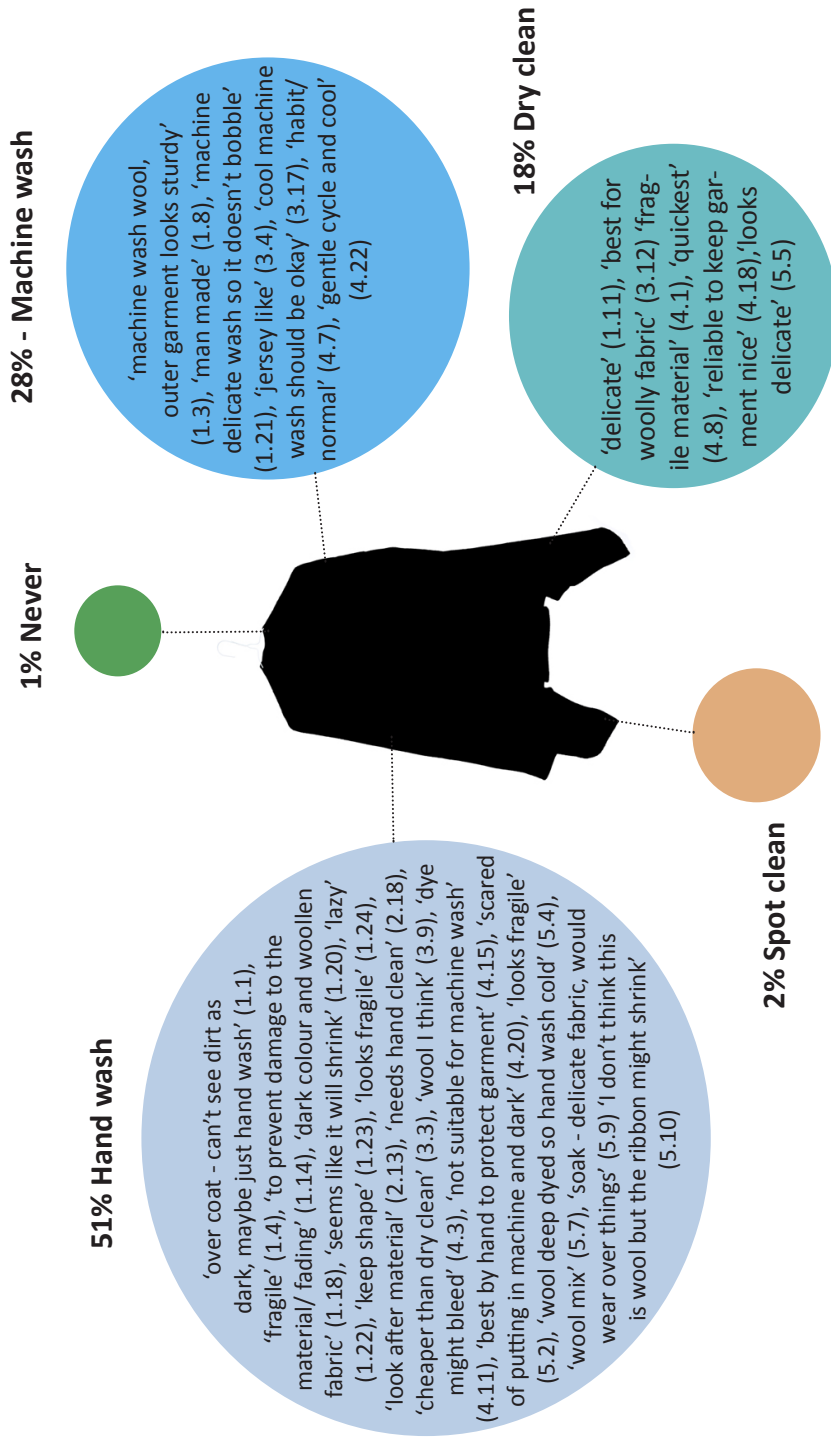


‘to keep shape’ (3.16)
‘quick and best’ (4.8),
‘delicate’ (4.23)

