e-Co-Textile Design: How can textile design and making, combined with social media tools, achieve a more sustainable fast fashion future?

Jennifer Ballie

Abstract

e-Co-Textile Design: How can textile design and making, combined with social media tools, achieve a more sustainable fast fashion future?

This research acknowledges that the convenience of fast fashion has shifted dependence on skills such as dressmaking, repairing and altering, passed from one generation to the next. Because of the accessible and affordable nature of mass manufacture the consumer is becoming less active within the design, production and maintenance of their clothing. This research proposes to up-skill consumers and intercepts their flow of fast fashion consumption using textile design interventions. These explore how textile design processes can be combined with social media tools to support a renaissance of making through four different concepts to empower consumer participation.

The Textile Design Interventions demonstrate accessible processes of making and aim to broaden engagement. The democratic ethos of the interventions also enables agency to evolve beyond orchestrated interactions. Through evaluating the process of designing, developing and demonstrating textile design interventions a new proposition emerged titled 'e-Co-Textile Design'. This model demonstrates how social and digital media can provide a vehicle for textile designers to facilitate participatory experiences.

Fast fashion, both in terms of the product and activity, challenges the concept of sustainability. This research positions textile design interventions from outside the fashion system as a means of achieving more sustainable consumer activity, through longer-term consideration and connectivity toward fast fashion purchases. This is achieved by making accessible newfound skills and resources via social media. Future research requires a longitudinal study to evaluate the impact from the consumer's perspective.

Acknowledgements

TABLE OF CONTENTS

TABLE OF FIGURES

CHAPTER 1: Introduction

1.1 Personal Statement

My design journey began in textile design practice, but was transformed by undertaking a Master's Degree in Design. For me, a new awareness emerged out of the need to consider how design could trigger positive, not negative impacts on people and the environment. As a result, my attitude to the design process began to change and became centered on collaboration. Throughout my Masters Degree I developed a range of co-design processes to enable individuals to personalise their clothing. This work questioned both my own and the participants' relationship with fast fashion to address sustainability. Through developing an understanding of co-design as a method, I began to design and deliver workshops to engage individuals with the textile design process. I became aware that the issues raised by demystifying the design process were considerable; the experience of working with individuals allowed me to develop a deeper understanding of their needs, desires, aspirations and perceptions. Expanding upon my background experience of textile design, combined with design facilitation skills, I felt I had a contribution to make. I found I had a particular location - centered around my practice - a position that differed from that of other people designing and conceiving textiles for individuals. Through working directly with people I could ask them questions, develop a deeper insight and tailor the design process to go beyond crafting beautiful products; to develop new design interactions and experiences.

Following my Masters research, I was successfully awarded a UAL cross college PhD scholarship through the Neal's Yard Award supported by the Textile Futures Research Centre. Throughout this research I have continued to refine my role as a designer through an ongoing designerly process (Cross, 2011) to embrace further hybridity by engaging with theory, method and practice connected to and outside of my field of study. To expand upon my role as a design facilitator I attended a facilitation training course in Cambridge, ran by Idenk (2010). I also participated within textile making workshops facilitated by Dr Emma Neuberg (2010) and textile design thinking and making workshops by Professor Rebecca Earley (2010). Additionally, a desk space within the Textiles Environment Design (TED) research office at Chelsea College of Arts allowed me to observe the research team's strategic application of applied design through practice-based research.

Within this research, I expanded upon my background of textile design to develop inclusive approaches for fast fashion consumers to engage with textile design and making. Creativity is no longer reserved for professional designers. Social media tools and applications are influencing a new renaissance around making. Furthermore, I believe it is important for designers to engage with the potential of digital technologies, as many currently argue, including Wallace (2007), that such

materials can be an extension of a maker's palette. The development of social media tools, app's and tablet interfaces have broadened the range of this palette and have provided a space for me as a design facilitator to engage people in a low cost and accessible format. The design and development of each intervention included three key aspects: a textile design and making process; a physical resource; and online space. Throughout each stage of my research I used social media tools to assemble a network of participants, peers and mentors to support my practice. Maintaining a blog, which reviewed participatory design within the context of fashion and textiles, enhanced this. As the research evolved I designed and developed a personalised social media presence for each project. I also participated in external projects such as a crowdsourced fashion competition. I have continued to contribute to challenges on OpenIDEO, and as a result I was shortlisted to participate within their London Make-a-thon (2013).

Throughout this research, I focused on initiating collaborations with Generation Y a demographic (born between 1977 - 2001) that are known as the first to be digitally 'savvy' through growing up with all forms of digital media. This demographic has been identified as the largest and most influential fast fashion consumer group (Galloway, 2011). They also demonstrate an appetite for participatory fashion experiences through their online activity. Being part of this generation I felt I could relate to the challenges and opportunities they encounter.

Through personal reflection and the application of an 'action research methodology', I expanded upon my design skills. By maintaining a series of journals I applied auto-ethnography to document my personal encounters as I re-evaluated my role as a designer. Throughout this research journey I have been challenged and as a result have gained unexpected insights, and also by accepting every possible opportunity to share my practice. The skills, methods and techniques required to support this way of working were often exploratory and experimental. They could not be referenced within a textbook and could only emerge through practice. I have been lucky enough to meet a group of different mentors throughout my journey who have generously provided support and shared their own personal experiences to assist in this 'off road' project.

1.2 Design Facilitation & Sustainability

The myth of the creative genius is waning and we are progressing from the era of the star designer towards the era of participatory culture (Nussbaum, 2013). As a result, the role of the professional designer is becoming more inclusive within design practice by adopting a facilitator role. Throughout this research, the researcher strategically adopted sustainable design strategies to support design facilitation. Shedroff (2011) argues that designers can begin to influence sustainability through applying one sustainable design strategy at a time, and overtime more strategies can be expanded

upon to address more issues. Existing sustainable design strategies are available to support the sustainable design principals of reducing, reusing, recycling and restoring. For example, 'TED's TEN' (2010-14) developed by Textiles Environment Design (TED) to promote sustainable design strategies through design thinking using a method card toolkit. These sustainable design strategies have been argued as a valuable starting point within the design of products, services, online experiences, events or environments.

Thackara (2013) argues that design for sustainability is not about designers telling people how to live, it requires a process of co-creation by providing tools and enabling platforms that make it easier for people to share resources. He continues to state that designers are learning that co-creation, rather than individual authorship, is becoming a more effective way to understand and meet social needs and new tools and platforms are becoming more effective than finished artifacts. This is part of a transmaterialisation, where new product service systems (PSS) are emerging around existing products. Throughout this thesis, the researcher adopted a design facilitator role to challenge the passive nature of fast fashion consumption. This practice-led research expands upon the design researchers' background knowledge of textile design and making, to identify more inclusive approaches in an attempt to challenge the status quo of fast fashion by demonstrating new ways of working - ones that can be further amplified by the use of social media. Manzini (2009) claims that designers have the capacity to act as social innovators by becoming agents of change. This requires moving beyond their specialist expertise to catalyse positive social and environmental action. The work of Fletcher (2008) expands upon this further by positioning the designer as a street level collaborative practical facilitator. This involves orchestrating new action spaces to support social change by creating the opportunity for people to work together collaboratively.

However, in order to enable new participatory actions between new agents and actors, new skills, tools and methods are required. This research argues that the design facilitator also requires a framework to support sustainability by reflecting on their actions and measuring the impact to identify the significance and highlight any future implications.

1.3 Research Question, Aims & Objectives

1.3.1 Research Title

e-Co-Textile Design: How can textile design and making, combined with social media tools, achieve a more sustainable fast fashion future?

1.3.2 Aims

• To extend the boundaries of textile design by developing an inclusive approach through making which enables agency and involvement to promote sustainability.

• To develop a hybrid methodology by combining textile design and making with social media tools to support a new role of design facilitation.

• To identify the value of textile design as a tool to establish more meaningful connections between people, materials and processes towards achieving a more sustainable fast fashion future.

1.3.3 Objectives

1. To map consumer participation through a literature and practice review of the participatory design landscape within the context of fashion and textile design.

2. To establish the effect of a design facilitation role as a means of broadening the experience of the fast fashion consumer participation through inclusive textile design and making processes.

3. To propose creative strategies for designing and developing textile design interventions to produce a body of work that supports fast fashion consumer engagement and develops new paradigms for fast fashion with regard to sustainability.

1.4 Thesis Design

This thesis adopts a designerly approach through practice based research by prototyping participatory consumer interactions. Kolko (2011) argues that the materiality of these interactions are typically influenced by people, behaviour and attitudes, therefore they all form tacit knowledge through interpretative exercises. He continues to highlight that this demands constant interaction with people, through "facilitation, conversation and immersion, constant reflection on psychology and sociology and a process of reflection in action, in order to consider why individuals respond they way they do" (Kolko, 2011:95). Through the exploratory method of *design interventions*, the researcher looked for factors that contributed to unsustainable fashion consumption and tried to shift or influence them. It is worth acknowledging that there are constraints to consider when designing and developing interventions: these include physical and financial resources; and access to materials, skills and support. The researcher applied a methodical and often exhaustive form of craftsmanship to develop new approaches to enable consumer participation, success was thus achieved through informed trial and error. These approaches were empathetic and reflective to capture an intimate view of the aspirations and emotions of fast fashion consumers. This research practice has been directed and driven by a continued designerly process, "I don't think you can design anything just by absorbing information and then hoping to synthesis it into a solution. What you need to know about a problem only becomes apparent as you're trying to solve it." (Cross, 2011.81).

Through practice the researcher found it was important to engage with the potential of digital technologies through combining social media tools with textile design and making. As a result new opportunity spaces emerged for the researcher and design facilitator to broaden the remit of the research practice.

This research acknowledges that the current practice of fast fashion design, production and consumption is unsustainable. This can be defined as a complex and wicked problem and cannot be resolved through a complete or straightforward solution. The researcher draws upon a textile design background to identify, design and develop inclusive processes to enable fast fashion consumers to encounter an alternative experience. Through active engagement within participatory processes, these individuals began to consider the environmental impact of their fast fashion consumption. This was achieved through the textile design interventions, an exploratory research method developed to demonstrate new forms of practice whilst provoking consumer behaviour change.

This thesis includes four action research projects with each applying the *textile design intervention method*. The practice of textile design and making was shared throughout each intervention but the techniques vary and collectively the interventions can be combined to present a varied portfolio of inclusive packages. Different concepts were applied to encourage fast fashion consumers to

reconnect with their existing wardrobe through newfound skills and resources. Through design facilitation, the researcher continuously redefined their own practice by identifying existing applicable methods, resources and tools or developing new ones. The interventions demonstrate how a textile or fashion designer might adopt an inclusive approach to broaden the remit of their own practice. This research has culminated in a body of work, both physical and conceptual. The results have relevance for both design and theory with regard to the role of the design facilitator, and the participatory fast fashion consumer. The complete process has been documented with feedback mechanisms embedded into the research process to observe interaction and reflect critically on the process, final outcomes and overall experience.

1.5 Synopsis of Chapters

e-Co-Textile Design: How can textile design and making, combined with social media tools, achieve a more sustainable fast fashion future?

APPENDIXES

APPENDIX A
CO-EVERYTHING

APPENDIX B
DESIGN FACILITATION TOOLKIT

APPENDIX C
TEXTILE DESIGN INTERVENTION 1

APPENDIX D
TEXTILE DESIGN INTERVENTION 2

APPENDIX E
TEXTILE DESIGN INTERVENTION 3

APPENDIX F
TEXTILE DESIGN INTERVENTION 4

APPENDIX G
PUBLISHED PAPERS

CONTENT

PART ONE

CHAPTER ONE
INTRODUCTION

CHAPTER TWO
THE FAST FASHION SYSTEM

CHAPTER THREE
PARTICIPATORY CONSUMER CULTURE

CHAPTER FOUR
RESEARCH METHODOLOGY

PART TWO

CHAPTER FIVE
TEXTILE DESIGN INTERVENTION 1

CHAPTER SIX
TEXTILE DESIGN INTERVENTION 2

CHAPTER SEVEN
TEXTILE DESIGN INTERVENTION 3

PART THREE

CHAPTER EIGHT
TEXTILE DESIGN INTERVENTION 4

CHAPTER NINE
CONCLUSION

RESEARCH OBJECTIVES

To map consumer participation through literature review of the participatory design landscape within the context of fashion and textile design

To explore the effect of a design facilitation role as a means of broadening the experience of the fast fashion consumer in their participation of inclusive textile design and making processes

To propose creative strategies for designing and developing textile design interventions to produce a body of work that supports fast fashion consumer engagement and develops new paradigms for fast fashion with regards to sustainability

RESEARCH AIMS

To extend the boundaries of textile design to develop an inclusive approach through making which enables agency and involvement to promote sustainability

To develop a hybrid methodology by combining textile design and making with social media tools to support a new role of design facilitation

To identify the value of textile design as a tool to establish more meaningful connections between people, materials and processes to achieve a more sustainable fast fashion future

Figure 1 Thesis Content Map

This thesis has been put together in three parts, illustrated within *Figure 1 Thesis Content Map*. Part one includes an introduction and provides a contextual review of the fast fashion system and participatory consumer culture. The purpose of this review was to identify gaps within existing literature and design practice, which this research endeavored to address. The first part also includes Chapter 4 - the theoretical development of an action research methodology. This chapter identifies the core research methods and conceptualises a toolkit to support design facilitation, design and implementation, orchestration and facilitation of each iterative cycle of action research. The design facilitation toolkit has been developed during the progress of the research. The final output is shared and documented within *Appendix B Design Facilitators Toolkit to Support Participation.*

Part two of this thesis expands upon each theory and references key literature to provide a context, position and grounding for each Textile Design Intervention. The second part of this thesis documents the research and development of three Textile Design Interventions written up (in chapters 5, 6 and 7) and formatted through a template. Each intervention applies a different approach expanding upon the sustainable design strategies identified within Chapter 2: Participatory Consumer Culture. A template has been designed and developed to document participant recruitment and participation, and outlines where and when each workshop took place. The design and delivery is documented to highlight the textile design and making process, and which social media tools were integrated. Each iterative cycle of action research has been documented and this has been further expanded upon within the design and implementation section of each of these chapters. These chapters also include an evaluation of each of the interventions, reflecting upon design facilitation, consumer participation and the overall approach to share new insights. Each chapter concludes by identifying a future direction for achieving a more sustainable future for fast fashion. Further information documenting feedback from each intervention is documented within Appendix C, D and E.

Part three of this thesis introduces a new model titled 'e-Co-Textile Design' shared within *Appendix F*. This model has been applied to support the design and development of a final *textile design intervention*. This thesis discusses the potential of combining textile design and making with existing social media tools to pilot interventions outside the current fashion system. The final intervention conceptualises an app for a new social media tool that demonstrates the value of digital craft and explore a new form of materiality.

CHAPTER TWO: Fast Fashion System

2.1 Introduction

Influencing consumption patterns towards environmental and social sustainability is a complex and wicked problem, one of the most pressing issues of our time (Fricke & Schrader, 2012). However, economic changes bound up with globalisation are increasing pressures for designers and industry experts to re-think current models of design and production. Sustainable development requires change, not only within production systems but also concerning consumption patterns (Perrels, Adriaan, Himanen, Veil. Lee-Gosselin, 2008). To attain sustainable improvements in the relationship between production and consumption a radical new mindset among designers, manufacturers and consumers is essential in order to find more sustainable ways to fulfill consumer needs.

This chapter addresses sustainability through the construct of fast fashion, but does so from the designer's perspective. Throughout the review of the fast fashion system, the researcher was mindful of the environmental challenges triggered by over consumption. The exploratory method of '*textile design interventions'* were identified, as a means of exploring new propositions for the fast fashion consumer, with the premise of extending the lifecycle and value of short life garments. This research focused specifically on Generation Y, a consumer demographic (aged between 19-25 years old) who directly influence on the design, production and consumption of their clothing through their active engagement with online media.

2.2 The Fast Fashion System

Shedroff (2011:284) argues "retail therapy to be one of the most dangerous concepts ever invented by retailers and marketers and reinforced by designers. The idea that people will feel better if they buy something is sad and menacing". The situation we are now living in has been referred to as a post-industrial environment (Zhang, Vonderembse, & Lim, 2002). A consumer throw-away society (Niinimäki & Hassi, 2011a), or a self-centered paradigm, where the fashion industry and consumers have gone into a cycle of exploitation of each other, the planet, and the millions working in unethical conditions (Siegle, 2011).

Within the UK alone, we dispose of approximately 10,000 garments every ten minutes (Kerr & Foster, 2011). Conventional methods of dealing with these issues have been citied as being symptoms based; they have not addressed continuous and rising consumption levels. Value needs to be placed on consumer use, attachment and stronger 'user-product' and 'user-manufacturer' relationships (Chapman, 2005; Niinimäki & Hassi, 2011). Approximately, only 2 per cent of the retailers average

clothing budget is reinvested into supporting services that repair or lengthen the lifespan of garments and accessories (Lee, 2007). Due to the low cost of fast fashion combined with a lack of service offers post consumption, it has become more cost effective to dispose and replace a garment once it has served its purpose. The whole economic system in the industrialised world, is based on a products fast replacement and planned obsolesce (Jackson, 2011) and the field of fashion and textiles is no exception. The concept of planned obsolesce prompts the shortened life cycle of products to ensure a market need for future products (Walker, 2011). There is further disparity through disconnection between the designer, the process of manufacturing, and the consumer who is often left unsatisfied long term, which encourages the rapid replacement of products.

This research argues that 'fast fashion' only represents one very direct model of material interaction. These garments are designed in response to regularly changing trends that enable quick profit, rather than radically re-thinking new ways of designing (Niinimäki & Hassi, 2011). Fast fashion retailers have two main goals - to reduce lead times and provide fashionable merchandise simultaneously as trends emerge - as a method of sustained economic growth (Barnes & Lea-Greenwood, 2010). This has accelerated in recent years and fashion trends have hit a record high, approximately eighty billion pieces of clothing are produced globally in one year (Siegle, 2011) and consumers around the globe spent $1 trillion on clothes (Allwood, Ashby, Gutowski, & Worrell, 2011). The turnover of fast fashion trends will continue to escalate as retailers compete by implementing quicker response methods by making smaller and more frequent purchases to replace their inventory more rapidly (Bhardwaj & Fairhurst, 2010). An online study by EDITED (2012) tracked product stock keeping units (SKU's) over a 30 day period, and identified 700 new products by Zara and H&M, 1,351 by Topshop and 6,217 by ASOS (Smith, 2012). This problem will be amplified with spending power in China, India and Russia predicted to treble by 2014 (WRAP, 2012).

The progressive obsolescence of clothing started and continued from the 1920's, before then most clothing was repaired, mended, or tailored to fit other family members, or recycled within the home as rags or quilts (Fiona Hackney, 2013). The influx of low cost garments has reduced the requirement for home sewing skills such as dressmaking, repairing and altering, to be traditionally passed from one generation to the next. As a consequence, consumers are becoming de-skilled and locked out of the design process, Fletcher and Grose (2012:76) say that people are becoming "deskilled and ever more inactive individuals, who feel both unrepresented by the fashion system and unable to do anything about it. The system, and the clothes that represent it, appears to undermine our self-esteem and yet we lack the knowledge and confidence to make, adapt and personalize fashion pieces ourselves. From this position of passivity the only choice available to us seems to be to consume."

The industrial revolution has only continued to grow by providing a means of increased production for

all consumer commodities, this integral part of the economy, is reliant upon marketing and promotion (Lloyd & Luk, 2010). As a consequence, the market place of fast fashion has become crowded, noisy and overstocked. Consequently this progress has caused ecological devastation, human, social and economic fragmentation (Walker, 2011). In response the landscape of design is changing, fuelled and inspired by evolving technologies, challenges emerging from the economic crisis and increasing environmental concerns. The industry or marketplace in which 'design' is applied within western countries often produces products that do not fulfill the consumers genuine needs but rather fictitious needs promoted through marketing and propaganda (Chapman & Gant, 2007). The main problem for the overwhelmed consumers of the west, is not just advertising overload but also the over abundance of material choice. Due to the economic crisis worldwide, disposable incomes are on the wane and some consumers are becoming disenchanted with mindless consumption and its impact on society (Kozinets, R.V, Handleman, 2004).

2.3 Sustainable Design Strategies for Fast Fashion

There is limited literature relating to the role of the specifics of ethics within the fashion industry from a designers perspective; acknowledging their responsibility within the supply chain and the lifecycle of a garment. Traditionally fashion designers do not write, or theorise; they cut and make (Thomas, 2001:4). Whilst interrogating the modus operandi of the fashion industry, there could also be an interrogation of sustainability, and what it could mean if universally adopted by design practitioners, and by the fashion/textile industry in general. While the work of (Black, 2012), Fletcher (2008), Tham & Jones (2008) and Lee (2006) have expanded upon this territory within a fashion context. Fletcher (2010) a founding scholar of the slow fashion movement calls for a re-examination of the entire design, production and distribution process. Prior to these publications, fashion design practitioners and the industry have had to adapt and co-opt sustainability arguments and theories from product design and architecture design writers, such as Chapman (2006) and Manzini (2005). While McDonough & Braungart (2002) expand upon sustainable design if "we understand that design leads to the manifestation of human intention and if what we make with our hands is to be sacred and honor the earth that gives us life, then the things we make must not only rise from the ground but return it, soil, to soil, water to water, so everything is received from the earth can be freely given back without causing harm to any living system. This is ecology. This is good design. It is of this we must now speak" (Braungart & McDonough, 2009).

Design for sustainability theorists (Manzini and Vezzoli, 2008) believe it is more efficient to work with preventative solutions rather than adopt systems which deal with damage control. Strategic innovation is required to question who the consumer is, what products and services should be offered

and how to offer those products and services (Markides, 1997). Thus it is not just about rethinking the fundamentals on the supply side, but also about redesigning the business on the demand side, for example, in the form of user-experience and rethinking value creation. Designers can begin to influence sustainability through applying one new strategy to one issue. Overtime, more strategies can be expanded upon to address more issues. (Shedroff, 2010)

2.3.1 Lifecycle thinking for Fast Fashion

In the mass market, product lifecycle thinking begins on the product floor and ends on the retail floor (Payne, 2011). To consider a sustainable design strategy the designers process needs to become more holistic to address the complete lifecycle of a garment beyond the final stages of design and consumption. This can be achieved by accessing the impact of every life stage of a garment from the ethical production of fiber and textiles, through to socially responsibly manufacturing, with additional consideration to consumer use and disposal. At the end of garment lif, there is also further potential to implement additional systems to support recycling or reuse. There are lifecycle assessment design tools such as NIKE's Materials Index (2013), the recently launched an App titled 'Making'. This is illustrated within *figure 2* (below) and takes designers through a step-by-step process for choosing fabrics based on their environmental credentials. Making then rank materials on how environmentally friendly they are, taking into account water, chemistry, energy and waste.

Figure 2 Nike Making App (2013)

Eco Index (2009) also enables the designer to plan for any impact the product might have in terms of input and output (Kviseth, 2011). For a fashion garment, the life cycle begins at fiber (cradle), moving through to textile production, garment design process, manufacture, distribution, retail, use phase and eventual disposal (grave). Cradle to cradle design and manufacturing aims to bypass the grave to reuse valuable fibers via closed loop manufacturing methods (McDonough and Braungart 2002).
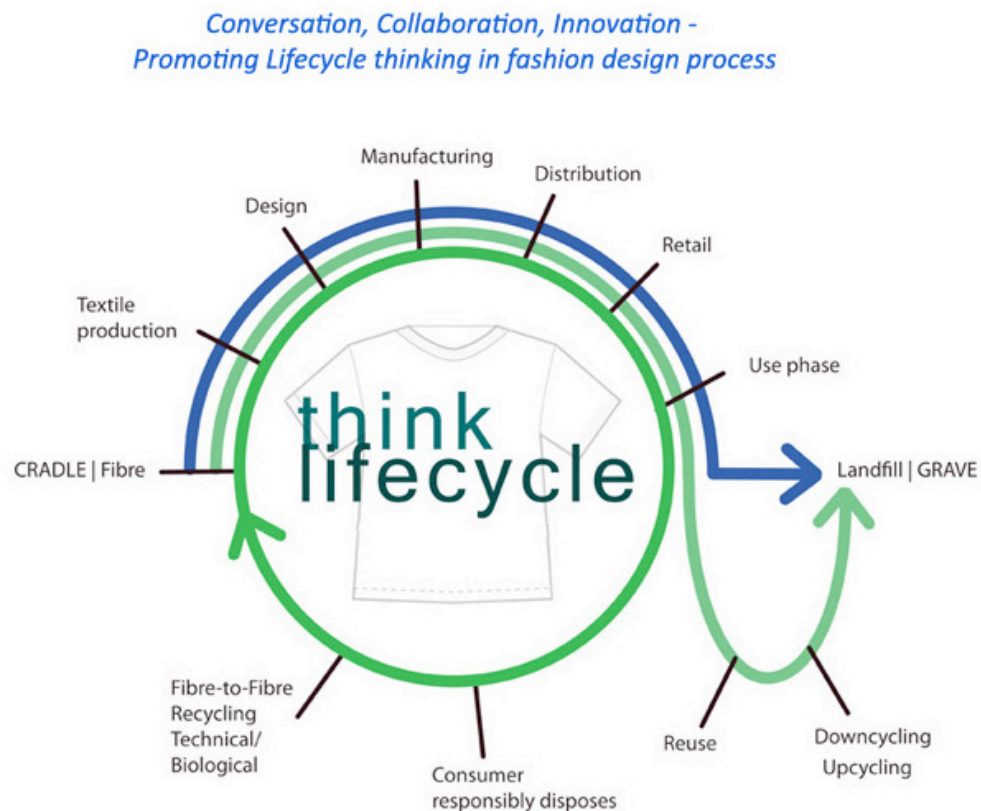
Figure 3 Garment Life-cycle Assessment Tool (Payne, 2011)

Payne (2011) developed the assessment tool within *Figure 3* for designers by visually depicting each stage of a garment lifecycle. When considering each phase of a garment lifecycle, it must be highlighted that the biggest challenge to sustainability is speed. Within the last fifteen years, the speed of fashion has rapidly increased, prices have fallen and consumer demand has intensified which only perpetuates new cycles of design, production and consumption (Fletcher, 2008:142), with new items delivered to high street retailers every 1-2 weeks. The current fast fashion system is based on fast cycles of fashion trends that aim to continuously produce new consumer needs and wants. Design choices within the conceptualisation stage of the design process can further impact the lifecycle of a garment (Black, 2008). This involves fabric selection and material production processes, which have a further impact on the aftercare, maintenance and use of garments. Fletcher (2008) argues that a designer can work within the supply chain in resolving one particular aspect, or

completely external to the industry as it is, providing additional scope for new discovery and innovation.
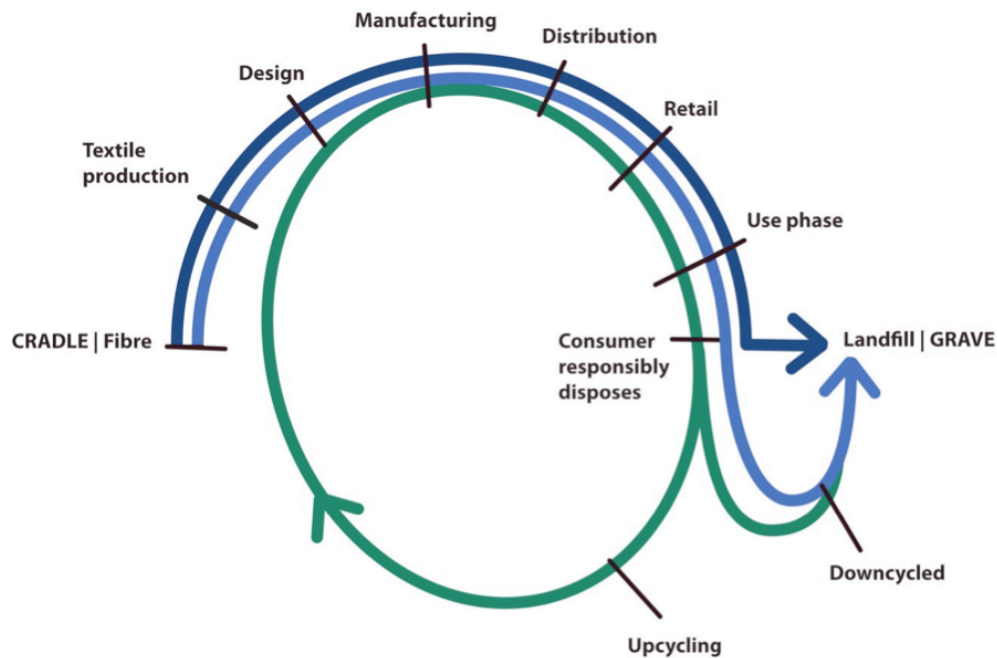
Figure 4 Extending the Garment Lifecycle through Design (Payne, 2011)

Within *figure 4* (above) Payne (2011) provides a working illustration to highlight that by considering sustainability from the conceptualisaton stage of the design process, new opportunities for upcycling can be integrated into the design process to extend garment life. Currently, recycling is the more widely accepted environmental approach adopted by manufacturers, as it requires only minor changes to the existing habits of producers and consumers, enabling them to continue with their unsustainable consumption patterns. Designers need to play a more active role in identifying new opportunity spaces to intercept the flow of short life garments. Companies also need to acknowledge that market competion is driven by product meanings and 'why' people need a product rather than 'what' they need in a product. People are prompted to use their garments for profoundly emotional, psychological, and socially cultural reasons as well as utilitarian ones (Verganti, 2009). This requires a radical change in the consumer's mindset, and new ways of living and doing things, to identify new approaches that fulfill the consumers needs in a more sustainable manner.

2.3.2 Product Service Systems for Fast Fashion

This research expands upon the field of service and interaction design to consider sustainable design strategies beyond a materials perspective. To explore how the designer might play a more strategic role beyond the completed stages of a garments design process by facilitating consumer interaction with their garment beyond the point of purchase. This research argues that consumers have the potential to play a more active role in the design process (Hur & Beverley, 2011). The retail experience is not commonly thought of as being a consideration of the design process. However, in design for sustainability, retail is an opportunity to engage with consumers in new ways, whether through co-design or through implementing product service systems (PSS) (Morelli, 2002).
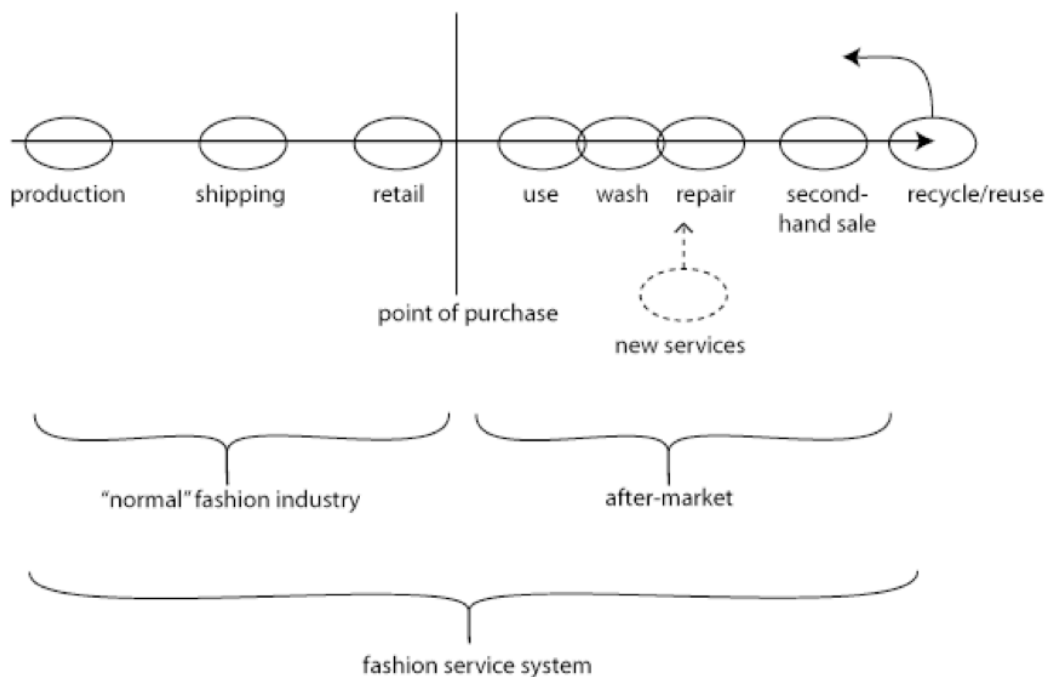
Figure 5 Fashion Service System (von Busch, 2009)

"In recent decades, recycling has shot up the global political agenda. By arresting, or at least reducing, the plunder of the world's resources through the substitution of existing materials, recycling offers two benefits: economic thrift and environmental care… People as well as things are remade through waste work. But there are limits to just how often people and materials can be stretched, broken-down and put together again, retooled for new economics regimes"(Alexander and Reno, 2013:3). Currently, there are limited service design provisions provided by fast fashion retailers beyond the point of purchase. Within *figure 5 (above)* von Busch (2009) highlights new opportunity spaces for new services to emerge. The advantage of PSS for sustainability is that the consumer's need can be

15

met by a service rather than a product, thereby lessening the volume of the product sold (Morelli, 2002). Although this has not been positioned as being a strategy for sustainability, Australian fashion industry analyst Hanrahan predicts PSS to be a major part of fashion retailing in the future (Hanrahan, 2010). Product-service systems (PSS) emphasise systems thinking and drive companies to focus on consumer needs (Charter and Clark, 2007). Stahel (2001) highlights that consumer satisfaction of a service economy (is at the core), and can be implemented by offering good product performance through services that do not increase waste streams. Robert (2002) points out, in his book *"Zero Emission Society"* that consumers should invest in services and purchase functions instead of products. In this type of society all materials could be automatically returned to the producer after the use phase, to create environmental value for the new product service system. Service thinking differs from ownership as it offers flexibility in product utilisation which ownership does not offer. Mont (2002) describes how a product-service system focuses on competitive ways to satisfy customer needs; while doing so it also has a lower environmental impact than traditional business models.

2.3.3 Emotionally Durable Design for Fast Fashion

Chapman (2006) is notable for his inclusion of fashion within the sustainability discourse as a voice rather than a negative example. The theory of emotionally durable design, termed by Chapman (2006) explores how consumers sustain more meaningful relationships with certain products. Often, these interactions emerge in relation to an experience, memory or person. This idea could be extrapolated to fashion and the designer can change from simply creating garments, to exploring new ways to prolong their life span both in use and appearance. To identify new approaches through customisation, repair, laundering, dyeing and alterations to expand upon these existing practical methods and apply them as instigators for creative innovation. However, designers need to ask themselves "Can we break the cycle of passive consumption of fashion to create a more sustainable, durable connection with our clothes?" (Chapman, 2013). There are times when the current fashion system and the ideals of sustainability seem at odds; there are huge contradictions, as one seems to be about pace and disposability, while the other appears to be about longevity and resilience.

Figure 6 Repair It Yourself (RIP) Shoe by (Morpurgo, 2011)

The Repair It Yourself (RIP) shoe concept within *figure 6* by Morpurgo (2011) uses the activity of repairing to re-appropriate control within the material world, allowing users to understand how things function and acting as a key tool for the consumer to control his/her post-consumption goods (waste). These repair and alteration services enable the fashion artifact to last longer, effectively slowing the lifecycle. "The once valued skills of care and repair often fit awkwardly with the urge to have the latest technology or garment; but such conspicuous consumption may also provide opportunities for other people and place to benefit practically and politically from reuse" (Alexander and Reno, 2013:2). The challenge is to encourage consumers to invest time in an alternative fashion concept. Designers and retailers need to envisage the mixture of products and services to explore how to develop heightened levels of engagement with the end user. But this requires mindful promotion and adoption, the concepts need to go beyond tokenism and require the ongoing support of the designer / retailer to sustain interest and interaction.

Figure 7 Urban Outfitters DIY or DIE event (2009)

UK retailers (Topshop, 2007, Urban Outfitters, 2009, Anthropologie, 2010) have experimented by implementing a varied menu of experiential options promoting Do It Yourself (DIY) and customisation. Urban Outfitters hosted an event (see Figure 7) where fashion bloggers provided haberdashery materials to embellish and customise garments in their New York flagship store. These events are aligned to marketing and promotion and are not continued beyond the event. However, more recently, initiatives have been developed by Marks and Spencer (2012) and H&M (2013) to implement take back services in an attempt to reclaim consumer waste. Post consumption clothing can be reused through resale at lower prices, it may be exported in bulk for sale in developing countries or it may be chemically recycled into raw material for non apparel products (Claudio, 2007). The domestic resale of fast fashion has boomed in the era of the Internet through sites such as eBay, and online cash for clothes campaigns.

2.4 Conclusion

This chapter addressed sustainability with a focus on fast fashion, to consider how the designer might influence environmental change. Fast fashion only represents one very direct model of material interaction and it is clearly failing to fulfill consumer needs long term. The lifecycle of fast fashion garments are shortening and outside intervention is urgently required. In order to move beyond a throw away society, fast fashion consumers need to be encouraged and supported to regularly re-engage with their garments beyond the point of purchase. This chapter highlights that preventative solutions are required alongside strategic design innovation to question who is the consumer / end use and what are their needs, what products and services should be offered and how they might materialize to sustain consumer interaction with garments long-term.

This research within the following chapter will explore how the relationship between production and consumption can become more transparent through new platforms and processes, which are supporting consumer engagement.

CHAPTER THREE: Participatory Consumer Culture

3.1 Introduction

This chapter reviews participatory design and this has been supported by a mapping exercise undertaken by the researcher, to develop a deeper understanding of participatory consumer culture. This chapter illustrates the consumers transition from being a passive subjects within the fast fashion system, towards becoming a co-designer. While the literature review has been underpinned by theory from other design disciplines, a focus was placed on fashion and textile design. Throughout the literature review the researcher identified a lack of empirical research reviewing the value and effect of co-design within fashion or textiles, with few publications available to cite fashion theory. While this identified a gap in the literature, this has been addressed by referencing a selection of practical work undertaken by designers. There is a wealth of practical case studies demonstrating inclusive, open and connected practice to cater for consumer involvement within the design process. Under the title of 'Co-Everything', a public presentation was designed and disseminated by the researcher to expand upon participatory approaches. These have been categorised into five themes; customisation, design activism, collaborative consumption, crowdsourcing and open innovation.

Throughout the literature review, the Generation Y demographic (consumers born 1977-2001) have been identified to be the most active by way of their online engagement. This global consumer group is experiencing fashion live and direct from the Internet and are numbered not in the thousands, but in the millions (Knight, 2009). They have access to preview fashion shows live in real time, they read reports uploaded moments after shows have finished and discuss them in online forums. As a result, their expectations have evolved and they have become accustomed to purchasing a less expensive version of a catwalk trend within a matter of days. From an environmental perspective, the speed and consistency of Gen Y consumption is unsustainable. However, they are known to be more vocal, demanding and pro-active in influencing both high end and high street fashion retailers. While it has been highlighted that this group are in danger of becoming de-skilled through passive consumption (Fletcher & Grose, 2012), they are becoming more active within the design process and online media is supported a new renaissance of making. This chapter explores how social media is being utalised to demonstrate a range of new skills, abilities and advanced digital expertise.

This chapter explores participatory consumer culture by expanding upon existing literature and reviewing practical case studies. To provide an overview of the emerging concepts and highlight how they might be expanded upon to support the research practice within Part Two of this thesis.

3.2 Participatory Consumer Culture

The democratisation of design has been influenced by increased access to digital media tools, with increased networked activity and growing user-generated content online. This is signaling a shift in Internet usage towards an environment, where the differentiation between the producer and consumer is becoming less clearly defined. Fashion consumers are evolving through these new convergent cultures and hybrid producer and consumer 'prosumer' relationships are beginning to emerge (Ritzer & Jurgenson, 2010). However, there has been limited academic study within the field of fashion and textile design where practice becomes intentionally inclusive to expand the traditional boundary between the amateur and the professional practitioner. (Fletcher, 2008) who states "participatory design has the potential to identify a new role for the consumer that aims to promote sustainability by shifting from global to local, from consuming to making and from illusion to imagination". This is supported by Von Busch (2008)) who describes society through the metaphor of a 'network' to argue that co-authorship means a radical break in the position of what was considered as the passive fashion consumer.

Networking and dissemination online have played a pivotal role in influencing a new renaissance of craft practice. There has been an exponential growth of online communities who are making both digital and 'analogue' things. (Gauntlett, 2011:8) highlights this is "one of the wonderfully productive outcomes of the shift from a 'sit back and be told' culture towards more of a 'making and doing' culture enabled by Web 2.0 technologies". He goes on to argue that the internet has provided renewed impetus to analogue craft communities by furnishing them with a new tool which provides renewed visibility to craft practices, by providing new platforms for excited enthusiasts to assemble new communities and construct their own global network. Through online media Gen Y has access to multiple media platforms to inspire and encourage peers with similar interests, with a depth and speed that was not previously possible. The rise of next generation Internet technologies commonly known as Web 2.0, such as video sharing, blogging, social bookmarking and social networking, is supporting new interaction among consumers and recently, this has played a pivotal role towards facilitating increased consumer participation (Brogi et al., 2013).

Connected individuals from across the globe have access to sophisticated design tools and this is filtering into new domains such as fashion. Through web 2.0 a suite of digital resources have emerged to allow individuals with very little design training to experiment and create or co-create new concepts for products and services at a surprisingly sophisticated level. This shift is signaling that, it is clear that marketers will need to rethink marketing strategies, by using innovative approaches as consequently brand loyalty has become increasingly influenced (both positively or negatively) by online reviews which demonstrate that consumers have a forum to project shared opinions, perspectives, insights and opinions about fashion brands.

Eric von Hippel (2006) believes that most of the innovative product and production technology ideas in history have not been introduced by designers and professional developers but rather by consumers themselves. He continues to highlight that the history of innovation in mass production was a period when the innovation dynamic leading to mass products was "dominated by professional inventors whose activities were mainly subjected to and regulated by the joint effect of the supply side; and mass needs and the 'closed' forms of innovation. The question of providing the most enabling place for customers to realise themselves is of the highest importance, for the consumer is really starting to become the decisive factor in the innovation race, and innovation capability" (von Hippel, 2006). Furthermore, digital textile techniques have expanded the possibilities to design and produce unique products. Digital textile printers, embroidery, laser cutting machines, and digital weaving machines offer wide opportunities to realise a consumers individual preferences and needs (Niinimäki, 2009).

"Today's craft is also about empowerment: feeling a sense of achievement when making something with your own hands. It's about taking a stand or making a statement against this modern, digital, disposable age of mass production and consumption that is leading the world into environmental and economic ruin" (Waterhouse, 2010).

Additionally, new credibility is being assigned to previously disregarded craft skills and practices such as knitting, dressmaking and home sewing (Yair & Schwarz, 2011). This renaissance of the handmade has evolved at a time of profound social, cultural and economic change in the West (Hackney, 2013). Within the UK, sewing machine sales have elevated and the availability of workshops and sewing classes have improved, promoted by newly commissioned television programs such as the Great British Sewing Bee (Evelegh, 2014). Hackney (2006) argues that the popularity of craft in the media is a means of addressing the problems and anxieties surrounding modern life (unemployment, the strain of new work processes and their effects on physical and mental life). At a time of profound change, in a society swamped with mass-manufactured goods, the handmade offers a reprise, and an alternative. As this has occurred, Gen Y consumers have embraced the increased potential of the internet as it offers them a platform for developing new small scale business models, with examples are emerging led by amateur producers with no formal training (Anderson, 2012).

3.3 Co-Everything
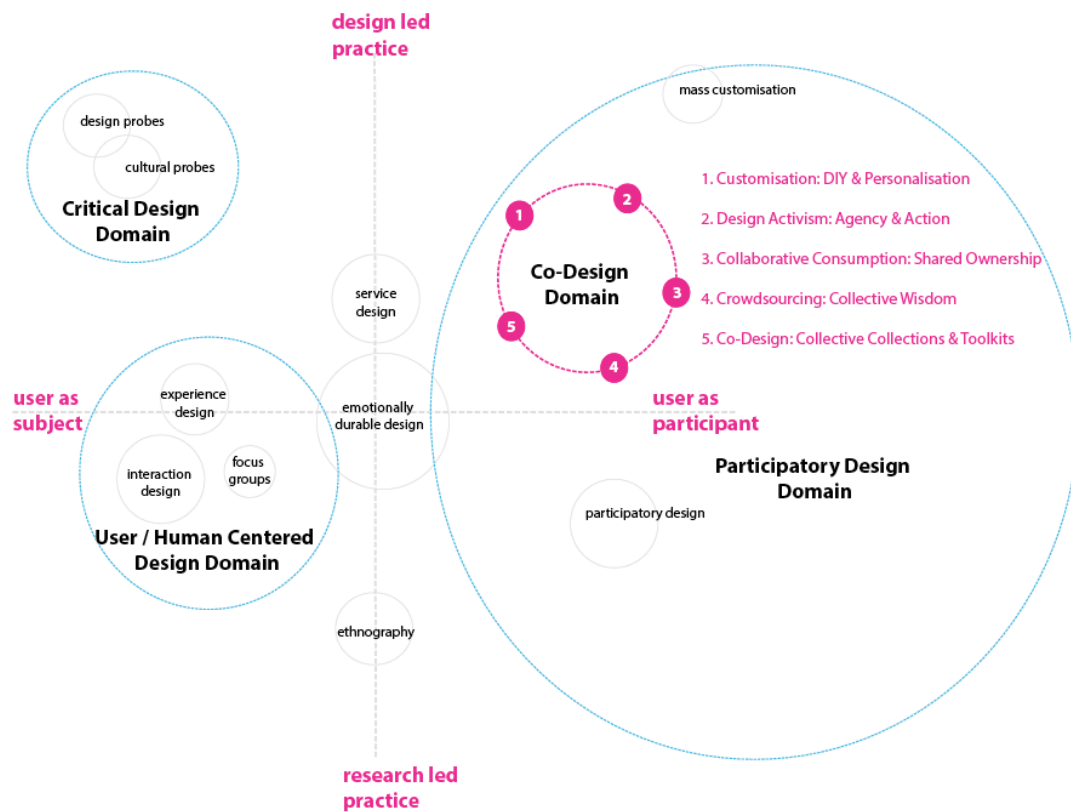
Figure 8 Participatory Design Landscape

The 'Co-Everything' landscape visually mapped in within *Figure 8 Participatory Design Landscape* expanding upon the work of Sanders and Stappers (2008) within their paper titled: *Co-Creation and the New Landscapes of Design*. This illustration provides a strong foundation for developing a deeper understanding of collaborative design methods, to consider how they might play a role in navigating consumer involvement within the design process, transitioning them from 'subjects' towards active 'partners'. The field of participatory design has built a context for consumer engagement and this can be referenced within the last forty years (Sanders and Stappers, 2008). Sanders and Stappers (ibid) argue that we are no longer simply designing for consumers, but rather for the future experiences of people, communities and cultures. These are becoming connected in new ways that were previously unimaginable, even ten years ago. We are also witnessing the dawn of a new age of manufacture, an age where advanced technology has influenced increased competition. As a result, more assertive consumers are leading industry towards the customisation of products and services (Anderson, 2012).

The umbrella for citizen participation supports terms such as; participatory design, collaborative design, co-design and meta-design. In the broadest sense, the term 'collaborative design' can be defined as an act of collective creativity that occurs between professional designers and people not trained in design. Designers can leverage the consumer desire for connectedness by welcoming them

into the design process to develop new markets 'with' rather than 'for' consumers (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011). Britton (2011) applies the term 'consumer 2.0' to signal a shift towards better informed consumers who have become less passive and more participatory through their social connectedness. Through active engagement, their characteristics have changed and this has influenced new expectations around individuality, authenticity and ownership. Through engagement within a collaborative design process, these consumers have the opportunity to collectively learn, solve problems and to develop a design outcome with has the potential to prolong consumer satisfaction (Niinimäki & Hassi, 2011). The designed outcomes from a collaborative design experience have been known to provide an increased sense of fulfillment on the end users part, and they have expressed this enables them to form an attachment to the product more easily (Niinimäki & Hassi, ibid). Within the focus of this research and aims concerning sustainability, collaborative design provides an approach to increase user engagement with the artifact.

The notion that every individual has the capacity to engage with a co-design process often requires a new mind-set to encompass the belief that all people have the potential to be creative, which is often not commonly accepted. Sanders (2010) argues those who promote co-design must acknowledge that different levels of creativity exist, and acknowledge the requirement for providing a range of different experiences to facilitate peoples' expression of creativity at all levels. Anderson (2012) proposes that the Internet has supported the combined use of digital production tools and this has radically transformed designing, making, selling and buying. He continues to highlight that virtually anyone can become a successful maker, by starting their business from the comfort of their own environment and driving it out into the global digital economy. This raises many questions about the value of craft in 21st century production and requires a through exploration of user involvement within online communities, as they begin to open new opportunities for addressing current social, economic and environmental challenges.