5% Dry clean

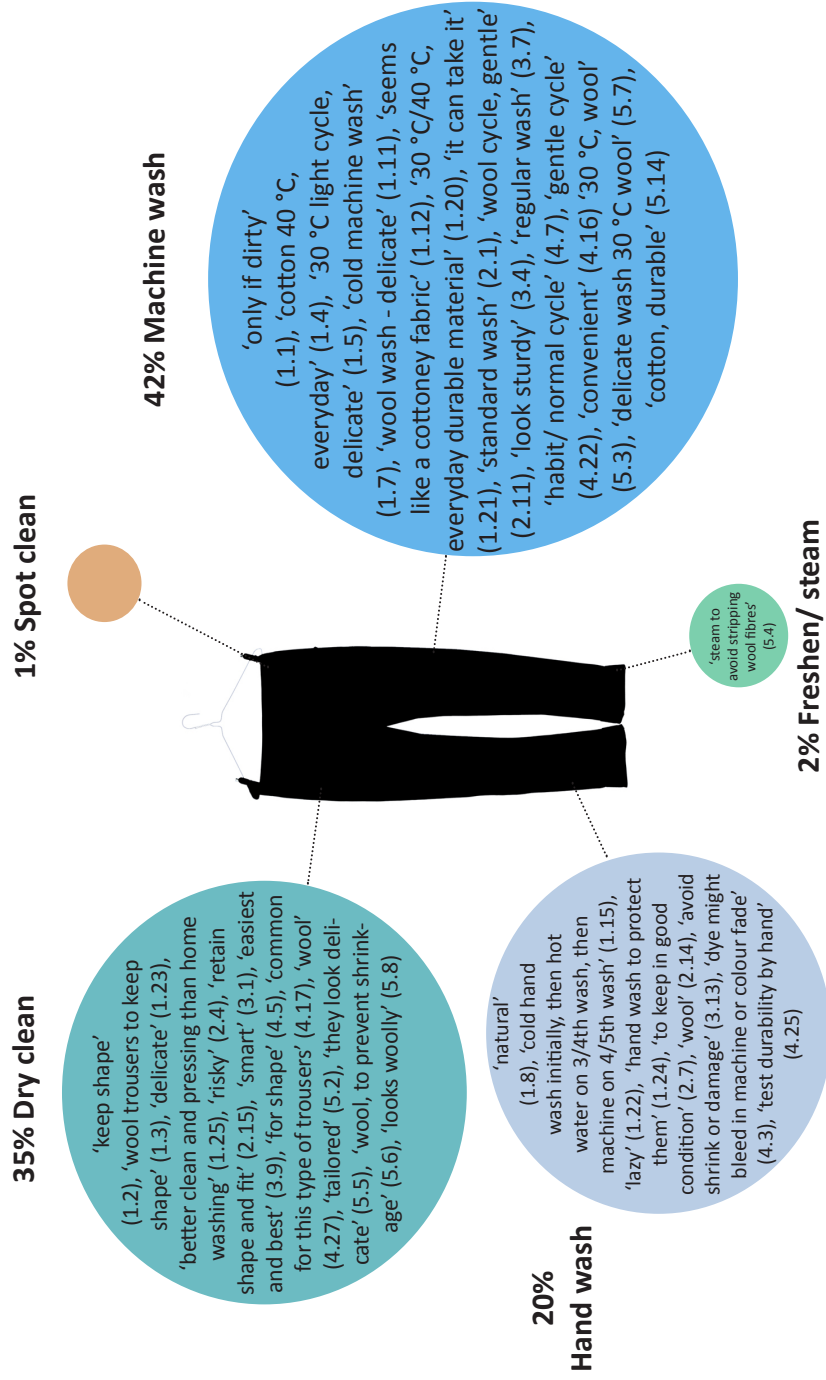
Navy cardigan wrap (CA)

Garment description: loose fit wrap around cardigan, navy blue with black ribbon trim
Material: 70% boiled wool, 30% polyester, 160 g/m², neck trim and ribbon 100% duchess royal satin, 100% silk 100 g/m²
Average wears between wash: 9 (high: 100, low: 2)



Navy trousers (TR)

Garment description: smart/ casual semi tailored trousers with low waist and drop crotch, navy blue
 Material: 100% merino wool serge, lightly brushed, 300 g/m², lining 100% silk habotai, pocket bags 100% cotton
 Average wears between wash: 5 (high: 20, low: 1)



Wax apron (AP)

Garment description: pinafore apron with single jet pocket at hip, navy blue with black webbing straps and hem trim
Material: 6 oz organic cotton, wax finish, 270 g/m², 70% cotton, 30% wax
Average wears between wash: 12 (high: 100, low: 0)