This research expands upon the participatory design landscape by challenging the professional textile or fashion designer to become more inclusive through their practice to work beyond the 'beautification of objects' (Pinero, 2011). A review of consumer engagement within the context of fashion and textile design highlighted a lack of theory referencing participatory design. Practical case studies have been reviewed to identify existing consumer engagement. While the researcher was mindful that it would not be possible to expand upon each theme within the next stage of the research, the review identified a rich mix of existing approaches. The five themes identified within 'Co-Everything' were: customisation, design activism, collaborative consumption, crowdsourcing and open innovation. The 'Co-Everything' presentation was presented to a public audience, comprising of design professionals, academics and non-designers. Following the first delivery of 'Co-Everything' (Chelsea College of Art & Design, UAL, London. November, 2009) a digital copy of the presentation

has been uploaded to an online platform Slideshare to capture further feedback, resulting in 2,968 unique views to date (see *Figure 9 below).* The content within this presentation has been refined and updated annually to incorpate peer feedback and respond to advanced academic enquiry and emergent market trends. The most recent version of this presentation can be previewed within Appendix A. Further presentations have been delivered within Ljubljana (2011), Cardiff (2011) and London (2012).
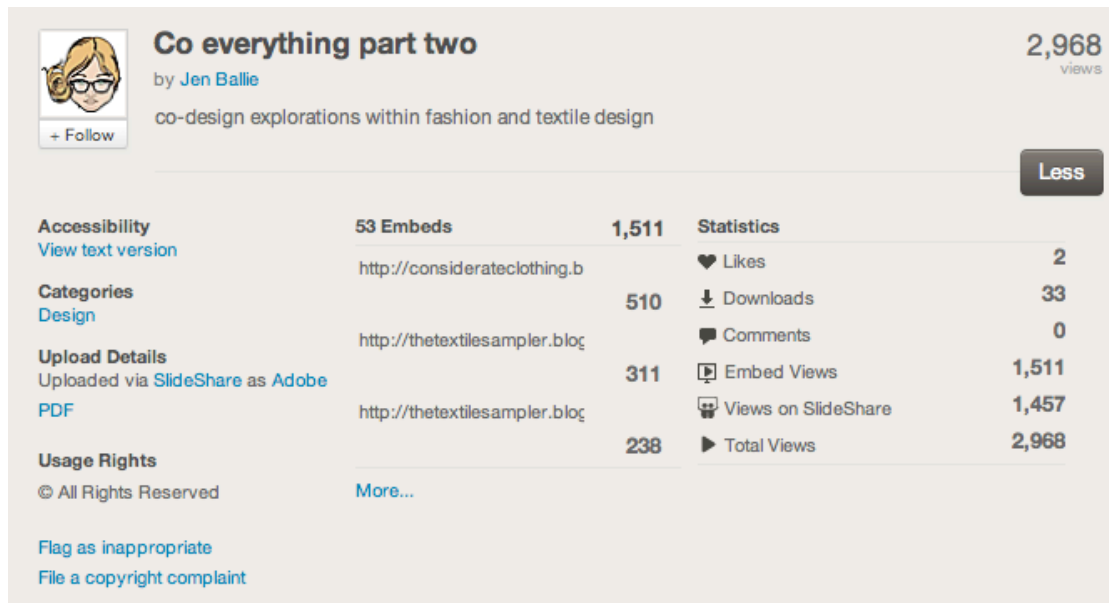
Figure 9 Screenshot from Slideshare of Co-Everything Online Views

3.2.1 Customisation: DIY & Personalisation

The possibilities of customisation have become broader and more sophisticated through the advancement of digital production and fabrication tools, and there application has been supported by social media applications. Consumer personalisation has become strongly influenced by online media platforms that support Do It Yourself (DIY) and Mass Customisation (MC). These contemporary approaches are consumer led in contrast to the traditional design approaches of tailoring and haute couture. Today, designers are able to create individual and unique looks by using digital technologies, while these garments and accessories are often more expensive to produce than a ready-made garment, the output is made to the consumers' personal preferences, needs and measurements, offering a perfect fit physically but also emotionally. Niinimäki (2009) argues a case for positioning the consumers wishes as the centre of the design process, as securing a deep product relationship has been known to increase emotional durabiltity, a term conined by Chapman (2006).

The cultural shift towards contemporary DIY has been championed online by fashion bloggers who use social media to share their opinions and views with the rest of the world. According to Allen (2009), fashion blogs have changed the face of fashion communication and the control has shifted from the sender the receiver. These blogs are enabling ordinary people to create their own media and share their creations online (Rettberg, 2008). They are designed to spread information through social interaction and have removed some of the traditional barriers to widespread distribution (McConnel & Huba, 2007). Parise and Guinan (2008, p. 281) explain, "the fundamental principle of Web 2.0 is that users add value by generating content (themselves) through these applications, resulting in network effects among the community of users." Accessibility through smartphones makes the connection even more personal, and some have expressed that it is like having a friend with you at all times.

Figure 10 PS I Made This - DIY Fashion Blog (2013)

Within *Figure 10,* PS I Made This, the fashion blogger (Domesek, 2010) designed and produced annotated postcards to visually depict a DIY making process for customisng a fashion garment, she also produces DIY demonstrations for fashion accessories. Different approaches are applied by fashion blogger Outsapop (2013) who uses her blog to provide an online audience with 'how-to' knowledge to enable them to replicate high fashion looks at an affordable price (see Figure 11 below).

Figure 11 DIY Celine T-Shirt (Outsapop Blog, 2013)

Further examples of DIY fashion blogs include, A Matter of Style (2013), A Pair and a Spare (2013), and I Spy DIY (2013). These are only a sample selected from thousands of online blogs that are available currently to share DIY ideas and promote wardrobe rehab and restyling techniques. For which, there are currently 96,600,000 Google results.

Figure 12 NIKE iD lab (2013)

The term Mass Customisation (MC) was coined by Davis (1987), this combines elements of mass production with those of bespoke tailoring to produce low-cost, high volume and efficient production of customised offerings (Pine & Gilmore, 1999). The concept of MC was proposed as a means of 'personalising the consumer experience'. Through MC role of the design changes profoundly to a developing ecology, as products and consumers mutually evolve within an enabling environment. NIKE iD (see figure 12 above) is a successful MC example; founded in 2000 to provide a personalisation service for footwear. The Nike iD concept is continuing to thrive through physical design labs that provide consumers with support services and an expert team are available to demonstrate how to use a toolkit. The lab is promoted as an inspirational space within a selection of stores and it has been curated to showcase the best examples of mass customised footwear. The MC toolkit is also available to access online. This service has incrementally established a large global consumer fan base and following, but it is worth highlighting that this has taken a long time for NIKE to deliver a return on their initial investment, to date it currently produces approximately 20% of their revenue.

Some of the limitations of MC are:

- More expensive than mass produced products

- The product cannot be delivered to the customer at time of purchase

- The customer must spend time designing the desired product

- Customers often have problems articulating what they want

- Customers want to feel unique but are also uncomfortable in standing out
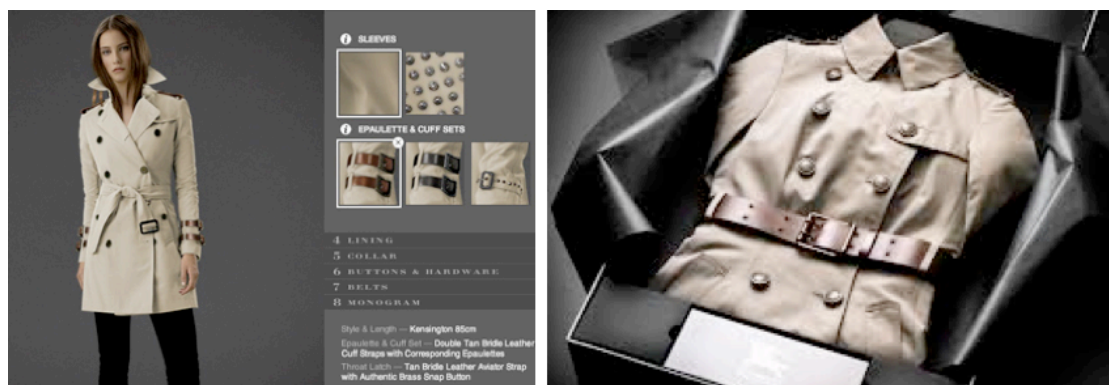
Figure 13 Burberry Bespoke (2011)

As digital technology has become further sophisticated MC tools have become more advanced and recently high-end luxury fashion retailers Prada (2011) and Burberry (2011) (see figure 13) have

invested in the development of online mass customisation and personalisation services. The personalisation options are always predefined and configured, therefore there are design limitations to through the MC approach and many combinations are often restricted to protect the brand asethetic. MC is generally a more expensive option but the higher price point does not have the same consumer effect within high end retail. The price point is part of their exclusive brand strategy and the cost for a MC designed custom Burberry trench coat ranging anywhere from $1,800 to $6,000 does not exclude their existing consumer.

Figure 14 Half-Way Fashion Design (Hirscher, 2013)

An analogue personalisation approach to design can be further explored through the construct of halfway design (Fuad-Luke, 2009, 95: Papanek, 1995, 244). This approach is designed through incomplete products with the premise of encouraging the consumer to play a more active role in the products design process and Fuad-Luke (2009) argues this provide a more extensive opportunity for creativity than the MC. This approach is often achieved through the development of design kits that support consumer adaptation by enabling the consumer to translate his / her own creative and preferences and even individual memories into the product. The design kits enable the consumer to assemble their own garment, thereby acquiring knowledge of the product and becoming able to repair the product if needed (Papain, 1995). Within a fashion context, Hirscher (2013) explored the possibilities for designers to help people design, allowing a new sensitivity and respect towards clothes and their production. This is illustrated within *figure 14* and study which claims *"designers can facilitate a joyful participation in clothing production and thereby enable a more valued person to product attachment"*. The titled 'value-able' has a synergy to von Busch's term 'fashion-able', both

imply metaphors for promoting participation to empower consumers and influence them to adopt agency to sustain the garment lifetimes.

3.3.2 Design Activism: Agency & Action

Fuad-Luke (2009) advocates the construct of design activism to promote democracy by demonstrating how design can be leveraged to promote positive change, a process which he argues can help us to achieve more sustainable futures. The design activist applies the power of design for the greater good of humankind and the natural environment. By adopting a design activist role, the designer develops a design intervention to challenge an existing paradigm by initiating action and enabling agency that evolves into participation. Within the context of fashion, Von Busch, (2008) defines activism as the practice of hands on engagement that is collaborative and often helps us make new sense of the world. Consumers are empowered through their appreciation of alternatives, to re-address their fashion consumption. By intercepting the act of shopping or provoking new action to reduce short life garments and increase garment lifetimes within a consumer's existing wardrobe

The Repair Manifesto (2009) illustrated below within *Figure 16*, by Platform 21 illustrates an example of design activism by demonstrating a campaign that was widely adopted to promote repair and reuse.

Platform21's
Repair
Manifesto

1. Make your products live longer!
Repairing means taking the opportunity to give your product a second life. Don't ditch it, stitch it! Don't end it, mend it! Repairing is not anti-consumption. It is anti- needlessly throwing things away.

2. Things should be designed so that they can be repaired.
Product designers: Make your products repairable. Share clear, understandable information about DIY repairs.
Consumers: Buy things you know can be repaired, or else find out why they don't exist. Be critical and inquisitive.

3. Repair is not replacement.
Replacement is throwing away the broken bit. This is NOT the kind of repair that we're talking about.

4. What doesn't kill it makes it stronger.
Every time we repair something, we add to its potential, its history, its soul and its inherent beauty.

5. Repairing is a creative challenge.
Making repairs is good for the imagination. Using new techniques, tools and materials ushers in possibility rather than dead ends.

6. Repair survives fashion.
Repair is not about styling or trends. There are no due-dates for repairable items.

7. To repair is to discover.
As you fix objects, you'll learn amazing things about how they actually work. Or don't work.

8. Repair – even in good times!
If you think this manifesto has to do with the recession, forget it. This isn't about money, it's about a mentality.

9. Repaired things are unique.
Even fakes become originals when you repair them.

10. Repairing is about independence.
Don't be a slave to technology – be its master. If it's broken, fix it and make it better. And if you're a master, empower others.

11. You can repair anything, even a plastic bag.
But we'd recommend getting a bag that will last longer, and then repairing it if necessary.

Stop Recycling. Start Repairing.   www.platform21.nl

Figure 15 Platform 21 Repair Manifesto (2009)

3.3.3 Collaborative Consumption: Shared Ownership

Due to the constant influx of fast fashion design and production, consumers have access to practically anything they want, at any time (Dykstra, 2012). However, through their online engagement, consumers are also becoming more responsive to sharing information and they are beginning to utilise online media to exchange physical goods. Collaborative Consumption (CC) is a term coined by Botsman and Rogers (2011) to describe a new movement which emerged led by those using technology to develop new ways of sharing, lending and exchanging time, skills and resources. The CC concept expands upon old world behaviours, such as lending, exchanging, swapping and bartering that are have the potential to be amplified to operate at a large scale, across geographic boundaries enabled by technology. The 'collaborative consumption' movement which implies trust within social networks is being reinforced to empower individuals and support the sharing of skills and spaces through newfound models led by global innovators and entrepreneurs (Botsman and Rogers, 2011).
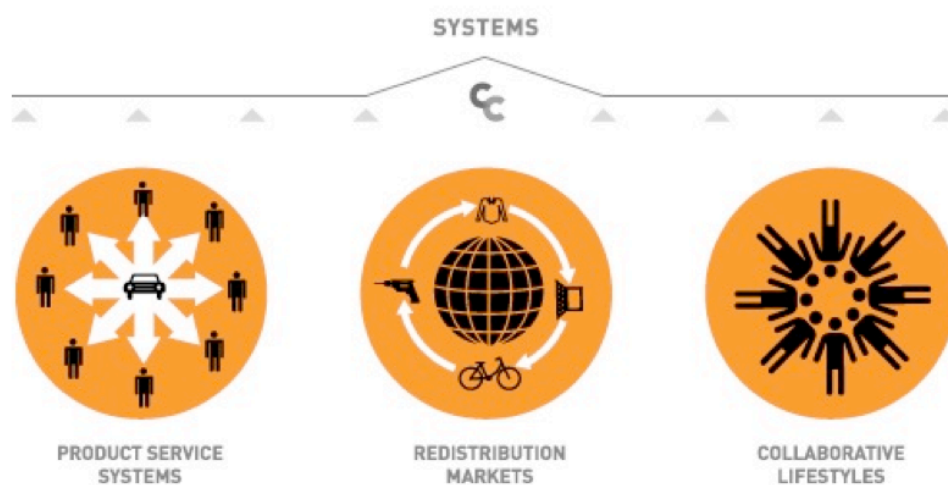
Figure 16 Collaborative Consumption (Botsman and Rogers, 2011)

Collaborative consumption differs by appling a service perspective instead of a product perspective, promoting use over consumption (Moggridge, 2006). This promotes and encourages sustainability by challenging the perception of ownership by facilitating new interactions with material goods. Moggridge (2006) highlights that collaborative consumption supports the transition towards sharing by going beyond the confines of traditional consumption and requires experiences, to surpass the quality and desirability of the products that people own today. To define new ways of living where

access is valued over ownership, experience is valued over material possessions and 'mine' becomes 'ours' so everyone's' needs are met without waste (Buczynski, 2011). Buszynski (2011) continues to claim that humanity is experiencing an evolution in consciousness by re-thinking what it means to 'own' something.

To sustain the long term use and re-use of a fashion item requires clothing to be well made, classic and timeless design, good fit and high quality offer opportunities for longer utilisation. The quality of a product is directly linked with its durability, longer product life spans can also be achieved through services such as upgrading or updating, repairing or product modification systems or services. As Stahel (2001) argues these concepts require a fundamental change from global manufacturing systems to local renting systems, which benefit the locality. These services extend the enjoyable use time of the product as well as postpone the psychological obsolescence that consumers themselves feel about the product (Niinimäki, 2011). Within a fashion context, new service design concepts are emerging to enable swapping, sharing, bartering and renting such as Bag Borrow, Steal (2013), Rent the Runway (2013) (within figure 18) and Girl Meets Dress (2013) (within figure 17).
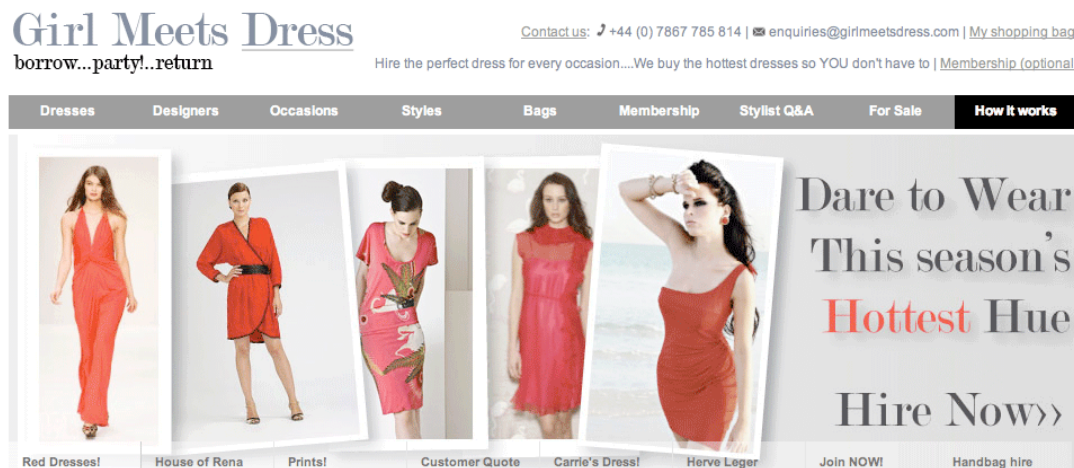
Figure 17 Girl Meets Dress (2013)

Figure 18 Rent the Runway (2013)

3.3.4 Crowdsourcing: Collective Wisdom

The concept of crowdsourcing refers to online platforms which democratise design by providing a system to collaborate, share and peer review concepts within the early stages of the design process (Shirky, 2006). An already established online community reviews these concepts and the highest rated concepts go into production.

Figure 19 Continuum Fashion (2013)

Within a fashion context Beta Fashion and Stitch Collective (2013) provide examples of available online platforms that support emerging designers by distributing design briefs to capture user-generated content which is then peer reviewed with the most successful going off for production. Continuum Fashion (2013) (illustrated within figure 19) have developed their own online tools to enable consumers to create their digital design concepts. The progression of these platforms is evolving as they are becoming vehicles to bring new concepts to market. The design concepts developed within these platforms undergo an online peer review process. Through open design disparate groups of consumers can connect and work together. This is a stark contrast to traditional fashion design "the high-quality resources for design prototyping becomes very low - which is the trend being described - these resources can be diffused very widely, and the allocation problem then diminished in significance. The result, being that the opportunity to create becomes democratised." (von Hippel, 2006:126)

Online crowdsourcing platforms further democratise the fashion design process, by allowing consumers to have an input within the design development of limited edition fashion collection. The motivation to participate within online and offline open innovation communities goes beyond monetary value, and these consumers often reference 'the joy of the experience' as a key motivation. This concept of crowdsourcing requires mindful consideration to ensure industry is not offloading the innovation process to their users without an exchange limited to pre-configured modularity of components (Shirky, 2006). These platforms are supporting new consumer market research processes through their potential to track big data to observe and they have the capacity to analyse each online users interaction through their online navigation and further observations can be made throughout the crowdsourcing experience. Further observations can be made to identify which consumers within

the online community commit to purchasing these concepts postproduction. For example, Threadless t-shirt platform (see Figure 20) award points to online users for their participation those who purchasing providing them with a higher rank of influence within the crowdsourcing process.
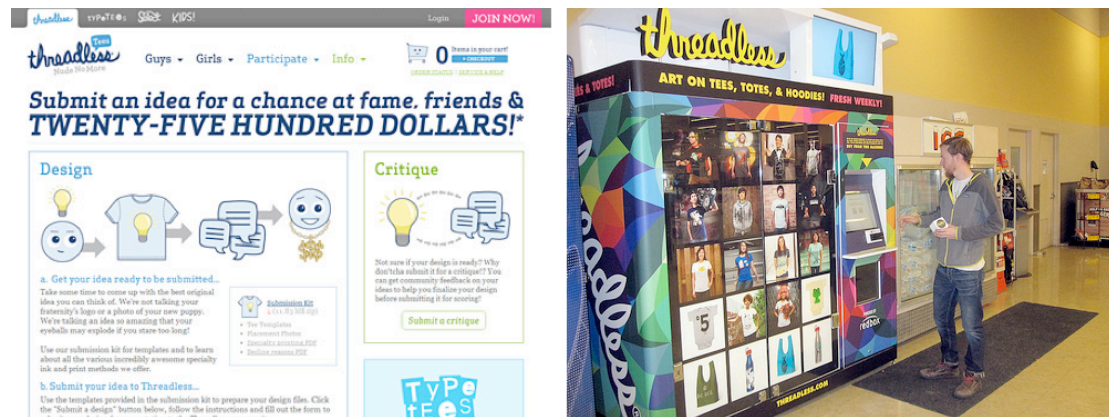
Figure 20 Threadless Crowdsourcing T-Shirt's (2013)

Figure 21 Catwalk Genius (2010)

Within fashion, crowdfunding evolved from the crowdsourcing movement, Catwalk Genius (see Figure 21) was founded in 2010, to provide consumers with an opportunity to invest in newly established fashion labels. The brand attracted testimonials and support from well established media sources such as Vogue and the New York Times (2010). But the concept proved unsuccessful and failed to gain traction for a number of reasons. Those cited were difficulties to up-scale the model and sustain online interaction. Crowdfunded platforms also provide additional support by providing the designer with a back end infrastructure to support pre and post production. Thus providing a new and direct route to market for newly established or emerging fashion designers. The Kickstarter community (2014) is proving to be a successful approach by providing individuals with a forum to

campaign for investment from friends, family and colleagues.

3.3.5 Open Innovation: Collective Tools, Resources and Collections

Chesbrough coined the term 'open innovation' (2003) with a focus on market based interactions, within global research, development and innovation. This bottom up approach is maintained by the 'creative commons' (CC) to allow the process of design to becomes democratised through transparent processes and shared resources, which broaden the remit of participation. Large companies or retailers do not lead open source fashion this movement has been led by independent designers, who apply open innovation to their practice to distribute open source templates and patterns as opposed to a finished fashion collection. This has been influenced and supported by online media that provides a conduit to reach fashion consumers all over the world. The individual consumer has a leading role in the design process, turning from the passive consumer into an active maker, and this deepens the feeling of achievement and in turn increases product satisfaction (Niinimäki & Hassi, 2011). More recently Chessbrough (Gassmann, Enkel, & Chesbrough, 2010) have shifted theit focus from product innovation to service innovation. They identify service innovation as an escape route from the commodity trap of mass consumption, through which products are produced swiftly, cheaply and with short life. Open service innovation is offered as a solution to outsourcing new products within a product service system (Hronszky & Kovács, 2013).

Figure 21 Openwear Collaborative Collection (2013)

The Openwear research project (2008-11) (see Figure 22) applied open innovation to design and produce an open source collective garment collection, which can be accessed through online downloads. These opens source garment templates were originally designed during a physical workshop and then digitally reworked to provide an online resource. The showbox within the Openwear online community, provides a feature to enable users to subscribed to the Openwear online community and it also provides an with a space to showcase their personal adaptation of the collective collections.

3.4 Conclusion

To encourage sustainability and discourage the mass consumption of fast fashion we need to dig deeper to consider new contexts of use that extend the lifecycle of the designed garment or accessory. Fletcher (2008, 121) describes the current situation "it uses yesterdays thinking to cope with the conditions of tomorrow". Sustainable development will only be possible if throwaway culture is challenged and there is an overall increase in the lifespan of products (Walker, 2011). The Web 2.0 revolution is changing perceptions and influencing Gen Y consumers. As a result, there is a new renaissance of making influencing the rise of participatory experiences for the fashion consumer. The flow of design, production and distribution is no longer directly influenced or controlled by industry. New models are also beginning and evolving which support open, connected and bottom up innovation.

Fletcher (2012) highlights that designers are seeing their skills differently but this can constitute a catch-22 for those who want to change things. This chapter demonstrates that there is a wealth of existing opportunities for designers to access and expand upon. The professional designer can also look for new opportunities to design by facilitating change or to design by educating people, rather than using design skills to create more products. It has been argued that the implementation of collaborative methods in design practice might ensure products align with the goals of sustainable design for low impact and enduring life spans (Fletcher, 2008). The next stage of this research brings consumers into the design process to encourage participation through combining textile design and making with social media tools. In turn expanding upon the 'Co-Everything' landscape in an attempt to up-skill consumers and intercept the flow of their fast fashion consumption.

CHAPTER 4: Methodology

4.1 Introduction

Within the discipline of textile or fashion design, methodology is rarely discussed. There are very few academic publications that specifically address fashion or textile design methodology in the same way that it is addressed and analysed in other design disciplines (Flynn & Foster, 2009). Although methodology is inherent to textile or fashion design as it is taught in higher education, it is not identified as separate from the design process. Stead and Evans (2004) claim that a student of fashion or textile design will be taught the process of information finding, selection, abstraction and application based on a set design brief. This provides a clear focus to direct the designer throughout their experimentation. However, this approach to creative problem solving process is often led by intuition and aligned the designers specialist skillset. The methods applied are often not always clearly made explicit or documented for others to expand upon. This research argues that both fashion and textile design disciplines would benefit from documenting and sharing their design tools and research methods to support better connected and joined up practice.

This research identified that action research was the most appropriate methodology to support a reflective and iterative approach. To adopt the design facilitator role, the researcher employed a selection of methods from the disciplines of service and interaction design disciplines, where design facilitation is more advanced. The researchers own background experience of textile design was referenced and expanded upon, in order to identify practical techniques to support the processes of making and enable fast fashion consumer participation. The design practice was within the research was applied as a stimulus for gathering information and as part of the research methodology to test and evaluate it. This action research approach allowed each stage of the practice to be observed, reflected upon and refined through the next iteration.

The process of action research is not only research that describes how humans and organisations behave in the outside world, but also a change mechanism that helps humans and organisations reflect on and change their own system (Reason & Bradbury, 2006). Throughout the practice of combining textile design and making with social media tools, the researcher constantly reflected upon and refined the practice to consider how it might be expanded upon to achieve a more sustainable fast fashion future.

4.2 Action Research

Action Research aims to produce change (action) and understanding (research) at the same time, although not always in equal amounts. This research also attempted to generate new knowledge of the fashion system, while at the same time trying to change and develop it (Lewin, 1947) in order to develop new ways of working. Throughout each iteration of the research practice, the researcher was continuously learning from each experience - learning how to learn from them in fact - and creating conditions (structures, processes and cultures) to support and foster this new learning.

Figure 22 Action Research (Reason, 2000)

Action research within this research was:

- Concerned with improving social practices of sustainability within fast fashion
- A cyclical process, systematically conducted through design facilitation
- A participative process to enable fast fashion consumer interaction
- A reflective process to iterate, refine and learn from each interaction

4.3 Action Research Approach within this Research

Through consumer culture, society lives in an environment inherited from the industrial revolution within the framework of 'produce more, faster and cheaper'. The fast fashion phenomena demonstrates this as high street retailers design and distribute new collections every four to six weeks, with an average of twelve collections per annum. By buying into this construct, fashion consumers have become locked out of the design and production process they are in danger of becoming de-skilled as a result (Fletcher & Grose, 2012). This is a stark contrast to approximately sixty years ago, a period of time when the term 'read to wear' involved individuals making their own clothing from home. During this period of time dressmaking patterns were used to disseminate new fashion trends and investment of effort and time reduced the cost, it was the only affordable option but it ensured the garments were more durably both functionally and emotionally. Through the advancement of mass manufacturing processes, ready to wear fashion has gradually become more affordable and accessible. Therefore, the consumer necessity to sustain their skillset to enable them to produce their clothing own clothing is no longer essential, as they can purchase what they need and want on demand. The cost of fast fashion is now cheaper to making your own, it is currently become more expensive to make your own garment than it is to shop on the high street. Thus it is a huge challenge to convince consumers to engage with an alternative option when the current fast fashion system appears to be providing them with more value for their money.

This research explores how design facilitation might be applied to mediate consumer engagement within textile design and making processes, combined with online media to consider more sustainable fashion futures. The researcher adopted a design activist role to facilitate consumer behavior change by identifying new opportunities spaces to support participatory consumer experiences. Expanding upon the work of von Busch (2010) who argues "that by habit we make user-friendly stuff so simple that we fail to let the consumer know how it is made, or reveal its true cost". Rather than designing beautiful objects of desire, von Busch (ibid) argues a new approach - design for agency. This research promotes agency through a participatory paradigm to explore how fast fashion might evolve into an alternative system to become more than the ready-to-wear piece of clothing on the hanger.

This research argues a case for *textile design interventions* as an exploratory method. An intervention is regarded as a staged act orchestrated to effect positive change to address a serious problem (Thorpe, 2011). Within the context of fast fashion this might be regarded as unnecessary, especially from the consumers perspective. The investment into advertising and wealth of promotion safeguards the retailer's influence, deeming the act of consumption a necessity. The exploratory method of a *textile design intervention* has been applied throughout this research to disrupt the

speedy flow and passive nature of fast fashion consumption. As the research progressed, four *interventions* emerged each trialing and testing a different approach. Throughout the design, development and implementation of each intervention, social media tools were combined to share the textile design and making process, and amplify the research practice by promoting agency beyond facilitated interactions. Each of these interventions were documented online as they evolved and the practice and as a result, it became diffused to an extended audience and subject to online peer review. This online engagement provided a range of different digital platforms to showcase, share and demonstrate the research findings and welcomed serendipity as the interventions became adopted by new people and applied in new contexts. Each of these platforms and social media tools have been referenced within the design and implementation sections within each chapter in Part 2 of this thesis.

Throughout this thesis the researcher identified a new role – that of the design facilitator - which was adopted alongside being the researcher. The role of design facilitation expands upon facilitation by utalising design specific tools, methods and skills to apply design within orchestrated actions (Body, J, Terrey, N, Tergas, 2008). The design facilitator role is new; and OpenIDEO have recently developed a toolkit (OpenIDEO, 2011) to encourage the development of these skills within their online community. This has been supported by initiating offline 'meet up's' to enable member of their community to meet up in person and expand upon there facilitation skills to address design challenges collectively. They argue that the design facilitator is a rare breed and they aim to support the cultivation of this role. Within this research the process of design facilitation goes beyond encouraging the aesthetic and functional aspects of fast fashion, by designing and implementing interventions that initiate alternative fast fashion experiences, to facilitate consumer interaction to discourage short-term usage of garments.

4.4 Design Facilitation Toolkit

The 'Design Facilitation Toolkit' supports design facilitation and the design, development and orchestration of a *textile design intervention.* The toolkit expands upon the facilitation work of OpenIDEO (2011), von Busch (2011), Fletcher and Grose (2012) and Earley and Politowicz (2010-14). Alongside referencing Frog's Collective Action Toolkit (2013), IDEO Method Cards (2002), Kimbells Social Innovation Toolkit (2013) and Standford's Social Innovation Bootcamp (2013).

There are existing sustainable design strategies available to support the sustainable design principals of reducing, reusing, recycling and restoring. For example, 'TED's TEN' (2010-14) developed by the Textiles Environment Design (TED) group (Earley and Politowicz, 2010-14) to promote sustainable design strategies using a method card toolkit. These ten sustainable design strategies are illustrated

below within *figure 23* and have been argued as a valuable starting point to support design innovation within the design of products, services, online experiences, events or environments.

1. Design to Minimse Waste
2. Design for Recycling/Upcycling
3. Design to Reduce Chemical Impacts
4. Design to Reduce Energy & Water Use
5. Design that Explores Clean/Better Technologies
6. Design that Looks at Models from History & Nature
7. Design for Ethical Production
8. Design to Replace the Need to Consume
9. Design to Dematerialise & Develop Systems & Services
10. Design Activism

Figure 23 TED's TEN Earley & Politowicz (2010-14)

The methodology of action research is an orientation towards enquiry that seeks to create engagement, curiosity and questioning through testing practice and gathering evidence (Reason & Bradbury, 2006). Within this thesis a design facilitation toolkit within *figure 24* was developed to provided a scaffold to structure design methods and refine them through practical application. The matrix expands upon the four stages of action research; planning, action, observation and reflection. To begin with three main methods were identified to support each stage. This is supported by colour coding each group of methods to highlight which methods have been implemented to support each textile design intervention. The lime green colour refers to the original three methods for each stage of action research and these remain consistent throughout the design, development and implementation of each intervention. The colour coding is expanded upon throughout the next

section of this thesis and additional colours are aligned to each intervention and their associated chapter, this has been visualised in *figure 1 Thesis Content Map* within the introduction and the complete Design Facilitation Toolkit is documented within Appendix B.
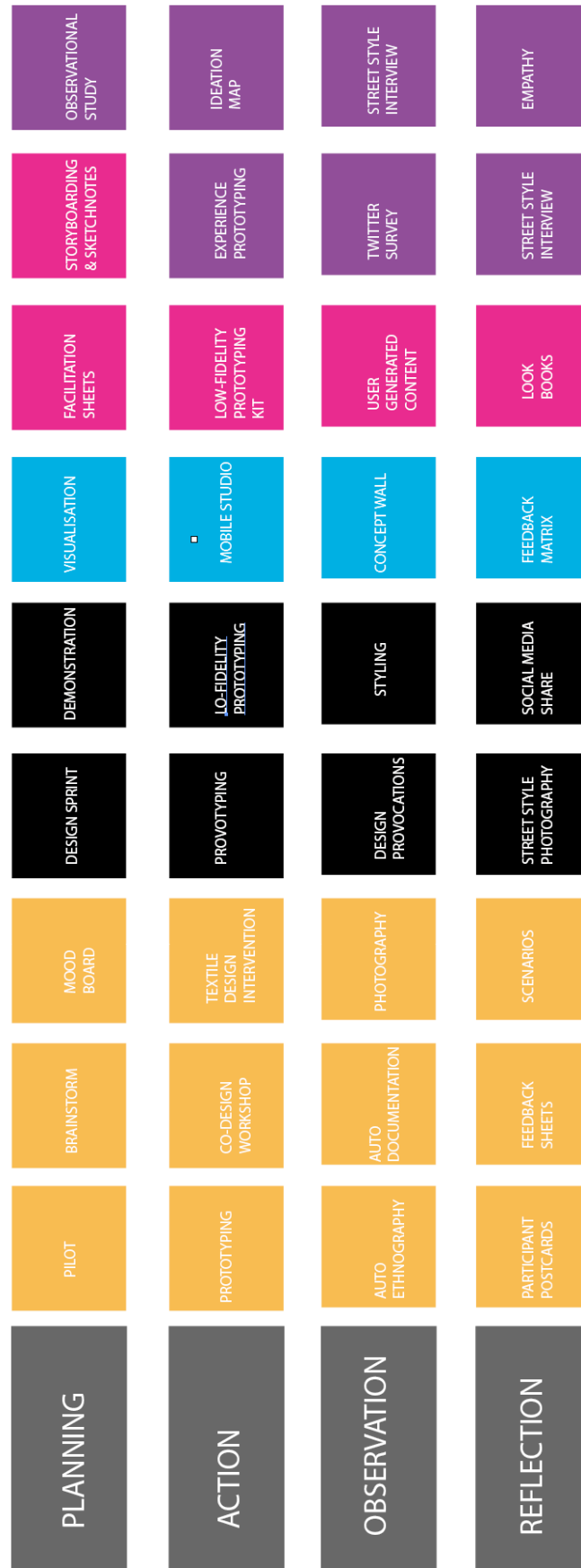
Figure 24 Design Facilitation Toolkit

The colours are listed below:

- Main Methods – orange
- Textile Design Intervention 1 - black
- Textile Design Intervention 2 - blue
- Textile Design Intervention 3 - pink
- Textile Design Intervention 4 – purple

The toolkit expanded as the research evolved to include new methods, tools and techniques that emerged through action research. As the research progressed the toolkit was re-iterated and attuned to include what worked, and through reflection each chapter here also references what did not work. The design facilitation toolkit supports the design, development and dissemination of the *Textile Design Interventions* through four defined stages of action research; planning, action, observation and reflection. Alongside the methods, the sustainable design strategy, textiles making process and integrated social media tools have also been documented within the Design Facilitation Toolkit (see *figure 25* below). All of the methods are interchangeable and have the potential to be reconfigured by design researchers who wish to expand upon this resource to design their own interventions within the future.

PLANNING	PILOT	BRAINSTORM	MOOD BOARD
ACTION	PROTOTYPING	CO-DESIGN WORKSHOP	TEXTILE DESIGN INTERVENTION
OBSERVATION	AUTO ETHNOGRAPHY	AUTO DOCUMENTATION	PHOTOGRAPHY
REFLECTION	PARTICIPANT POSTCARDS	FEEDBACK SHEETS	SCENARIOS
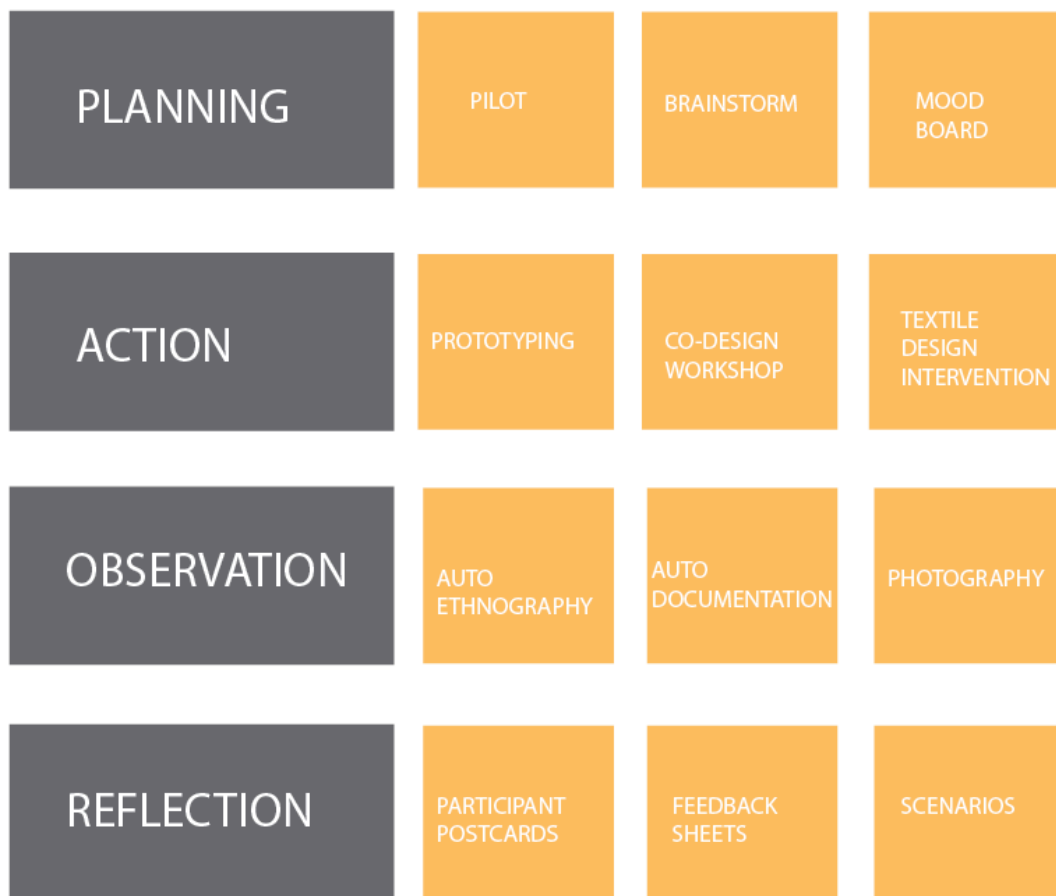
Figure 25 Primary Methods Design Facilitation Toolkit

4.5 Action Research Process

4.5.1 Planning

The primary stages of designing and developing each textile design intervention required the identification of research methods, design tools and techniques. The toolkit provided core methods and additional methods and tools were trialed and tested through pilot studies. The pilot was conducted to refine the design and delivery of each intervention through a different approach. Additionally, a clearly defined problem statement and context was essential to orchestrate action and manage participant expectation. Rittel (2008) an advocate of designing together claims that people have to have dialogue; they have to agree on how to frame a problem and agree on their goals and actions.

The Planning of Each Textile Design Intervention:

- Primary research was conducted to identify existing approaches, tools and methods before defining an approach and concept for each intervention.
- The research methods were identified to support participation within each intervention and gather data to reflect upon each iteration.
- Each textile design intervention was piloted in advance through prototyping with a sample group, to trial the approach and the application of the tools required to support the textile design and making process.
- Through combining social media tools, a digital platform was curated to represent the textile design intervention and develop a low-fidelity online space to host conversation, support collaboration and document the research process as it evolved.

4.5.2 Action

The design facilitator directed the action staged within each intervention. The method of prototyping became a main method to promote new learning through a process of physical demonstration, and required action by doing. The participants became more confident as their experience of engaging with textile design and making progressed. To initiate participation required co-operative inquiry that is a community of value; the value premises were important. The participants had to become excited by and attuned to these premises in order to participate. This required each intervention to provide a clear rationale, purpose and direction from the outset. Reason & Bradbury (2006) argues this makes for good practice and encourages each participant to become empowered through clear goals and actions. Through adopting this approach, each participant could make sense of the actions and play a role in defining their own observations. This enabled the participants to take initiative and exert their

own influence on the research process.

4.5.3 Observation

In action research, data comes through engagement with others in the action research cycles. Thus, it is crucial to know that acts, which are intended to collect data, are interventions themselves (Coghlan, D, Brannick, 2009). The methods and data gathering mechanisms needed to be designed to fit the orchestrated environment and gather data effectively. Through combining social media tools, research was staged within online and offline contexts. The online interaction was not facilitated but was observed, while data analytics could be embedded within online platforms to quantify the scale of consumer engagement. The method of *direct observation* was applied during participatory action. The method of *auto-documentation* was devised as a method for personal documentation. This research applied action research from the first, second and third person perspective and used the triangulation of methods approach (Torrance, 2012) to support each viewpoint. The concept of triangulation claims that every method has its limitations and multiple methods are usually needed. This triangulation strengthened the study by combining methods and allowing the use of multiple methods to study a problem.

1. Auto-ethnography (from the researchers perspective)
2. Observation through auto-documentation (from a colleague/peer perspective)
3. Feedback (from the participants perspective)

4.5.4 Reflection

Through action research, reflection is the activity that integrates action and research. The process of reflection required stepping back from each experience, to question it and identify new insights. (Raelin, 2011) states that this enables the researcher to develop an ability to uncover and make explicit what they have planned, discovered, and achieved in practice. He argues that this should be brought out into the open so that it goes beyond 'taken for granted' assumptions. Through combining social media tools, reflection was shared from the research and the participants. This positioned the research open to peer review from those involved and to an extended online audience.

The data gathered through the observation methods of auto documentation and auto ethnography provided visual data to reflect on each iteration beyond staged action. The participant feedback sheets provided a prop to capture their reflection on the process, outcomes and overall experience. This data and feedback was explored and written up through an evaluation to reflect upon the findings. A series of semi-structured interviews were set up with the participants and the project

closed by proposing a series of scenarios to illustrate how the action could be projected into markets of the future from a textile and fashion design perspective.

4.6 Conclusion

This chapter highlights that there is limited literature around design research methods within the disciplines of fashion and textile design. However, through adopting an action research methodology the researcher had a mechanism to identify research methods and refine them through informed trail and error. This reflective practice provided an opportunity to apply methods from other disciplines and evaluated their effectiveness. The Design Facilitation toolkit also emerged as a resource to document the methods that emerged throughout this research to develop a resource for others to access and build upon. The toolkit is also supported by a matrix within the conceptualisation of each intervention to document the sustainable design strategy adopted, including what textile making processes was applied and which existing social and digital media tools were integrated. The action research methodology was applied within the following part of this thesis to support the development of each textile design intervention.

PART TWO

Chapter 5: Textile Design Intervention 1 – Design Activism

5.1 Introduction to 'Old is the New Black'

Within fast fashion consumer culture, clothing is often discarded due to the consumer failing to establish a meaningful connection (Chapman, 2005) and for no other reason. This intervention aimed to disrupt the flow of fashion items that consumers are habitually throwing away due to perceptions regarding what is considered fashionable. Within fashion, the slogan "X is the new black" is an expression used to indicate the sudden popularity or versatility of an idea often associated with some en vogue trend. This interventions subverted the meaning by re-phrasing 'Old is the New Black' as a new proposition with the intention to extend the lifecycle of short life garments.

This chapter provides an insight into the sustainable design strategies of design activism and upcycling through practical application, with the premise of discouraging passive consumption. This was achieved by empowering consumers and encouraging them to become activists who participate within the design process of their own clothing. The textile design and making processes within this intervention support upcycling by using black paint and textile dyes to expand upon overprinting techniques to enable garment transformation.

The researcher worked collaboratively with Dr Otto von Busch to conceptualise this design interventio and this chapter highlights some of the problems regarding fast fashion obsolescence, with the aim of developing a design proposition to address them. The intervention has been conceptualised, designed and developed and trailed and tested through the design and implementation of a series of workshops. The chapter concludes with an evaluation to identify the impact of consumer participation within this intervention to highlight the limitations and opportunities for further research.

5.2 Problem

Overconsumption is one of the major threats facing the future of our planet. Society today is overwhelmed by the constantly increasing production of new goods, which are supposed to fulfill our life, although they rather decrease the quality of life by creating an addiction (Max-Neef, 2010). In order to pave the way towards a self-sustained society without exploiting the resources of future generations, our capitalist system must shift away from its dependency on excessive production and consumption. This research challenges the disposable nature of consumption within a fast fashion context, where a large majority of clothing is not disposed of because it is damaged, worn out or

physically unusable. The consumer failing to establish a meaningful emotional connection often contributes to the disposable nature of short life garments (Earley & Fletcher, 2005). Chapman (2005) argue, that this is because objects remain stagnant while the consumer continues to evolve through their every day experiences. Johansson (2010) discusses the issue of fast fashion focusing on short-term satisfaction, as consumers suffer primarily from 'aesthetic' and 'social obsolescence'. "Through consumption, people try to compensate for a lack of some kind. Our mind is driven by the urge to satisfy this emptiness by filling it with an object that best suits our aspirations. This can be based on functionality or, in the case of fashion, have a 'placebo value" (Barthes, 1980).

While a selection of fast fashion retailers have recently implemented 'take back systems', in an attempt to reclaim consumer waste (Marks and Spencer, Topshop and H&M, 2013), these same brands are yet to implement a design system or service to support garment maintenance, repair or re-use.

5.3 Sustainable Design Strategies

Rather than consuming just 'new' garments to obtain the look of the season, this intervention subverted this construct by promoting the transformation of the 'old' garments to achieve a new look. The sustainable design strategies of design activism and upcycling were combined and promoted as a conduit to channel agency and empower fast fashion consumers to reclaim ownership of garments that they would have previously discarded. The theory of emotionally durable design (Chapman, 2005) has also been referenced and considered as a design approach for consumers to sustain a deeper emotional connection with their clothing. Fuad-Luke (2009) discusses sustainability strategies that extend product durability by making products in such a way that they are repairable, reusable and re-makeable as well as 'socialisation' by sharing products. He argues that the way consumer needs are satisfied must be redesigned through a change in society to re-evaluate the distinct habits of individuals.

The aim of this intervention was to challenge the disposable nature of fast fashion. With two objectives, the first was to identify a collection of textile design making processes to support upcycling. The second was to develop an online platform to raise awareness, and promote participation through the exchange of skills, ideas and experiences to re-evaluate their consumer behavior. This expands upon the work of Manzini (2007) who discusses the opportunity of enabling and activating consumers to become part of the production cycle by enabling people with new skills to build a relationship with the products they own. Designers can enable the consumer with skills; this allows them to break out of being a passive recipient of what is offered in the stores (Von Busch, 2008). Design, which fosters social and environmental benefits, also hands over the responsibility to

the consumer (Fuad-Luke, 2009).

The design activist can not disrupt the fast fashion system, as it would be impossible to influence this global system, but there are many opportunities to develop new garment transformation processes to explore more meaningful social encounters with fast fashion post consumption. The goal of fashion activism is to criticise the current fast-fashion system and work towards improving it (von Busch, 2008). It is an umbrella term for various politically, socially or environmentally driven activities related to the fashion industry, fashion consumption and fashion design (Fuad-Luke, 2009). Fashion activism is redefining a profession and its possibilities to support a sustainable system and democratise knowledge (von Busch, 2008). "Fashion activism ideologies envision a fair balance between economic, social and environmental responsibilities" (Hirscher, 2013).

The concept of upcycling argues a case for exploring practice led interventions that add value to discarded items through design. Within the paper Upcycling Textiles: Adding value through design, Earley (2011) explores: "aesthetics and the design of upcycled textiles that are 'better' than the original; the generation of alternative and supporting actions; making enlightened material choices; understanding the different implications of using pre consumer and post consumer waste; the design for future recyclability, and if possible, future upcycling".

5.4 Developing Textile Design Intervention 1

5.4.1 Inspiration

This intervention emerged through collaboration with Dr Otto Von Busch (2010-ongoing) following a visit to the Maison Martin Margelia Exhibition (London, 2010). The garments within this exhibit provided stimuli to facilitate conversation and provoked internal debate between the researchers in regards to garment transformation and material re-use. This body of Margelia's work (see figure 26 below) showcased within the exhibition demonstrated the wealth of available processes and techniques to transform discarded clothing. These upcycled garments embodied a new mode of fashionability and as a result, new consumer relationships began to emerge. The researchers questioned the potential for experimenting with garment transformation through textile design and making, but advanced this further by considering how to promote a participatory approach through design activism. As a consequence, visiting this exhibition became a catalyst to conceptualise 'Old is the New Black' as a design intervention.

Figure 26 Maison Martin Margiela Exhibition (2010)

Following the exhibition, the researchers initiated a collaboration to expand upon their own practice-based research. Through reflecting upon their independent research interests they identified a series of synergies referencing street fashion, design activism and participatory design. Design activism and upcycling are two of the ten strategies included within TED's TEN (2010), a toolkit established by Earley and Politowicz (2010) to educate designers by facilitating sustainable design innovation to challenge existing fashion behaviours, habits and rituals which have a negative impact on people and the environment. Through a review of both upcycling and fashion activism, the researchers identified a selection of fashion designers offering small-scale transformation services. The researchers were mindful that the process of upcycling existing fashion garments often requires intricate pattern cutting and advanced sewing techniques. The transformation process is restricted by the design decisions made within the original design and production of the garment. The first cycle of upcycling enables a second life, but this will influence the third and so on.

Figure 27 Black Hack (Earley, 2011)

There is further potential to innovate through textile design making processes by overprinting and dying existing garments. There are small fashion labels applying overprinting techniques but their activity is limited at present, highlighting a potential new opportunity space for this intervention to emerge. The Black Hack by Earley (2011) within *figure 27,* applied design activism through a workshops which facilitate upcycling through overprinting existing garments, usually shirts. This offers a practical demonstration of design activism a strategy that is included within TED's TEN (Earley and Politowicz, 2010-14).

Furthermore, the researchers reviewed street fashion to explore how social media was being adopted to influence a new movement of individuals who document their personal own style that they promote and share online. These individuals can be characterised as Gen Y fast fashion consumers, who are competing to demonstrate their individuality, to be acknowledged from their peers, and accredited by a network of individuals who have the ability to follow and rate them. They have the skills and resources to orchestrate their own photo shoots, and challenge themselves to adapt and style clothing differently each day. This has been influenced by the success of influential bloggers such as the Sartorilaist (2012) and Facehunter (2012) (see Figure 28 below) that profile and promote stylish

individuals across the globe during Fashion Week events. As a result, fast fashion retailers are recruiting online fashion bloggers to provide head up online marketing campaigns and enable them to have an online presence.

Figure 28 Street Style Bloggers at Fashion Week (2013)

5.4.2 Conceptualisation

To broaden the remit of fast fashion consumer participation the materials, techniques and resources were defined through low cost and low-tech solutions to support the democratic ethos of design activism. To support upcycling, textile design making processes were identified to enable consumers to transform their garment by overprinting and dying. Von Busch (2010) coined 'zero-degree' engagement as a term for adopting low cost materials and user-friendly tools that could be applied with zero or minimal design facilitation. These techniques were pre-selected, as they are user-friendly, require no facilitation, are low cost and easily accessible. The dye could be applied using a sponge or brush as visually depicted within *figure 29* below.

Figure 29 Old is the New Black Over Printing Method

The sustainable design strategies alongside the textile design making processes and integrated social media tools are visually mapped within the matrix in *figure 30* below.

SUSTAINABLE DESIGN STRATEGY	DESIGN ACTIVISM		
TEXTILE MAKING PROCESS	UPCYCLING	OVERPRINTING	BLACK PAINT, INK & DYE
SOCIAL / DIGITAL MEDIA TOOLS	TUMBLR BLOG	PINTEREST	INSTAGRAM
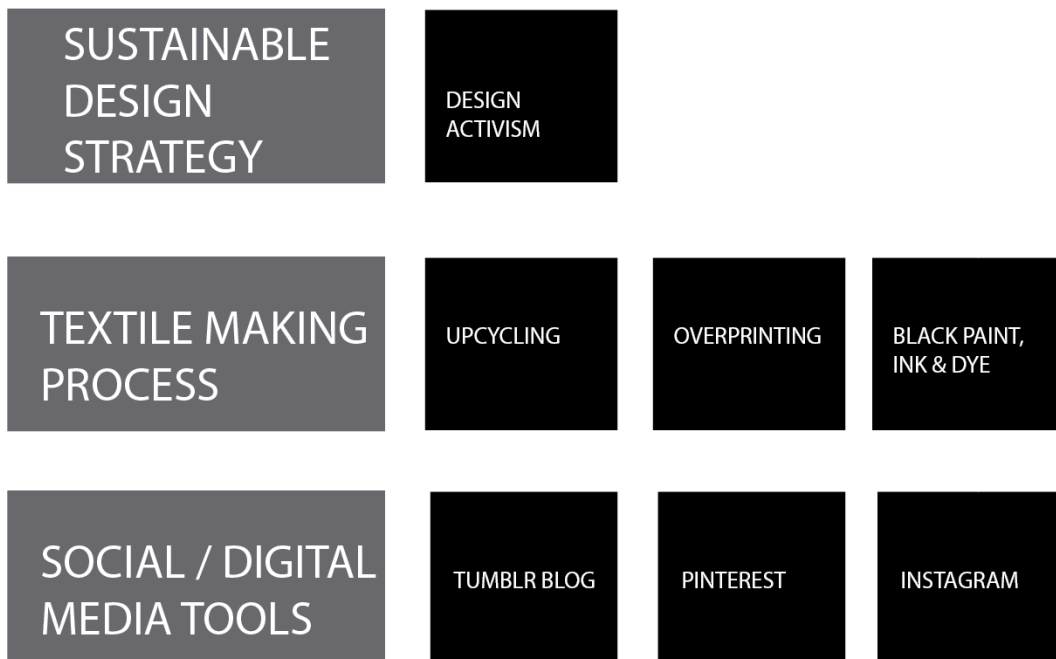
Figure 30 Conceptualising Intervention 1

The intervention required an online platform, to raise awareness, share skills and assemble a network of connected individuals by enabling them to share their experiences. This was achieved by registering a tumblr account (see figure 31 below) and a personalised blog to document the intervention and provide open access to enable participants to contribute by uploading their own content. The blog shared a set of simple 'how-to' instructions to support participation.
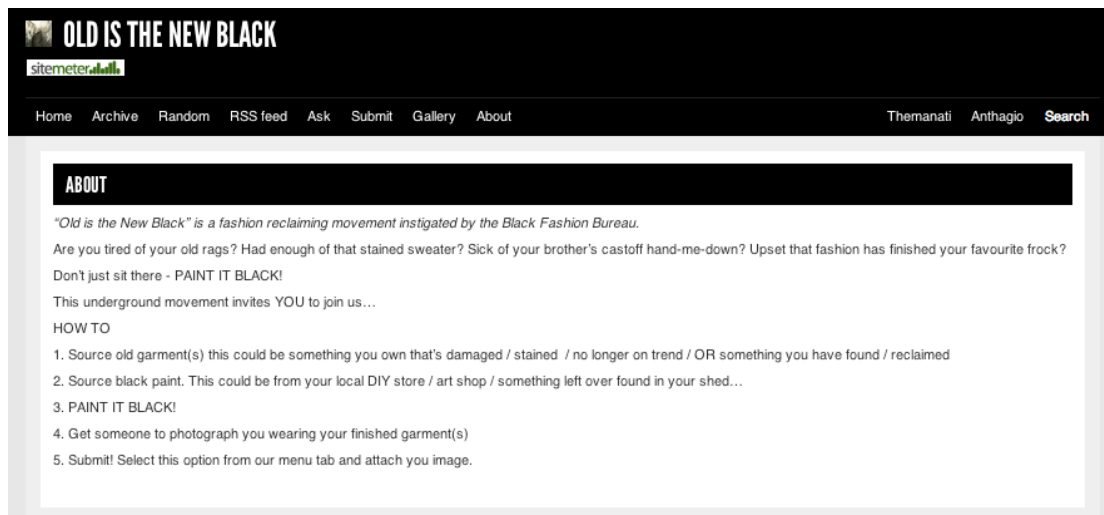
Figure 31 Old is the New Black Tumblr Blog (2010-13)

The researchers utalised this space to document textile design and making processes, catalogue upcycled garments and share the overall experience. This approach allowed the researchers to share the research and engage with an extended audience by combining social media tools with textile design and making. This web platform was selected as it could remain open to allow anyone to upload content to share their experience or contribute a comment.

5.4.3 Research Methods

The *textile design intervention* method was developed and delivered through an Action Research methodology, the four predefined stages in the cycle were: planning, action, observation and reflection. The main methods remain the same across this research to provide consistency in the research practice and data capture. Within each intervention collaborative processes have to be facilitated through new design methods. Therefore, the methods colour coded in black (see Figure 32) have been specifically identified to support the design and implementation of this intervention.

PLANNING	PILOT	BRAINSTORM	MOOD BOARD	DESIGN SPRINT	DEMONSRATION
ACTION	PROTOTYPING	CO-DESIGN WORKSHOP	TEXTILE DESIGN INTERVENTION	PROVOTYPING	LOW-FIDELITY PROTOTYPING
OBSERVATION	AUTO ETHNOGRAPHY	AUTO DOCUMENTATION	PHOTOGRAPHY	DESIGN PROVOCATIONS	STYLING
REFLECTION	PARTICIPANT POSTCARDS	FEEDBACK SHEETS	SCENARIOS	STREET STYLE PHOTOGRAPHY	SOCIAL MEDIA SHARE

Figure 32 Design Facilitation Kit Intervention 1

The method of *design sprinting* (Frog, 2012) enabled the researchers to work collaboratively over a compressed period of time. The method of *prototyping* was expanded upon to support design activism and as a result, the exploratory methods of *provo-typing* (Mogensen, 1992) and *design propositions* emerged. Each *design proposition* was followed by the *provo-typing* method to enable participants to make sense of and respond to the design provocations through a cycle of action that involved engaging with textile design and making processes. The *provo-typing* method was engineered to spark debate and encourage participants to consider new paradigms to construct future *scenarios.* Through a process of participation new design propositions began to emerge as participants began to imagine new contexts for garment care, repair and use.

The final stage of reflection was supported by the method of *auto-ethnography*, which Muncey (2010) identifies as a valuable method to reflect upon the researchers own personal experience of adopting a design facilitation role. When applying the role of design facilitator, the researcher integrated a design approach by maintaining a sketchbook annotated with notes and illustrations when observing, iterating and refining the intervention through each cycle of action research. The *auto-ethnography* method was applied to reflect upon new learning through action and documented new insights as they emerged. The researcher also reflected upon their account of the participants experience and built in the *postcard templates* as a method to capture their feedback. The participant responses have been captured and they are documented within Appendix C. This enabled the researcher to make comparisons from their perceptions and the participant's perspective. The tumblr blog provided a platform beyond each workshop to document, share and reflect on each cycle of action research to

catalyse further conversation and document and gather the research data. Throughout this process social media played a valuable role by amplifying our efforts and building a real time connection with an extended audience beyond our existing networks.

5.5 Design & Implementation

The intervention aimed to raise awareness of the impact of overconsumption by equipping consumers with new skills, resources and experiences to consider an alternative. Consumer awareness was promoted through design activism and the slogan 'old is the new black' was applied to initiate a reactionary response from fast fashion consumers. The slogan and transformation process were stimulated and shared online to orchestrate offline action. This proved to be an effective approach as invitations emerged from exhibition curators to deliver workshops, these workshop events were documented online to promote design activism beyond these orchestrations. Each iteration is documented within the Textile Design Intervention Table (figure 33 below).

Textile Design Intervention One 'Old is the New Black'

Purpose: To promote fast fashion consumer awareness about the material obsolescence of fast fashion, through devising an inclusive textile design making process to facilitate upcycling. To identify a series of user friendly textile design and making processes that have the potential to be applied to transform garments within our existing wardrobes.

Sustainable Design Strategy: Design Activism, upcycling

Textile Design Making Process	Online Media
The textile design and making process was supported by overprinting, this textile technique provided a simple solution to transform existing garments using black ink, dye and paint, which was applied using paint, brushes and sponges.	Tumblr Blog - http://oldisthenewblack.tumblr.com/
Call for Participation	**Workshop Facilitates**
Participants were recruited through calls for participation promoted online within the tumblr blog. The blog was promoted within sustainable design events and was shared within both of the researchers existing social media networks (twitter and Linked In). The researcher remained anonymous during the online promotion and the calls were shared on behalf of the Black Fashion Bureau.	The textile design making process and associated materials required a small flat work surface such as a table or the floor. Following printing, a space needed to be cleared to hang the garment and allow the paint to dry.

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Age**	**Outcome**
Pilot **Date**: 12th July	The premise of the pilot was to identify a user-friendly textile design and making processes using the medium of black	1 Dr Otto von Busch (design facilitator / researcher)	x		Gen X	Shirt Jeans

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Age**	**Outcome**
2010 **Time & Duration:** 24 hours **Venue & Location**: Chelsea College of Arts & Design, UAL, London	paints, dyes and inks. During a 24-hour print the researchers identified the textile design making methods and set up a blog. This experience was documented using photography and shared online to promote further participation.	2 Jen Ballie (design facilitator / researcher)		x	Gen Y	Blouse Jeans
Workshop 1 **Date:** 21st August 2010 **Time & Duration:** full day workshop (drop in sessions) **Venue & Location:** Fashion Footprints Exhibition & Festival, Devon	Within this workshop the researchers demonstrated the textile design and making processes to support fast fashion consumers to transform garments within their existing wardrobes. Home decorating tables were assembled outdoors with paint, brushes and sponges available. A washing line was also assembled outdoors to provide a drying space.	1		x	Gen X	Dress
		2		x	Gen X	Denim Jacket
		3		x	Gen Y	Blouse
		4		x	Gen Y	Dress
		5		x	Gen Y	Shirt
		6		x	Gen Y	Scarf
		7		x	Gen Y	Dress
		8		x	Gen Y	T-shirt
		9		x	Gen Y	T-shirt
		10		x	Gen X	Trousers
Workshop 2 **Date:** 10th September 2010 **Time & Duration:** full day workshop (drop in sessions)	Within this workshop the researchers demonstrated the textile design and making processes to support fast fashion consumers to transform garments within their existing wardrobes.	1	x		Gen Y	t-shirt
		2		x	Gen Y	t-shirt
		3		x	Gen Y	t-shirt
		4		x	Gen Y	t-shirt

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Age**	**Outcome**
Venue & Location: Oxo Tower Gallery, London. During the London Design Festival	White sheets were taped to the floor within the gallery. Black paint, dye and brushes were used to transform t-shirts. Hair dryers were used to speed up the drying process.	5		x	Gen Y	t-shirt
		6		x	Gen Y	t-shirt
		7		x	Gen Y	t-shirt
		8		x	Gen Y	t-shirt
		9		x	Gen Y	t-shirt
		10		x	Gen Y	t-shirt
Workshop 3 **Date:** 30th November 2010 **Time & Duration:** 7-12pm (5 hour workshop) **Venue & Location:** Factory Warehouse, Gothenburg, Sweden. During the Festival of Light.	Within this workshop the researchers demonstrated the textile design and making processes to support fast fashion consumers to transform garments within their existing wardrobes. Different workspaces were set up within the factory. Different paints and dyes were sourced and materials were made available to apply them. Further craft techniques such as appliqué and embroidery were also available to sample.	1	x		Gen Y	shirt
		2	x		Gen Y	shirt
		3		x	Gen Y	t-shirt
		4		x	Gen Y	t-shirt
		5		x	Gen Y	dress
		6	x		Gen Y	shirt
		7	x		Gen Y	shirt
		8	x		Gen Y	shirt
		9		x	Gen Y	cardigan
		10		x	Gen Y	sweater
		11		x	Gen Y	shirt

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Age**	**Outcome**
		12		x	Gen Y	jeans
		13		x	Gen Y	skirt
		14		x	Gen Y	dress
		15		x	Gen Y	cardigan
		16	x		Gen Y	t-shirt
		17	x		Gen Y	sweater
		18	x		Gen Y	shirt
		19	x		Gen Y	jeans
		20	x		Gen Y	shorts
TOTAL		**42**	**12**	**30**		**44**

Figure 33 Textile Design Intervention 1 Template

5.5.1 Piloting the Intervention

Figure 34 Piloting the Textile Design & Making Process

The pilot was orchestrated to design and implement the intervention during a 24-hour period of time, following the *design sprint method* (Frog, 2012). The objective of the sprint challenged the researchers to develop a practical demonstration of an inclusive textile design and making process to upcycle fashion garments and accessories. A sample collection of garments was sourced in advance from the Salvation Army, alongside black fabric paint and dye. The black fabric paint and dye were applied to a sample collection of reclaimed garments to develop user-friendly techniques. The transformation process was simplified to reduce the requirement for professional facilitation and encourage individuals to apply their own approach.

Throughout a 24-hour period of time, the researchers successfully sourced and transformed a small collection of garments, while documenting each stage of the textile design and making process to demonstrate 'how-to'. A street style photo shoot catalogued the final collection and is documented in *figures 36 & 37* below. The finished results challenge the status quo of pristine garments through bold and deliberate strokes of paint and dye. This furthered the design activist approach by promoting a new aesthetic vision for future participants, by encouraging them to channel their energy into a new direction by adopting a new look by actively interacting and transforming their existing wardrobe, even momentarily.

The challenging aspect was identifying a scalable solution which would enable fast fashion consumers to transform garments within their own wardrobes en mass. This was never the intention within the parameters of this research, but it was crucial that each participant could feel empowered and connected to a bigger vision. By integrating social media tools, the researchers considered how to promote agency beyond their own action and the 'Old is the New Black' tumblr blog illustrated within *figure 35* below served this purpose.
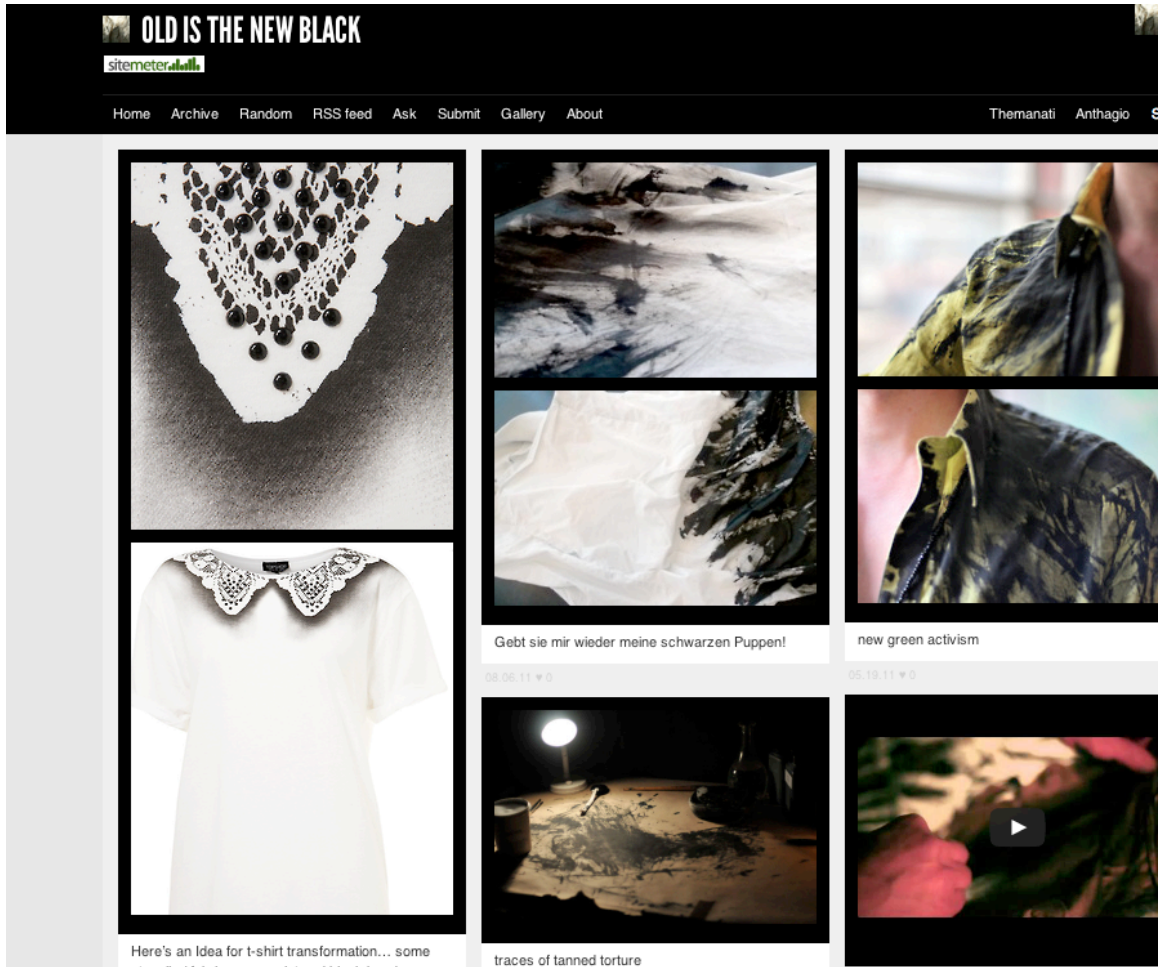
Figure 35 Old is the New Black Tumblr Blog

Figure 36 Over Printed Shirt from Pilot

Figure 37 Over Printed Blouse from Pilot

5.5.2 Iteration 1: Design Activism Workshop

Following the pilot the first iteration emerged from an invitation to deliver a design activism workshop within an exhibition titled 'Fashion Footprints' (2010). This was a result of an individual previewing the 'Old is the New Black' blog. The workshop was hosted outdoors and delivered using a domestic home decorating pasting table, household paint, brushes and sponges (*see Figure 38 below*).

The outcomes of the workshop were showcased within a pop up exhibition space. This was assembled using a washing line that also provided a dual purpose by providing a prop for drying off newly transformed garments and by showcasing the finished results. The washing line supported the *design provocation* method as it catalysed debate by challenging the traditional purpose of a washing line and the perception of clean clothing hanging on the line. The deliberately marked and blacked out garments provided a conversation starter about garment use, maintenance and care. While the intervention aimed to support agency, it also hoped to raise awareness about garment obsolescence.

Figure 38 Workshop 1 - Fashion Footprints Festival 2010

5.5.3 Iteration 2: Design Activism Workshop

The second iteration also emerged in response to an individual previewing the 'Old is the New Black' blog. This invite provided an opportunity to deliver a *workshop* which showcased a sample collection of *provo-typed* garments within an exhibition titled 'Eco Factory', hosted within the Oxo Tower, London during the London Design Festival (2010). The *workshop* provided a short demonstration of some simple painting and dye techniques using sponges, brushes and paint rollers. These techniques were potentially messy and thus had to be more controlled within the gallery. The methods of *provo-typing* and *provocation*s were integrated into this *workshop* to facilitate conversation with fast fashion consumers while they were engaged within the process of making. This prompted further discussion about developing processes to rework consumer waste. The small collection of 'Old is the New Black' garments were showcased within a gallery context and hence purchase queries emerged, but they were not available for sale. These garments are documented within *Figures 39, 40 and 41 (below)*.

Figure 39 Provo-typed Skirt - Workshop 2

Figure 40 Provo-typed Dress - Workshop 2

Figure 41 Provo-typed Shoes - Workshop 2

5.5.3 Iteration 3: Design Activism Workshop

The third iteration was orchestrated and initiated by the researchers themselves as they identified an opportunity to work together and collaborate further on developing the intervention. Von Busch identified an action space to host a *workshop* within a derelict building during the Swedish Festival of Light, Gothenburg, Sweden (2010). To promote participation, an advert was placed within a local newspaper. This workshop transformed into a bigger event through further collaboration with local artists and musicians. A series of different workstations were curated to enable participants to engage in a series of dark crafts to 'black out' their clothing using different materials (see *figure 42* below). This included embroidery and appliqué using black leather offcuts. To provide a *workshop* output, a wedding dress was collectively transformed and showcased during a catwalk finale. This provided a deeper insight into the value of orchestrating an alternative fashion experiences within a social event.

Figure 42 Workshop 3 - Festival of Light, Sweden (2010)

5.5.5 Reflection on Methods

This intervention itself is a working *prototype* that has been refined iteratively. During design, development and implementation the textile design and making processes became the main focus to support fast fashion consumer participation. Throughout each *workshop,* emphasis was placed on positive group dynamics and a successful collaboration between the different stakeholders rather than on the individual designer's success (Fletcher & Grose, 2012). Traditional design methods, including *sketching*, *prototyping* and *visualising* were applied but the focus shifted towards shared activities and platforms which had the potential to foster a change in current structures and consumer behaviour (Fletcher & Grose, 2012).

The methods of *design provocations*, *provo-typing* and *design propositions* were experimental and while they have only been trialed and tested within one intervention, they successfully supported the sustainable design strategies of design activism and upcycling. The method of design *provocations* challenged traditional boundaries and encouraged participants to consider new contexts, to explore 'what if we implemented this?' or 'what if clothing could be designed to enable that?' The design facilitators / researchers mediated and documented these conversations to support the co-development of new *design propositions* in partnership with the participants, to co-develop *future scenarios*. The methods of design provocation and *provo-typing* worked well together providing a tangible mechanism to enable participants to make and think about their clothing differently. The method of *provo-typing* forced the participants to question material obsolescence from their own

perspectives. The participants engagement continued well beyond their workshop participation, through wearing their upcycled garments and sharing their experience online.

The collaborative design approach enabled the researchers to construct a *textile design intervention* that promoted and supported fast fashion consumer participation. The application of participatory design changed in response to the interactions that it was applied to support. For example, within interactions between the researchers this method was already familiar and embedded within their own research and practice. This required further consideration when applying participatory design with individuals who had not previously engaged with a design process. Within this first intervention several iterations emerged which enabled the researchers to expand upon their approach to orchestrating and facilitating interactions within the intervention. The method of *auto-ethnography* emerged through practice and provided a means for the design facilitator / researcher to capture data and build upon personal experience through the role of design facilitator. The researchers expanded upon their personal skillset to document and bring *visualisation*, *illustration* and *photography* into the process of reflection.

5.5.6 Outcomes

The physical outcomes of this intervention include a collection of upcycled garments which can also be defined as *provo-typed* finished garments. These are designed to provoke and spark debate which could be at a superficial level addressing aesthetics, or beyond to question assumptions, perceptions and relationships with our own clothing. This intervention has successfully promoted design activism through agency and is documented through offline and online interaction. By sharing each of the iterations of research online, new opportunity spaces began to emerge through further invitations to deliver a workshop and demonstration of the intervention within an exhibition or event. These participatory actions have resulted in a range of different outcomes to demonstrate how a series of simple techniques can catalyse varied outcomes. The overall take away for each participant was:

- **New Skills** - accessible textile design processes to print and paint onto garments and accessories, providing new skills to repair, re-work and adapt their existing wardrobes
- **Alternative Fashion Experience** - a new social experience to engage with their existing wardrobe was achieved through participation. This could be shared online by the integration of social media to document and share within new and emerging social networks
- **Provo-typed / Upcycled Garment** - a wearable transformed piece of clothing which might provoke wider debate and discussion about sustainable fashion

The blog was launched to promote design activism and raise consumer awareness but at the same time to conceal the identities of the researchers themselves and the participants. The 'Black Fashion Bureau' provided an alias for the 'old is the new black' organisation. Through facilitation and delivering *workshop* events, the researchers identities were revealed, but to conceal the participants identity and provide them with freedom to engage, the researchers positioned a white band across their face within photo documentation. This concealed their identity of individuals and their transformed garment became the main focus.

5.6 Evaluation

5.6.1 Reflection on Design Facilitation

This intervention enabled the researcher to question how the role of the designer is shifting beyond the design of products or finished objects towards the design of process and experiences. Atkinson (2011) supports this by highlighting that *"the role of the designer is becoming more varied; part creator, part researcher, part facilitator and part process manager".* This requires a new range of skills and competencies, which are not formally taught within formal design education (Cross, 2011). The researcher identified a further challenge, in that design facilitation requires multiple roles to be adopted simultaneously. When conducting research in a live workshop scenario with participants who all have different skills, needs and expectations this can be challenging and advance preparation was essential. The design facilitation toolkit (see figure 32) provided a valuable aid to combine specific methods with more experimental and exploratory ones. The researcher expanded upon the design facilitation toolkit during the planning stage to identify appropriate methods for the following stages of action, observation and reflection.

The opportunity to work with Dr Otto von Busch enhanced the researchers experience of design facilitation. This provided a unique and highly valuable opportunity to work alongside not only an expert design facilitator, but also an expert with advanced knowledge of design activism within a fashion context. Throughout this experience the researcher developed a deeper understanding of the mechanisms required to design for agency by connecting people to participatory textile design and making processes. Within a fashion and textile context, consumer participation is a new approach within which von Busch (2011) Fletcher (2012) and Rissanen (2005) have published texts alongside practical demonstrations. However, these publications do not share an insight into the techniques, tools or methods required to support design facilitation and this is where 'Old is the New Black' extends the field. Von Busch (2010) highlights that facilitation cannot be acquired by reading alone and requires an appropriate action space to allow the design facilitator to learn through doing. He continues to highlight that adopting a dual design facilitator and researcher role can present challenges, as data gathering can influence the pace and flow of the action, which can often disrupt

the participant experience. Thus the researcher can become so intensely focused on documenting the action that they fail to observe the needs of the participants involved.

To facilitate action within this intervention, the researchers led by example and committed to a design activism approach by applying textile design and making processes to transform garments within our existing wardrobes. Through the process of transformation, the researcher experienced the intervention from a fast fashion consumer perspective to consider my own needs, wants and aspirations. As a consequence a deeper personal connection was developed with the intervention. The transformed garments were documented and shared online, to expand upon practical examples by demonstrating the process and final outcome. While sharing their personal experience, the researchers invited friends and colleagues within their existing social networks to offer a peer review. This provided another lens to reflect upon the intervention, and through each iteration new user generated content continued to evolve. The online interaction was not facilitated - but by maintaining a steady flow of content an extended audience of fast fashion consumers began to engage with the intervention.

5.6.2 Reflection on Participation

The fast fashion consumers who participated within this intervention experienced a form of 'design activism' that was promoted and supported by design facilitation. Each of the *workshop* events were delivered within a public domain through festivals and larger events, therefore it was not possible or appropriate to limit participation to focus only on Gen Y fast fashion consumers. However, a broader group of fast fashion consumers experienced the sustainable design strategies of design activism and upcycling. These consumers were empowered to re-use a garment from their existing wardrobe through a process of transformation. This research only reviews the experience of those defined within a Gen Y demographic but it is worth highlighting that this intervention appealed to a much broader consumer group.

The investment into advertising and the wealth of promotion safeguards the retailer influence, deeming the act of consumption a necessity (Guedes, Roncha, & Minho, 2011). Despite these reservations, this intervention received an overall positive response. The consumers were the catalysts within this intervention and through the textile making process of upcycling, each participant reclaimed ownership of a garment that they had perceived to be no longer valuable within their existing wardrobe. The research methods of *design provocations* and *design propositions* were applied to facilitate conversation, consumers were invited to contribute to a conversation while they engaged with textile design and making. The design facilitator prompted dialogue that was documented within the researchers own *auto-ethnographies*. The participants themselves

contributed by annotating a *postcard,* this method enabled them to share their own reflections of the overall experience and their final thought regarding the transformed garment.

Within a fashion context, the outcomes achieved through the process of transformation within this intervention might be regarded as bold, especially from the consumers perspective. The over printing techniques produce a different aesthetic to brightly coloured, printed and patterned pristine garments. Throughout each of the workshops new dialogues emerged during the upcycling process, a recurring issue emerged during each workshop, a small selection of participants were anxious and apprehensive about transforming their garment. Through deeper reflection it emerged that this was due to the permanent nature of black ink and dye and this particular textile design and making processes forced them to commit to permanently transforming their original garment. The design facilitator/ researcher questioned if this was due to a lack of creative confidence or if these individuals were fashioning a new relationship with their garment. While three individuals claimed this to be a lack of creative confidence the others claimed they had established a new bond with the garment. During one workshop two individuals made the decision not to upcycle their garment, this did not result in physical participation or transformation. Despite this the design activist approach successfully influenced their relationship with a piece of clothing that had been previously disowned and disregarded.

There is further feedback collected from the participants which is documented within Appendix C, that identifies the 'social experience' of each workshop, to be an additional positive outcome. The intervention provided a new platform for participants to connect socially with their friends or within some instances establish new relationships with individuals they had not previously met. Their peers allowed them to project garment upcycling scenarios into a future context before committing to a final transformation design. For example, "you could then wear your garment with this…" or "you could then wear your garment to that big event…". The peer review and feedback provided a process to enable each participant to re-consider how their garment might be re-used through styling for other occasions providing new social contexts for re-use. This intervention extends the opportunity space for further interaction with textile design and making process, thus extending the possibilities for garment transformation. By its very nature the physical shopping experience is tangible and expressive but it fails to connect the consumer beyond the point of purchase. The collaborative exchanges within this intervention encouraged a peer review and support process, with synergies linked to the 'shopping experience'.

A review of participant feedback referenced the postcards documented within Appendix C, these identified that the participants expressed anxieties concerning the speed of fast fashion. They highlighted that they felt a pressure to change their wardrobes frequently and of feeling as though they were unable to adapt quickly enough and of being 'left behind'. A number of these individuals

highlighted that they found their quest for individuality was becoming more challenging, as identikit brands continued to homogenise the global fast fashion marketplace.

The postcard feedback highlighted that the participants acknowledged that they enjoyed their interaction with textile design making processes and having the opportunity to physically transform their own clothing. During the textile design and making process, experimentation was encouraged and the participants claimed to have enjoyed having the freedom to express themselves. The application of black fabric paint using a sponge or brush was adopted by the majority of participants and achieved a similar aesthetic outcome. But upon closer inspection the brush strokes and sponge marks are diverse and represent the signature of each individual to symbolise the message of renewed interest in re-use and repair. Through agency the participants played a pivotal role in expanding the textile design techniques and making processes and each individual experienced a personal journey as they transformed their garment.

"Great experience. The same garment could be transformed again and again. Maybe stencils could be available to buy?"

"This was so much fun. Really quick and high energy. I make excuses about time, money and not being creative. This inspired me to become more pro-active. I would bring along friends to future events."

"I enjoyed this workshop. I got a little nervous and couldn't commit to transforming my dress. But I did develop a new connection. I would think about these techniques to update my wardrobe, My friends and I had a great time."

"I found this very empowering! I got into the flow of blacking out – the materials were quick and instant. Maybe working in pairs would be supportive. Could be applied to lots of items differently. "

"I hadn't heard of design activism. I feel very radical. This made me think about consumption differently. Definitely something I would do again."

Beyond the workshops participants expressed an interest towards establishing their own interventions. Another small group planned to share their experience with their friends by facilitating their own event to black out unwanted garments. They aimed to share this within the online space and hopefully network with other individuals. These participants continued to share their design activist experience with their friends physically (offline) and digitally (online). The online participation progressed participation well beyond orchestrated workshops and events.

The blog www.oldisthenewblack.tumblr.com) was designed to raise awareness and enable a broader online audience of fast fashion consumers to experience the intervention. As the workshop participants began to engage online, a series of serendipitous outcomes emerged as a wider audience began to apply the textile design making processes without facilitation. This online space provides a share repository to document and share each transformed garment by encouraging street style photography. While it would have been easier to document the outcomes at the end of each workshop or event, the black paint or dye required time to dry. Therefore a small photo-shoot was initiated to welcome back a sample group of six participants. During the street style photo-shoot each participant was asked to consider how this intervention changed him or her. They all claimed the experience has sparked a change within them and had encouraged them to re-think why they discarded clothing. They expressed an enjoyment of the overall experience and it had inspired them to commit to changing their consumption but they could not foresee themselves continuously adopting a participatory role. It was clear up until now, and would continue to restrict them in the future.

5.6.3 Reflection on the Intervention & Design Activism

This intervention aimed to challenge fast fashion consumption by applying the textile design making processes to offer a new 'quick fix'. The sustainable design strategies within this intervention make a claim for change and advocate participation as a means of protest. Talking back to the bigger fast fashion system. The upcycling process could be applied to extend a garment life through one interaction, but there is potential for multiple lifecycles to be sustained by adapting the garment by re-painting and dyeing over a prolonged period of time.

The workshops provided a new social construct for fast fashion consumers to re-engage with garments within their existing wardrobes and experience a new mode of consumer interaction beyond direct consumption. The retailers have already removed themselves from this stage of the garment lifecycle as upcycling, repairing or re-styling services have yet to be proven commercially, economically, logistically, viable. While a selection of retailers have implemented upcycling demonstrations, (Topshop 2009, Urban Outfitters 2010, Marks and Spencer 2012) they have not yet evolved beyond one-off events.

The researchers were design facilitators but they also became design activists, demonstrating creative means of challenging mass consumerism. The characteristics of Gen Y fast fashion consumers was expanded upon, building upon their motivation to share and interact with new social experiences online and offline (Galloway, 2010). The agency within this intervention was sustained by the interconnection of online and offline engagement. While the researchers orchestrated action offline through workshops, the participants shared their experiences online. The blog provides one mechanism, but further research could consider a guerilla style campaign to develop a social media

strategy which would market and promote design activism on a larger scale.

With the existing fast fashion paradigm, change is a continuous state fuelled on a commercial level to sustain economic growth. In order to catalyse change within these participants a deeper meaning was required. However, change is also a healthy thing for people to experience as it allows us to grow as individuals. Chapman (2005) argues that current relationships with products fail, because while we change as individuals, our products remain stagnant. Through the notion of emotionally durable design, Chapman (2005) proposes a range of different approaches such as designing for unpredictability or encouraging free will within products design. He continues by highlighting that if product development can work towards slowing down it might help consumers regain temporal stability partly by enabling them to shift their value from material objects to experiences. This could possibly assist in attuning our consciousness (Fuad-Luke, Strauss, 2008). This form of environmental activism is rooted to emotionally durable design principles (Chapman, 2005), which are concerned with promoting longevity of ownership and use, by influencing an emotional bond between the end user and the finished object. It is clear that fast fashion needs to go beyond not only selling itself in the wider world of things, but of moving towards developing relationships with consumers (Botsman & Rogers, 2011).

Sustainable consumption, can therefore be enhanced by focusing on better value in the 'use phase' and a meaningful person-product bonding (Goworek, 2011). Due to a loss of emotional or personal meaning, products get discarded easily. Design, which strengthens this person-product relationship, has to consider and aspire to emotional meaning and value, in order to create products that sustain. Chapman & Gant (2007) argue that, currently, the majority of objects are not able to create a sustaining emotional bond with their owners. For a sustainable product design, objects have to stimulate an emotional awakening through positive experience. Chapman (2005) states "objects need to be able to create a story together with their owners over time. The more the user can engage with the product, the tighter the emotional bonding through experience can become. A base of trust and intimacy between object and owner can be developed." (Chapman, 2005, pp. 83-109).

Von Busch (2008) promotes the concept of 'readiness to make' versus 'ready-to-wear'. 'Ready-to-make' garments allow the consumer to become an active participant in the design process in contrast to 'ready-to-wear' garments that lower the necessity to get involved. For changing and redesigning 'ready-to-wear' clothing the user already requires a certain degree of knowledge and motivation, otherwise they stay passive recipients of the given object. To encourage a broader audience, designers need to find key starters to activate the individual consumer. A combination of 'ready-to-make' and more sustainable 'ready-to-wear' approaches allow small steps of interaction and can offer

the consumers interesting new ways to enjoy their garments. Time, skills, creativity and effort have to be invested to acquire these new but unique ways of wearing, using, making and enjoying clothes.

Niinimäki & Hassi (2011) point out that design for improved person-product attachment requires a deeper understanding of the diverse and personal reasons for consumers' purchases, use and product satisfaction as well as their disposal behaviour. For products to be loved over time, they need to have their own character, which can be a represention the owner's personality and self-image.

"If the designer can link the new product deeply with a consumer's emotions, identity, aesthetic needs (that is, values and lifestyle) and personal memories, the design process can achieve a deep product satisfaction and product attachment" (Niinimäki, 2010, 180).

This intervention enabled a form of activism to emerge on a small scale with the aim being to change consumers attitudes and demonstrate potential. This was not about challenging conventions on an industrial scale. The novelty of taking back control and empowering individuals can only exist temporarily, as consumers are easily lured back into the fast fashion system. While the participants proudly wore their transformed clothing this was not a process they felt could be applied to their entire wardrobe. We can see that through engaging consumers through participation, their perceptions and values have the potential to shift. The textile design techniques were simple, and thus most emphasis was placed on the process and the individual expression and innovation it enabled. However, a menu of further options could be considered. This intervention identifies that there is an opportunity for textile and fashion designers to engage the public in a multitude of different ways. The changes implemented may be small, but they plant a seed for future design and development of textile design interventions.

5.7 Conclusion

This first *textile design intervention* was titled 'Old as the New Black' and developed to encourage extended use of short life garments by orchestrating opportunities for individuals to engage with an alternative fast fashion consumer experience. The researcher outlined that a large majority of clothing is being discarded because the consumer is failing to sustain a lasting emotional connection beyond the point of purchase (Fletcher & Grose, 2012) at the beginning of this chapter. The practice within this intervention was primed to address this complex problem by intercepting the lifecycle of short life garments post consumption, with the aim to extend the lifecycle through the sustainable design strategies of design activism and upcycling.

The development of this first *textile design intervention* was initiated firstly through a *design sprint, an intensive design session through which* a textile design and making process was identified to upcycle clothing. This process of transformation was designed to be inclusive to ensure that consumers themselves could adopt it. The methods of *lo-fi prototyping* and *provo-typing* were effective in facilitating consumer participation and they supported a democratic design process. The agency within this intervention was shared online via a blog and this was done to raise awareness and promote further participation. Further invitations emerged as a result of sharing the intervention online and this resulted in the delivery of additional workshops within external events. Each of these workshops set the scene for people to devise their own action and realise their own principles through participation, they did not preach or demand social responsibility. As participation progressed individuals began to 'reclaim ownership' of their clothing and the lifecycle of the chosen garment was extended. The long-term impact cannot be quantified within the parameters of this PhD research that would require a longitudinal study that observes participants interaction over a longer period of time. However, the signaled the potential for the textile design and making processes within this intervention to be expanded upon through future research.

The integration of social and online media effectively promoted the textile design and making process to promote an inclusive approach and demystify the practice for others to access and build upon. This research focuses specifically on Gen Y fast fashion consumers, who are applying their online expertise to drive new models, processes and experiences. These individuals by way of their digital activity invest a huge amount of time maintaining their online spaces to share their personal expertise and experience. Through their social networks they also endorse what they like or voice what they don't like through rating, reviewing and offering their feedback (Galloway, 2011). Atkinson (2011) argues that designers and makers have a responsibility to lead communities of interest through constructing online tools and systems. This interventions expands upon Atkinson's argument by developing a shared resource which enable others to realise their creativity. While this intervention is an open experiment, the practice within it offers an insight into how online media can support textile or fashion designers working with Gen Y in the future.

This intervention remains as a live experiment online and the researchers will continue to maintain, update and document its progress. Future research will includes collaboration with fashion designer and researcher Earley (2013) at the European Academy of Design Conference (EAD), Crafting the Future. Through working together the researchers aim to explore how textile design can be applied as a tool to support consumer engagement for both the individual creating for themselves (von Busch and Ballie, 2013) and the retailer who wishes to creatively engage with their products over a longer time frame (Earley, 2013).

CHAPTER SIX: Textile Design Intervention 2 – Collaborative Design

6.1 Introduction to 'Shared Scarves'

This chapter applied 'Collaborative Design' in an attempt to influence consumption and reinvent not only 'what' but also 'how' people consume. The second *textile design intervention* was titled 'Shared Scarves' and explored how the act of 'sharing' is being revived and redefined to demonstrate new forms of collaboration and community through online cooperatives, collectives and communities coming together (Botsman and Rogers, 2011). Traditional face to face collaboration is being amplified by the Internet as local people are connecting globally to self assemble their own networks and initiate new forms of peer to peer interaction. As a result, new product service systems (PSS), redistributed markets and collaborative lifestyles have emerged to influence new movement titled 'Collaborative Consumption' (Botsman and Rogers, 2011).

This intervention was initiated using the Internet to promote an online call for participation and recruit Gen Y individuals to participate within a series of workshops. The purpose of these workshops was to deliver a democratic textile design and production process to empower fast fashion consumers to co-design their own fashion accessory, a scarf. A mobile digital textile design studio was assembled using a suite of existing tools (laptop, desktop printer and scanner, iPhone app's and physical paper craft materials). As participation progressed it was shared using online media to enable digital textile co-design and production. The mobile provided a platform to trail and test small scale, local and connected textile design and production in collaboration with fast fashion consumers.

This design-led research within this chapter was also influenced by the von Hippel's (2005) research into 'Democratising Innovation' that argues the value of involving the end user within the design process. Online and digital technologies are providing platforms for connected individuals to influence new systems and markets similarly to 'Collaborative Consumption'. The mobile studio focused predominantly on scarves, a universal fashion accessory which has the potential to be styled, shared and re-used in a multitude of different ways. The *co-design* processes applied throughout this chapter encouraged consumers to think and act sustainably from the early stages of the design process to consider the complete lifecycle of the scarves. Within this intervention adopted a shared responsibility and as a result played an active role in re-imagining fast fashion futures.

6.2 Problem

The predominance of 'fast fashion' is characterised by homogenised high volumes of products, low prices and greater levels of consumption. These products, are less able to satisfy a consumer's need for differentiation which has been argued, "leads to a reduction in emotional and symbolic value of a fashion product, and an increase of turnover of goods and in the resultant volumes of waste" (Fletcher, 2008). Currently the fashion industry leads the consumers into the role of becoming passive recipients of what is designed, manufactured and delivered to the stores. The products and services within the fast fashion system are designed to keep consumers in a passive and ignorant position (Vezzoli & Manzini, 2008). Consumers have also become so far removed from the design and productions process that they have little concept of the time, skills and materials required to produce those easily accessible items. Williams (1991) states that these products no longer only fulfill a need they are material representations of the dream of social acceptance and pleasure. It is now widely acknowledged that fashion is rarely, if ever, simply a moment, or a point of purchase, or a reflection of supply and demand (Entwistle, 2000; 2010; Entwistle and Rocamora, 2006; Rantisi, 2006; 2009; 2011; Scott, 1996; Tokatli, 2011; 2012). Fletcher & Grose (2012) discuss the idea that clothing, and especially fashion items, are a means of representing ourselves to society. The way we dress can express personal and political statements, show a sense of belonging, and give us self-confidence in our daily routines.

6.3 Sustainable Design Strategies

Manzini (2007) points out that "transition towards sustainability requires radical changes in the way we produce and consume and, in general, in the way we live". While Chapman and Gant (2007, 7) call for new ways of designing and the creation of "consumption models of long-term sustainability". Both claim user-involvement within the design process could facilitate a deeper understanding of sustainability and reduce the impacts of mass-consumption. If there is to be a shift towards a more ethical and sustainable fashion industry, the current fast fashion system based on industrial mass-production, low quality, low prices and fast disposal of products needs to slow down and stimulate change (Niinimäki, 2010). The different stakeholders involved must drive this change; among them are designers and consumers. Consumer behaviour can be a key factor in the "impact that society has on the environment" (Jackson, 2005). Designers also have a special role, as they are located between production, producer and consumer. This practice based research explores how design can be applied strategically a tool to reduce fast fashion consumption.

Within this chapter the sustainable design strategy of design activism has been applied through a democratic approach to textile design innovation. This was supported by participatory design through *co-design* methods, connecting the designer to consumers collaboratively. Expanding upon Fletcher's

(2008) view, more participatory models of fashion design, "user maker" systems in which consumers become co-partners in the process, may encourage more sustainable consumption. However, the adoption of *co-design* for sustainable fashion is in its early stages; the evolution in design research from a user centered approach to *co-design* is changing the role of the designer. This has further implications for the education of designers and researchers (Sanders & Stappers, 2008).

Designers can promote a change in production systems by the way things are designed (Braungart & McDonough, 2009).

Within this second intervention a small-scale local production process was trialed and tested through the assembly of a mobile digital textile design studio. The researcher was mindful that slower production and consumption cycles, more local production and a more valued product-person relationship needed to be encouraged (Niinimäki & Hassi, 2011). This was promoted through applying design activism to sustain the lifecycle of the outputs (within this case) the *co-designed* scarves, through collaborative design. Further consideration was applied to the lifecycle of the scarves post *co-design* through promoting 'collaborative consumption' to consider how they could be in a continuous cycle of re-use through styling and sharing.

6.4 Developing Textile Design Intervention 2

6.4.1 Inspiration

In recent years, the nature of the consumer has changed and they are no longer satisfied with a passive role in consumption, but wish to be co-creators. Sanders (2006) outlines four levels of creativity that are sought by consumers in everyday life which vary in the degree of engagement and motivations depending on their individual expertise, passion and individual creativity. This is illustrated within *figure 34* (below), at the basic level, 'doing' requires a very low level of engagement and knowledge; 'doing' is productive activity undertaken as a means to an end. The second level of creativity known as 'adapting' is motivated by the desire to change a product; it involves some interest in a product and requires a small degree of skill, knowledge and experience. Beyond adaptation, the third level of creativity, 'making', requires a genuine interest and experience in the making process; the desire to create a new product is a verification of skills possessed. The highest level of creativity is termed by Sanders as 'creating'; an expression of individual creativity and guided by a high level of experience. It differs from making in that there is the absence of a predetermined outcome.

Level of creativity	Motivation	Requirements
Doing	To get something done/ to be productive	Minimal interest Minimal domain experience
Adopting	To make something on my own	Some interest Some domain expertise
Making	To make something with my own hands and mind	Genuine interest Domain experience
Creating	To express my creativity	Passion Domain expertise

Figure 43 Four Levels of everyday creativity (Sanders, 2006)

Sanders (ibid) claims all individuals are capable of reaching the 'creating' phase, provided they have the desire to achieve it. However, traditional approaches to craft and design in which the maker has control of the process do not provide support for the creative consumer. She proposes a range of new 'design spaces', which enable each type of creativity, where designers provide tools, which match the degree of engagement the individual desires in the process. At the highest level, Sanders proposes that collaborative design spaces allow makers and users to work collaboratively and explore their creativity together.

The 'Shared Scarves' intervention referenced the work of Sanders (2006, 2008) with the premise of identifying new 'design spaces' for consumers to experience each level of engagement; doing, adapting, making and creating. This was achieved by expanding upon existing tools and applications to construct online and offline action spaces and to develop a democratic design system with the premise of broadening the remit of textile design practice through collaboration. Eric Von Hippel's (2008) work into Democratic Innovation provided further inspiration as he makes a case for consumer involvement within the design and production process. He claims that "when the high-cost of design prototyping becomes very low, the resources can be diffused more widely and the opportunity to create becomes democratized" (von Hippel, 2008). Additional inspiration was sought by scoping the availability of free user-friendly digital design tools and applications. Within this textile design intervention the textile design and making processes were crafted to support consumer participation beyond a facilitated workshop and could be continued at a low cost and within their own home.

Sustainable design interventions can begin by identifying existing resources, communities and practices and expanding upon them, there is no need to reinvent the wheel (Thackara, 2006., Manzini, 2008). New methods of skill sharing were identified through reviewing the practice of collaborative design within both online and offline communities. Recent platforms include the Amazing's (2013-present) within *figure 41,* where people advertise their specialist skills online. Skillshare is another similar platform (2012-present) within *figure 42* and they offer open access to a extensive range of tutorials. Within skill sharing platforms self-assembled communities of practice are beginning to emerge (Chesbrough & Appleyard, 2007) online to distribute peer-to-peer knowledge

and exchange it in an open source system. The activity within these platforms is incentivised by a willingness to share and a collective enthusiasm for the subject or topic involved. Which indicated that innovation is becoming more open and democratic and as a result the boundaries between the professional and amateur designer are blurring (Von Hippel, 2008, Leadbeater, 2009), through an online ecosystem of self-assembled networks providing new socially interactive spaces.
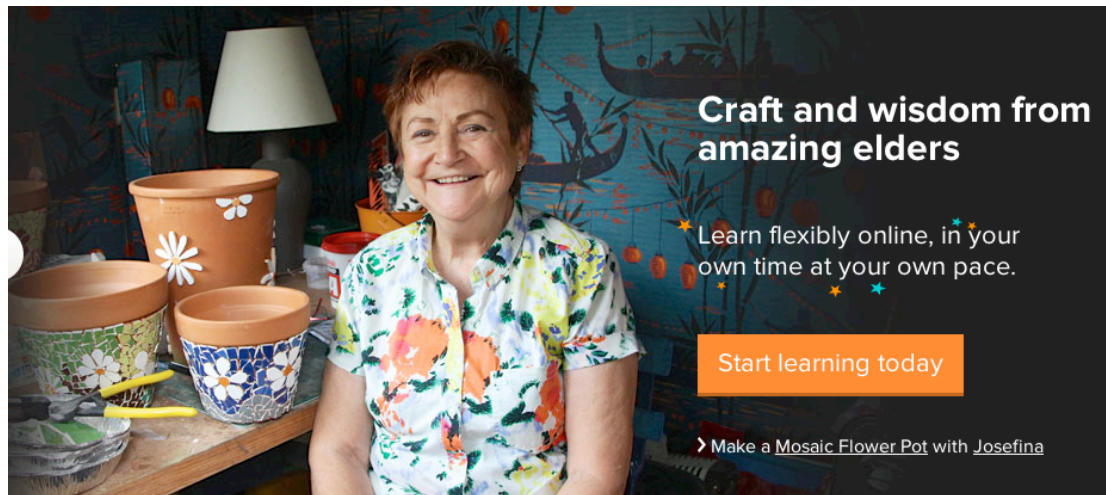
Figure 44 The Amazings Skill Share platform (2013)
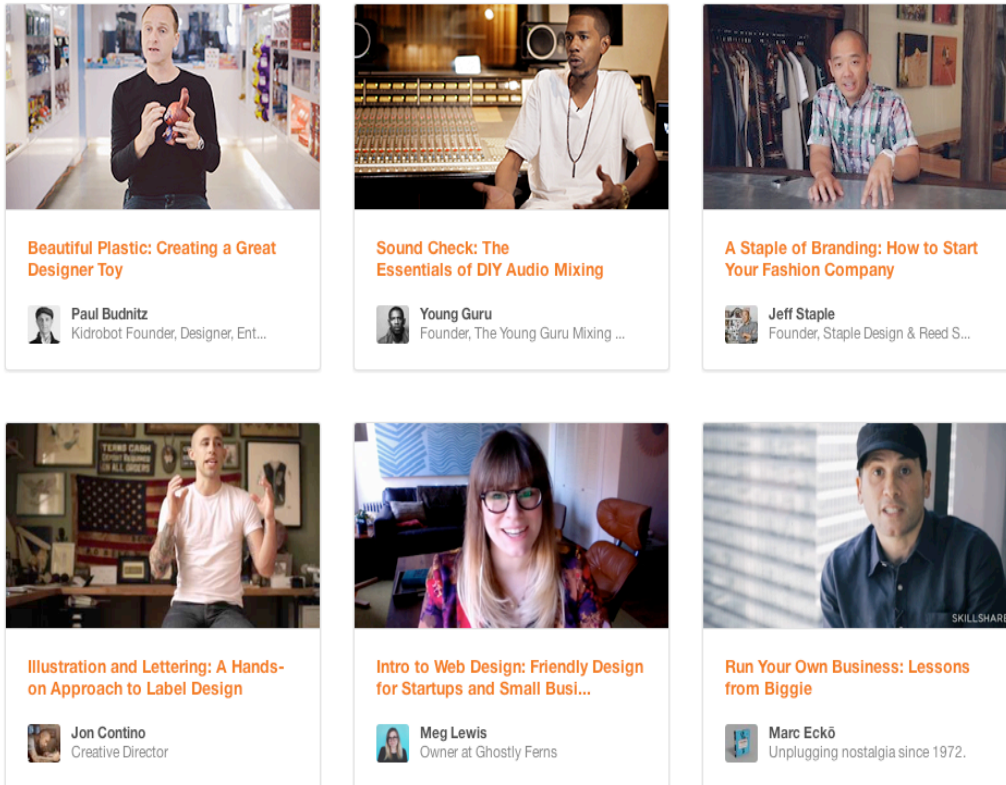
Figure 45 Skillshare Community Classes (2013)

These online skill-sharing platforms demonstrate that creativity is no longer a sacred act reserved purely for professionals. Alongside online skill sharing, new digital tools have emerged to support creativity. Within the context of digital textile design, the online platforms of Spoon Flower (2013) and Colour Lovers (2013) are examples included within *figure 43* that support digital textile design and production.

Figure 46 Digital Textile Printing

Figure 48 DIY Couture and The People's Print Collaboration (2013)

There are signs that the boundaries between professional and untrained is blurring, which is in turn raising questions about new roles within the fast fashion system. Further activity is emerging offline through a collaboration between The Peoples Print and DIY Couture (2013) to develop a digital textile design tutorial and competition to support an open call for public participation to produce a digital print for a DIY garment (*see figure 45 above*). High end fashion designers Basso and Brooke (2012) (see *figure 46 below*) have also delivered facilitated workshops to enable participants to *co-design* digital textile designs similar to their icon digital prints. These workshops are approximately 3,000 UK pounds and therefore there is only a limited number of participants adopting this exclusive package.

Figure 5 Basso and Broke Digital Textile Workshop (2012)

These online platforms and networks are providing new communication channels. Within the above examples, consumer interaction has been influenced and supported by the Internet, which is becoming far more than just a technology and is transforming the way we connect to and understand the world. Bloggers have "altered the language, delivery methods and hierarchically ordered designations of those who could be truthfully considered as producers versus those considered mere consumers" (Crewe, 2013).

"Everyday there are more than 3 million Flickr images uploaded; 700,000 new members joining Facebook and; 50 million 'Tweets'; and 900,000 blog posted. There are twenty three hours of YouYube videos uploaded every minute, the equivalent of Hollywood releasing more than 900,000 new full length films into theaters each week." (Botsman and Rogers, 2011).

Together, the collision between digital and material fashion spaces requires a fundamental re-theorisation about the consumers motivation and capacity to participate. This also requires a redefinition of the role of the professional designer and their abilities to intermediate existing industry hierarchies, helping to create and reproduce fashion knowledge and markets. The Internet has empowered fashion consumers and transformed them from being recipients or interpreters of

brand messages into active players, brand storytellers, or "authors of their own lives" (Holt, 2002:87). These consumers have a much greater range and influence on fashion markets than they (or we) could previously have foreseen, and pulling them into the process of value creation itself. This requires a critical re-think of the fashion system to review how it operates and a disentangling of the assumed connections between creation, sale, and use: a decoupling of production from consumption in the creation of value (Tokatli, 2012).

These new online collaborative platforms enable consumers to be active producers not simply in the consumption of things but in the creation of worlds, limited only by their imagination. Craft consumers, producers (Bruns, 2012) and prosumers (producer–consumers) (Ritzer & Jurgenson, 2010) engage with the market as a means of creative self-expression and play an active role in the production of contemporary fashion as part of a broader and more significant shift towards participatory web cultures founded upon user participation and user-generated content (Hienerth, von Hippel, & Jensen, 2011). Nussbaum (2013) refers to this as a '*learn, share and make' culture.* As a result new models are emerging which support sharing through renting and leasing material goods. All emerging to promote collaborative consumption (Botsman and Rogers, 2011). Within collaborative consumption, online media facilitates new interactions through leasing, renting, sharing, bartering. As a result, new services and systems are emerging.

6.4.2 Conceptualisation

The textile design and making processes within this second intervention were supported by the assembly of a mobile digital textile design studio. This was assembled using and re-adaptation existing tools and resources. Throughout the development process the researcher identified that it was possible to implement a small-scale digital textile design and production studio, without the budget available to access advanced technical support. The construct of the mobile studio enabled a *lo-fi prototyping* unit to emerge but this does not compete with profession production and manufacture on a commercial scale. This was however, effective enough to pilot and try out the 'Shared Scarves' concept which was manufactured using a laptop connected to an iPhone and desktop printer. These existing digital devices were re-configured to develop digital textile design concepts which could then be printed by adjusting the desktop printer settings. Enabling us to print digital textile designs directly onto pre-coated and backed fabric.

SUSTAINABLE DESIGN STRATEGY	COLLABORATIVE DESIGN		
TEXTILE MAKING PROCESS	MOBILE DIGITAL STUDIO	LO-FI DIGITAL TEXTILE PRINTING	COLLAGE & MARK MAKING
SOCIAL / DIGITAL MEDIA TOOLS	TUMBLR BLOG	PINTEREST	iPHONE APPS
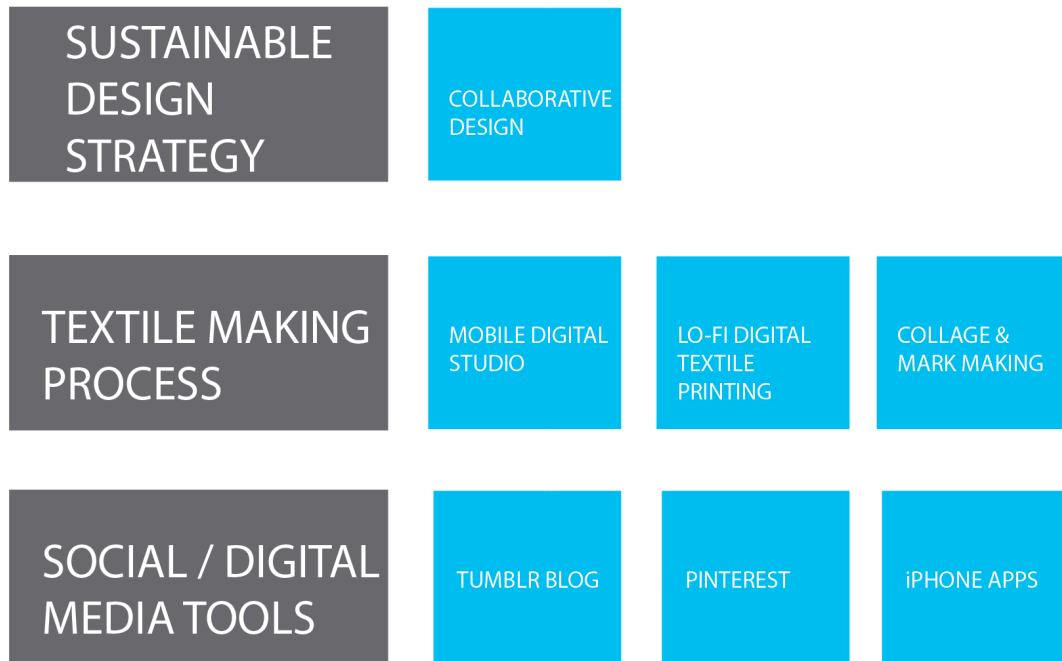
Figure 50 Conceptualising Intervention 2

Figure 51 Mobile Digital Textile Design Studio

The mobile studio within *figure 51* was constructed with the premise of demystifying the design and production of digital textile design through inclusive making processes. To demonstrate how textiles can be designed through collaboration and produced locally. The mobile studio has been demonstrated and promoted to provide opportunities for fast fashion consumers to collaborate and contribute towards the design and production of a collective collection of scarves. The shared scarves blog within *figure 52* was established as a shared resource to document inspirational content and share the progress of the intervention as it evolved. This was initiated by the researcher but content was also sourced and contributed to by the participants themselves.

Figure 52 Shared Scarves Blog

6.4.3 Research Methods

Throughout this intervention an Action Research methodology was applied and also alongside the main research methods, additional methods were identified to expand upon the design facilitation toolkit (*figure 53*). These research methods were selected for their capacity to support democratic innovation through an inclusive approach.
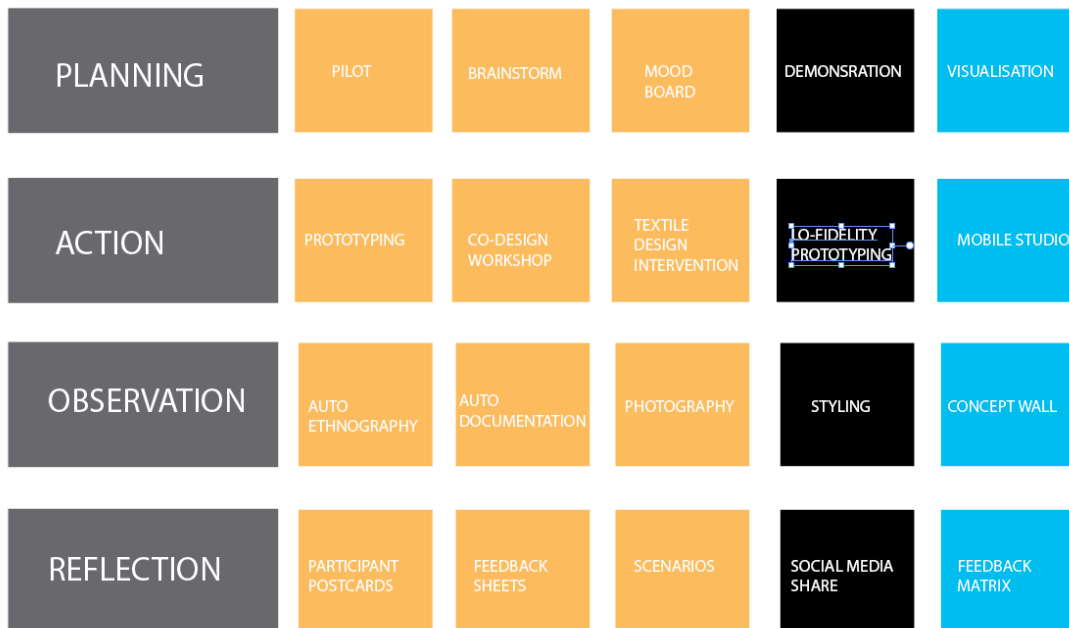
Figure 53 Design Facilitation Kit Intervention 2

The mobile studio was initially tested through *pilot* to trial the collaborative design process before delivering a series of four workshops. The collaborative design process was supported by the method of *co-design* and the additional research methods of *prototyping*, *visualisation* and *storyboarding* were applied to demonstrate the mobile studio in action. These methods supported *co-design* through the textile design and making process. The textile design and making techniques were a combination of digital and physical processes. The act of sharing was encouraged throughout the design and production process to support the exchange of knowledge, skills and resources. Through the process of action research, different approaches were applied to demonstrate the mobile studio in action and to provide an alternative 'quick-fix' scenario to fast fashion through consumer participation. As a design facilitator, the researcher trialed varied textile design and making techniques to develop a series of service options to enable 'collective collections' of digitally printed scarves to emerge. Throughout this process, social media tools were combined to share the experience and encourage further consumer interaction.

The design researcher adopted a facilitator role and supported each of the participants to contribute towards each digital textile design concept, to explore if their input would influence a deeper attachment to the complete collection of scarves. The methods of *auto-ethnography* and *auto documentation* were applied alongside a participant feedback matrix to observe and capture data to evaluate participation and to evaluate the impact of this intervention.

6.5 Design & Implementation

This intervention designed and tested a mobile digital textile design studio to provide a small-scale local design and production toolkit. It is worth acknowledging that this research progressed without any funding. The researcher purchased a second hand desktop printer and used their own laptop, iPhone and scanner. The participants were also invited to bring along their own digital devices. The physical workshop materials of paper, card, inks and fabric were low cost materials sourced in advance of the workshop series. The biggest challenge to workshop delivery was sourcing a free venue within central London. Textile Environment Design (TED) Research Hub provided access to their office to host the pilot and three workshops within Chelsea College of Art and Design, London. Participants were recruited to attend the workshop series through an online call for participation circulated through TED's existing network. The final workshop was hosted within 'Future Everything DIY Digital' and 'Handmade Festival' (2011), Manchester and facilitated further participation through an interactive market stall.

During the pilot stage of the research process, the researcher also consulted with experts (Bowles, 2010, Hamilton, 2010). Melaine Bowles is a senior Print Lecturer, Chelsea College of Art and Design, London. She is co-founder of The Peoples Print project (2011-present) and co-author of a book on

Digital Textile Design. Rory Hamilton is an interaction designer and industry expert with experience at Live|Work, Orange and Made by Many. Within these conversations the researcher shared prototypes from the pilot and captured their feedback on the construct of the mobile studio.

Textile Design Intervention Two - 'Shared Scarves'

Purpose: To develop democratic design processes for the fast fashion consumer, through devising a mobile textile design studio to support small scale location production methods for digital textile printing. The mobile studio demonstrated textile design and making and to facilitate the co-design and production of digital print design concepts for scarves.

Sustainable Design Strategy: Design Activism, Co-Design, Democratic Innovation

Textile Design Making Process	Online Media
The mobile studio was assembled using a laptop connected to a desktop printer / scanner. iPhone app's were used to design and develop digital textile prints. The app's used were; Colour Lovers http://www.colourlovers.com/seamless Pattern Tool http://www.topappreviews101.com/pattern-tool-hd-ipad-app-3316.html Kaleidoscope App http://www.kaleidoscopeapp.com Fabric required advanced treatment to enable it to be fed directly through the printer. A solution titled Bubble Jet Set was sourced to treat the fabric, the same brand retails backing paper for the fabric. This needs to be fixed using an iron. Parchment paper used for home baking provides a cheaper alternative but the width needs to be cut to the size of 20cm.	www.tumblr.sharedscarves.com Twitter #sharedscarves Instagram #sharedscarves
Call for Participation	**Workshop Facilitates**
Participants were recruited through calls for participation promoted online within the tumblr blog, these were shared within the researchers existing social media network. Textiles Environment Design (TED) also promoted and circulated these calls within their existing networks. A flyer was designed in advance of each workshop and is documented within	The mobile studio was assembled using mobile digital devices. They require a small desk or work space. The workshop required a larger table for 4-6 participants to work around. A wall space was required to support the concept wall method.

Textile Design Intervention Two - 'Shared Scarves'		
Purpose: To develop democratic design processes for the fast fashion consumer, through devising a mobile textile design studio to support small scale location production methods for digital textile printing. The mobile studio demonstrated textile design and making and to facilitate the co-design and production of digital print design concepts for scarves.		
Sustainable Design Strategy: Design Activism, Co-Design, Democratic Innovation		
Textile Design Making Process	**Online Media**	
Appendix D.		

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Gen**	**Outcome**
Pilot **Date:** 30/ 01/2011 **Time & Duration:** 2-4 (2 hours) **Venue & Location:** TED Office, Chelsea College of Art and Design, UAL, London	The purpose of the pilot was to trail and test the mobile studio. A digital mood board was prepared in advance; the participants took photographs of detailed sections and used the apps to produce patterns. The final selection was reworked and a sample was digitally printed using the desktop printer.	1		x	Gen Y	x1 low-fi digitally printed scarf
		2		x	Gen Y	
		3		x	Gen Y	
Workshop 1 'Make Your Mark' **Date:** 18/02/2011 **Time & Duration:** 2-4 (2 hours) **Venue & Location:**	Within the 'Make your Mark' workshop the participants worked together to develop analogue textile patterns.	1		x		x1 low-fi digitally desktop printed scarf with a bespoke print to share
		2		x		
		3		x		same as above

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participa nt**	**M**	**F**	**Gen**	**Outcome**
The Card Room, Chelsea College of Art and Design, UAL, London	Alongside the laptop, printed and iPhone, analogue materials were provided such as paint, pens and pencils. The artwork was photographed and digitally reworked using the x3 apps listed above.	4		x		
		5		x		same as above
		6		x		
		7		x		same as above
		8		x		
Workshop 2 'Be Bespoke' **Date:** 25/02/2011 **Time & Duration:** 2-4 (2 hours) **Venue & Location:** The Card Room, Chelsea College of Art and Design, UAL, London	Within the 'Be Bespoke' workshop the participants worked together to support one another to design a personalized digital textile print. The first stage involved using physical collage materials to produce a mood board. The second part used this content to develop digital textile designs. The scarves were printed post workshop due to time constraints.	1		x	Gen Y	x1 lo-fi digitally desktop printed scarf with a bespoke print
		2		x	Gen Y	as above
		3		x	Gen Y	as above
		4		x	Gen Y	as above
		5		x	Gen Y	as above
		6	x		Gen X	as above
Workshop 3 'Mix and Match' **Date:** 28/02/2011 **Time & Duration:** 2-4 (2 hours) **Venue & Location:** The Card Room, Chelsea College of Art and Design, UAL, London	Within this workshop a larger piece of cloth was used to consider scaling up the scarf to support further fashion and styling options. X2 participants worked together to draw and then digitally re-work textile designs. These were finalized.	1		x	Gen Y	X5 digital textile print designs engineered and placed within one scarf
		2		x	Gen Y	

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**Gen**	**Outcome**
	A styling session was also incorporated using a cotton jersey.					
Workshop 4 'Interactive Market stall' **Date:** 13/04/2011 **Time & Duration:** 10.00-17.00 **Venue & Location:** DIY and Handmade, Future Everything Festival, Manchester	Following an opportunity to deliver the concept within a larger event, the prototype designs were taken to Future Everything Festival to showcase within a section titled 'DIY and Handmade'. It was not possibly to transport the printer logistically, thus a smaller version was assembled using a small PoGO printer which could be connected to the laptop / mobile using wifi. Participants used preinstalled app's to generate patterns and prints. Their final design was printed using the PoGo. A twitter hash tag was also used to promote styling and the re-use of scarves.	1		x	Gen Y	Small digital textile print using a PoGO printer
		2		x	Gen Y	Same as above
		3		x	Gen Y	Same as above
		4		x	Gen Y	Same as above
		5		x	Gen Y	Same as above
		6		x	Gen Y	Same as above
		7		x	Gen Y	Same as above
		8		x	Gen Y	Same as above
		9		x	Gen Y	Same as above
		10		x	Gen Y	Same as above
		11		x	Gen Y	Same as above
		12		x	Gen Y	Same as above
		13		x	Gen Y	Same as above
		14		x	Gen Y	Same as above
		15		x	Gen Y	Same as above
		16		x	Gen Y	Same as above
		17		x	Gen Y	Same as above
		18		x	Gen Y	Same as above
		19		x	Gen Y	Same as above
		20		x	Gen Y	Same as above
		21		x	Gen Y	Same as above
		22		x	Gen Y	Same as above

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	Gen	Outcome
		23		x	Gen Y	Same as above
		24		x	Gen Y	Same as above
		25		x	Gen Y	Same as above
		26		x	Gen Y	Same as above
		27		x	Gen Y	Same as above
		28		x	Gen Y	Same as above
		29		x	Gen Y	Same as above
		30		x	Gen Y	Same as above
TOTAL		47	1	46		X1 collective collection of x4 scarves X6 bespoke scarves X1 digital engineered print collection for scarves with x5 digital textile prints X30 digital textile print concepts for scarves

Figure 53 Design Intervention Table

6.5.1 Piloting the Intervention

Figure 54 Pilot Workshop Materials
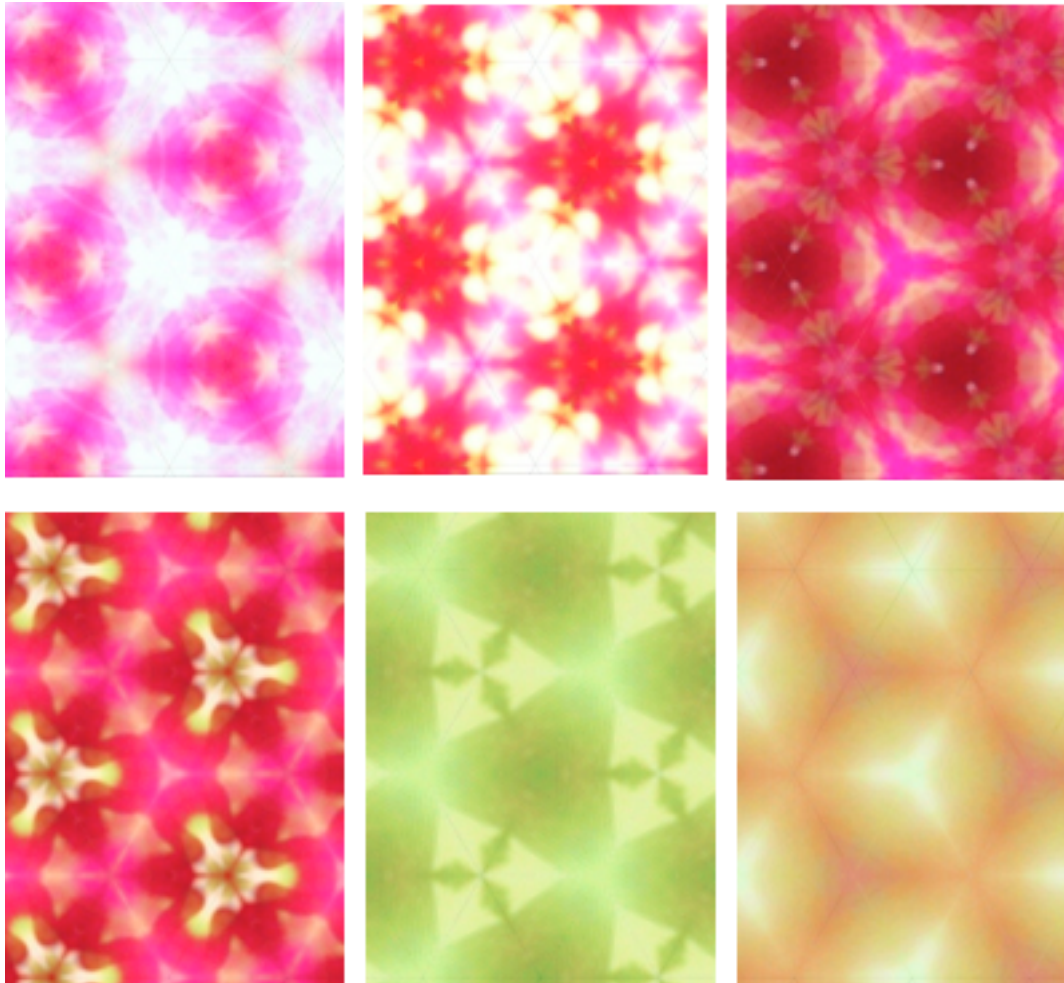
Figure 55 Pilot Workshop prototype digital textile designs

The intervention was trialed through a pilot workshop, the materials used are illustrated within *figure 54* which supported the design of prototype digital textile designs (see figure 55 above). These were designed by a sample group of three fast fashion consumers who could be defined as Gen Y. The researcher trialed and tested a range of digital tools and reviewed existing app's in advance. Digital textile designs are traditionally developed using Adobe software packages but these are expensive and they require expert support and advance training in making. To support democratic innovation and an inclusive approach, a more affordable and accessible solution was required. The research reviewed the marketplace for app's that enabled the user to edit colour, scale, composition and ultimately generate pattern and print. Those selected were trialed and reviewed. While a large range of app's developed for digital photography supported colour, scale and compositional editing, there was a limited selection available to support pattern and print development.

A digital mood board was prepared in advance of the pilot to provide inspiration. The pilot was delivered through a 30 minute workshop demonstration, divided into three 10 minute sections; co-designing, co-production and feedback.

6.5.1 (a) Part 1: Co-Designing Digital Textiles - the participants took a digital photograph of the mood board using the iPhone provided. They then edited their digital images using 3 pre-installed app's - Kaleidoscope, ColourLOVERS and Pattern Tool (listed within the online materials section of figure 53 above). Any digital image could be manipulated to generate patterns and further adapted to adjust colour, scale and composition.

6.5.1 (b) Part 2: Printing Digital Textiles – from the pool of digital textile patterns and prints, the participants collectively selected a final digital textile design. These were then re-scaled by the design facilitator to demonstrate the digital textile printing process. There were limitations, as technically the width could not exceed 20cm but the length could vary. The silk fabric was treated and attached to a backing paper in advance of the pilot. This was fed directly through the printer to produce a digitally printed length for the scarf.

Part 3: Feedback on Mobile Studio - using a feedback matrix, the design facilitator captured feedback. The participants shared their reflections upon their experience of the 'Shared Scarves' intervention.

6.5.2 Iteration 1: Co-Design Workshop titled 'Make Your Mark'

The first workshop was facilitated to support a group of eight participants. They could be defined as fast fashion consumers, but they were also textile design students and recent graduates from Chelsea College of Art and Design, London. The workshop was staged over two hours and applied the method of *co-design* to produce a collective collection of digital textile prints. While the design process and techniques were established in advance, the participants defined their own theme within the workshop for the collection titled 'Mix and Match.' The workshop began with a ten-minute demonstration of the mobile studio in action.

Figure 56 Workshop 1 using the mobile studio

6.5.2 (a) Part 1: Textile Design Making - the participants were divided into two groups. The first task for the groups focused on developing inspiration. Participants sourced digital imagery and produced a mood board titled 'Mix and Match'. The content was expanded upon through a physical making process applying the technique of mark making using low-fidelity materials such as paint, pastels, ink and a selection of paper (the workshop is illustrated within *figure 56)*. To support the *co-design* process each participant rotated within their workstations to develop a series of shared interactions within the textile design and making process. This was intentionally disrupted as the design facilitator instructed the groups to rotate workstations. The final patterns and prints were attached to the wall which provided an interactive workspace to curate and refine design concepts. This interactive workspace was later defined as the *'concept wall',* an exploratory method to support research documentation and support participation by providing a platform to document, edit and refine work collaboratively. The design work generated was photographed to provide material for the following stage of the digital textile design process.

6.5.2 (b) Part 2: Digital Textile Design - the second part of the workshop utalised the mobile studio. The app's were preinstalled on an iPhone and iPad to enable participants to collectively digitise their textile design concepts. This process was collaborative and the method of co-design was applied to develop a small collective collection of six scarves. Due to time constraints it was not possible to physically print the complete collection within the workshop but one scarf was produced from the final collection using the desktop printer. The remaining scarves were printed beyond the workshop, and that was followed by an informal gathering to showcase, share and celebrate the 'collaborative design collection'.

6.5.3 Iteration 2: Co-Design Workshop titled 'Bespoke Textile Prints'

This workshop approach differed from the previous. To explore if the method of *co-design* could be applied, to enable six individuals to create their own digital textile print through a process of collaboration. This workshop also explored further opportunities for the potential of implementing the mobile studio to orchestrate opportunities for fast fashion consumers to engage with bespoke services with their peers. The design facilitator curated a digital and material workstation within the workshop space to support each participant's personal transition through the textile design process. This textile design and making process was facilitated to deliver a digital textile design print and finished scarf for each participant.

Figure 57 Workshop 2 using the mobile studio

6.5.3 (a) Part 1: Textile Design Making - the first workstation provided a space to ideate new design concepts and reflect upon their existing wardrobe. Within this space, fashion magazines and photographs were provided to allow each participant to physically produce their own mood board. Through a physical process of making (illustrated within *figure 57 above*) the participants were encouraged to become empowered to edit, define and refine their own personal aesthetic. While editing and refining their mood board the participants were engaged in a conversation to offer peer feedback and support. This task concluded with a participant showcase of their own personal mood board. Further materials were provided to make pattern and print inspired by the mood board. Some participants adopted this approach and continued to rotate between the physical making and digital workspace. The participants could use the material zone to draw; collage and paint, and they had the opportunity to interact with both, to experience textile design development with digital and physical materials. This workshop identified the value of providing an interaction between physical and digital materials. A collection of other participants, took digital imagery and completed the design stage within the digital workspace.

6.5.3 (b) Part 2: Digital Textile Design - The second workstation provided the mobile studio and digital tools to make digital textile designs. This workstation was assembled to support different techniques. The participants had unlimited access to the digital space to scan or photograph their mood board and generate digital textile designs using the iPhone and app's provided. Finally the group was invited to 'make' a digital textile design using the mobile studio. Within the group a 13-year-old boy defined as Generation X, demonstrated highly advanced design skills using the digital adobe package Photoshop (illustrated within *figure 58* below). These skills were self taught and surpassed the design capacity of some of the design students within the group.
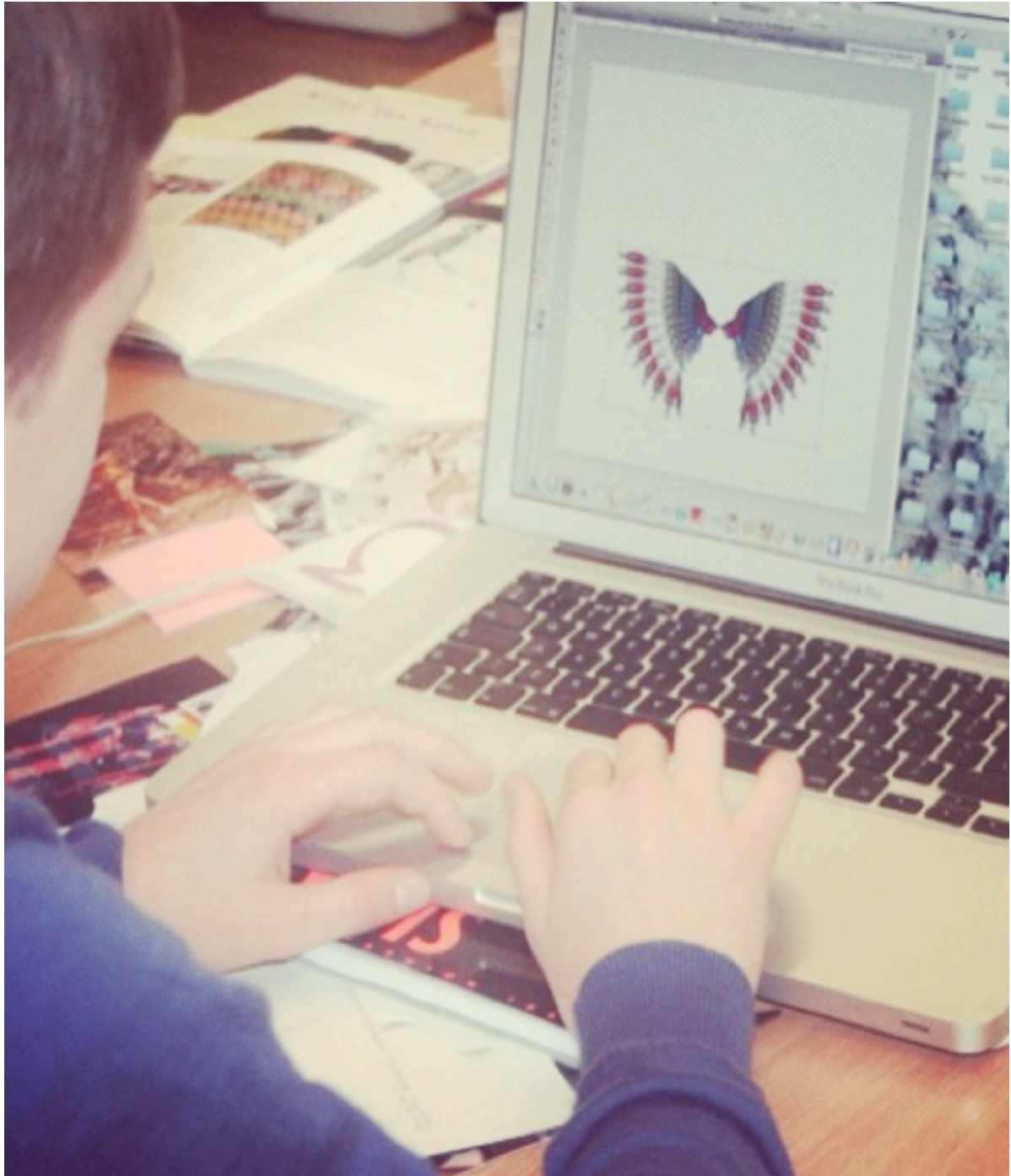
Figure 58 Gen X participant using the mobile studio

6.5.4 Iteration 3: Co-Design Workshop titled 'Mix and Match'

The third and final *workshop* applied co-design to create a digital textile design 'collaborative design collection'. In this case applying the digital textile designs onto an engineered scarf template produced the collection. This larger piece of cloth was designed with referencing to a concept by Issey Miyake (2002) titled 'a piece of cloth' (APOC) which explored how garments could be engineered into

the design of an individual piece of cloth to inspire next contexts of use (see figure 59 below).
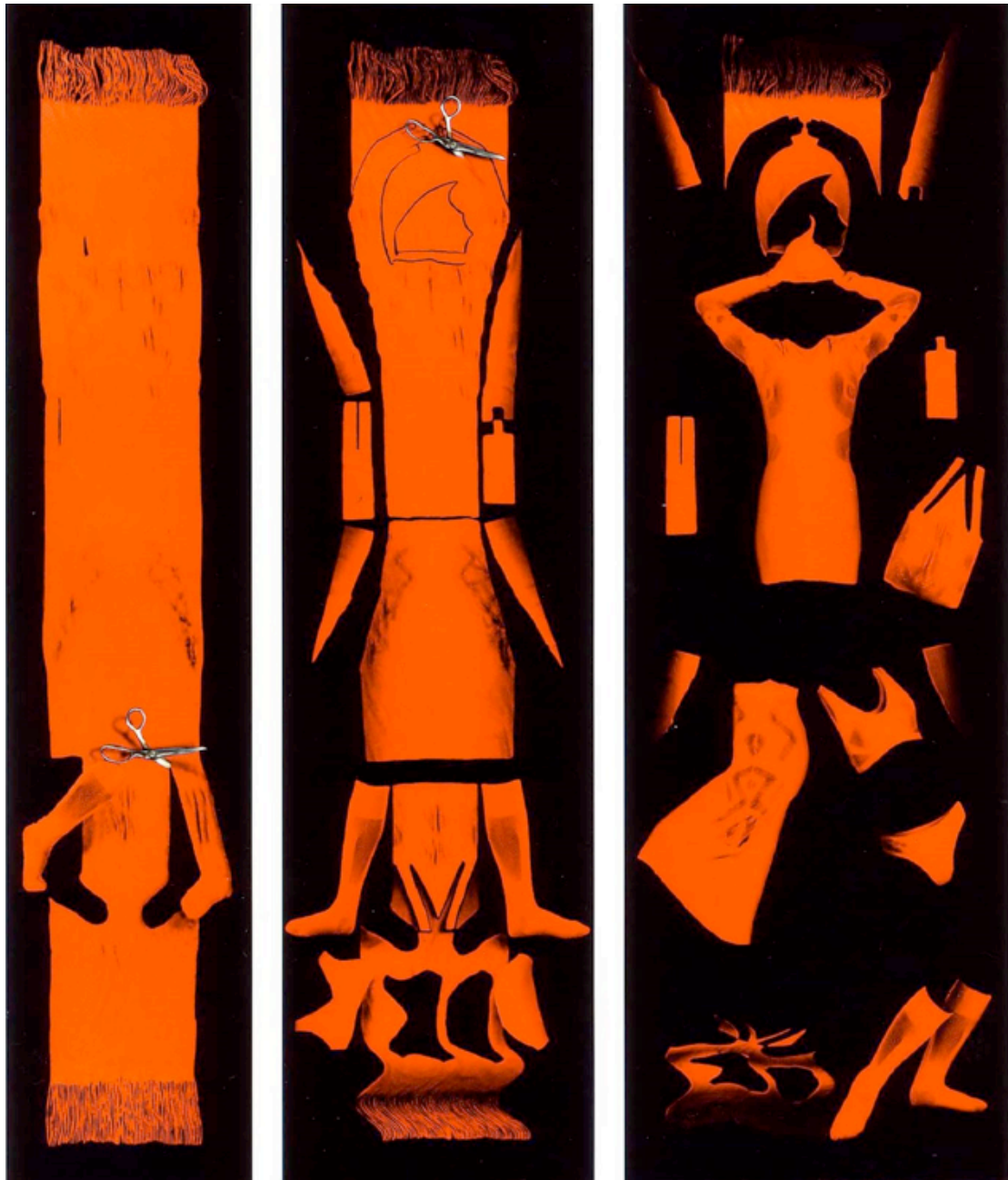
Figure 59 Issey Miyake APOC concept (2002)

The template included a series of smaller shapes subtly marked onto the larger piece of cloth providing further opportunities for reuse by cutting into the fabric. The participants could cut into the cloth to extract smaller scarves to be styled collectively offering multiple styling options. The mobile studio could only support digital printing to sample the collection. To produce the larger scarf design requires a professional digital textile printing service.

This intervention explored how the collaborative textile design and making processes could initiate further interactions through sharing, beyond the complete stages of design and production. This provided the design facilitator with the opportunity to explore collaborative consumption through shared ownership of a finished outcome. This expands upon the exploratory method of co-curation to encourage fast fashion consumers to restyle and assemble existing garments and accessories.

Figure 60 Workshop 3 using the mobile studio

6.5.4 (a) Part 1: Textile Design Making – The first part of this workshop applied *co-design* methods to co-create artwork. One of the participants within this workshop was a professional illustrator and fashion blogger who suggested each participant used tracing paper. The second stage used the tracing paper as an analog method of layering and combining each individual's artwork to generate a collaborative collection.

6.5.4 (b) Part 2: Digital Textile Design - These variations were scanned to produce a collection of

digital textiles, which were then applied to the engineered print template through a series of variations. The larger piece of cloth required professional printing services, and therefore it was not possible to produce within this workshop. However this mobile studio provided a tool to sample digital textile designs by printing onto fabric.

6.5.4 (c) Part 3: Styling - The workshop concluded by using pre-cut cotton jersey toile's (small scale versions of the pattern) to explore styling using a prototype to represent each shape within the engineered template. Through the styling session the group collectively generated 50 style variations.
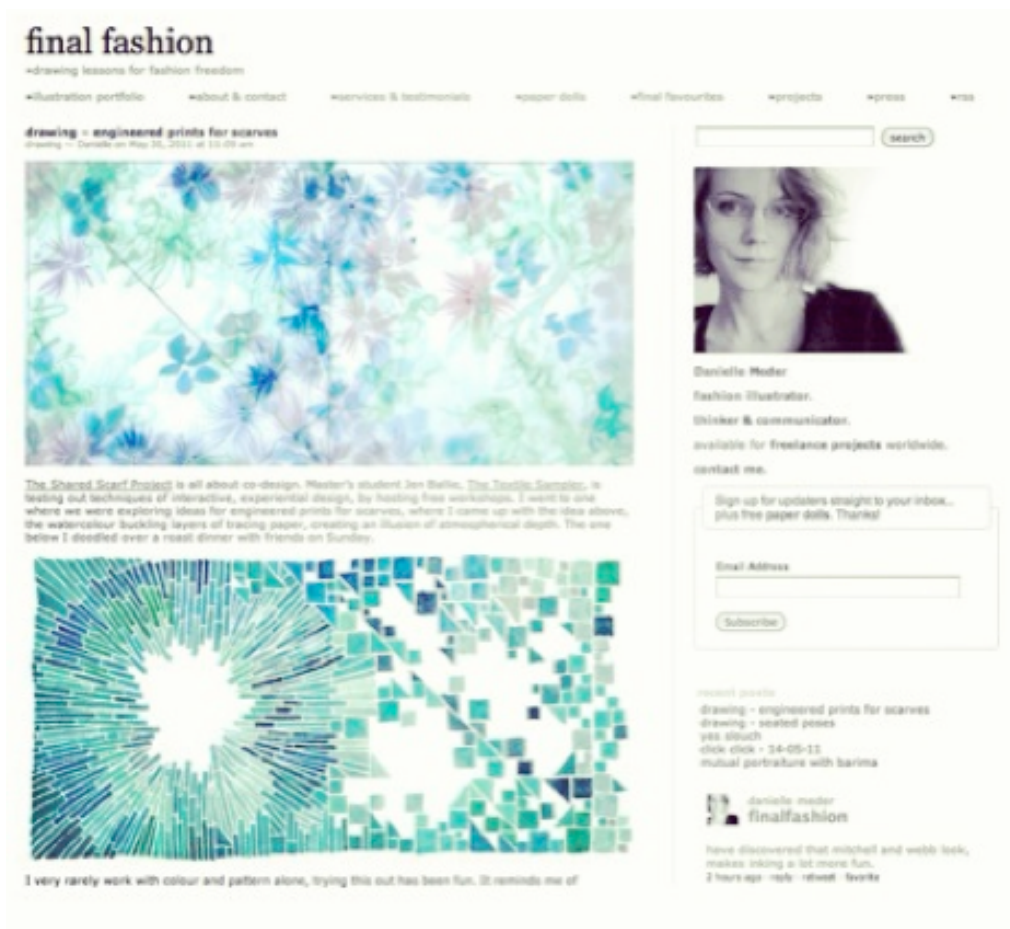
Figure 61 Participant Blog Post

6.5.5 Iteration 4: Co-Design Workshop titled 'Shared Scarves'

The workshop series piloted three different approaches for co-designing digital textile prints using the mobile studio. This produced physical prototypes and samples to demonstrate the textile design and making process through the mobile studio. The work was demonstrated and showcased through an *interactive market stall* within 'Future Everything', a digital festival (2011), Manchester (*see figures 62 & 63*). The market stall was another exploratory method orchestrated to demonstrate the

intervention through action. Alongside showcasing the process and outcomes from each approach, an interactive demonstration was developed to enable an extended audience to participate with the intervention.

6.5.5 (a) Part 1: Digital Textile Design - The mobile digital textile design studio was set up. Due to logistics it was not possible to transport the textile printer. Instead a small Pogo printer was connected to enable participants to print a sticker as a physical outcome that they could take away.

6.5.5 (b) Part 2: Styling – A small sample collection of scarves was also showcased and the public was invited to experiment by styling them. The exploratory method of *tweet tags* was attached to each scarf. This involved a physical label with a #sharedscarves hash tag and scarf name, the design facilitator encouraged participants to style and share their scarves online to share their styling ideas and capture each interaction and build a digital archive.
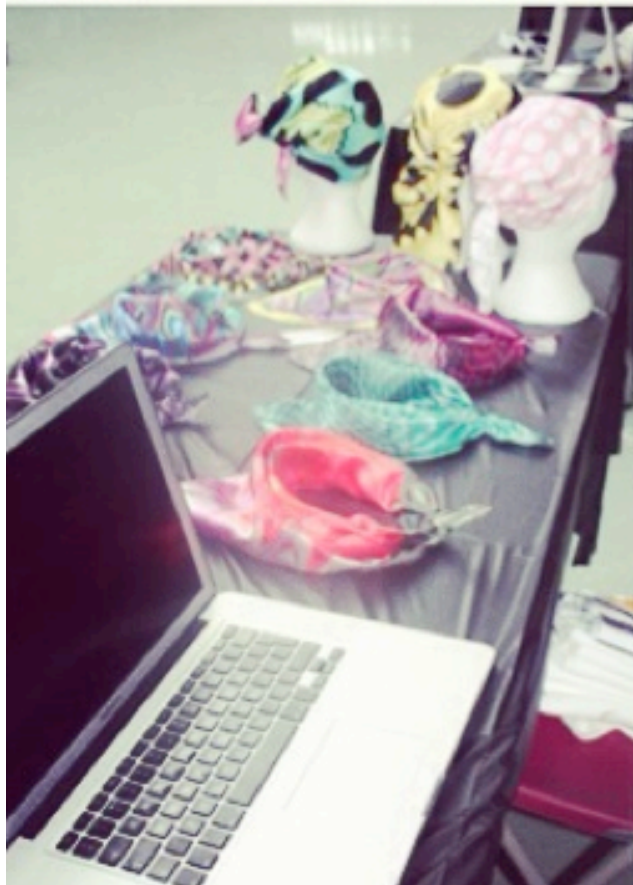
Figure 62 Interactive Market Stall at Future Everything 2011

Figure 63 Interactive Market stall Prototype Scarves

6.5.6 Reflection on Methods

Within each workshop, collaboration was supported through the method of co-design and applied through three different approaches. To enable the participants to work together thus developing a collective collection, to develop a bespoke digital textile print for themselves and finally to develop a collective collection which could be worn together or collectively. Each of these approaches effectively supported consumer participation within the textile design and making process.

Traditionally, within fashion or textiles disciplines, *co-design* is defined as a collaborative process between professional design practitioners. Some argue, that *co-design* is a method, which involves at

least one professional designer working in collaboration with laypersons (Sanders, 2008). The design facilitator became a catalyst through demonstrating the mobile studio and toolkit, and sustained the flow within the workshops; but did not play a direct role within the co-design process. This research provides a further position by arguing that by cultivating a mindset towards sharing, it provides a new approach to exchange material knowledge, skills and techniques to support the digital textile design and making process. As the workshop series evolved and the tools become more effective, facilitation became less direct.

The design methods of *lo-fidelity prototyping, storyboarding* and *visualisation* effectively communicated and documented the intervention. The agency within this intervention offers a new outlook, to propose expanding the definition of *co-design* into the practice of consumers working together. This method supported broader participation beyond the textile design and making process, to encourage fast fashion consumers to question their own consumption. The feedback matrix documented each participant's engagement within the workshops and how they elicited further questions about ownership and garment use. The method of *auto-documentation* was applied by positioning disposable cameras on workstations. This was expanded upon through social media interaction. Through sharing their experience online, the participants shared further reflection. The interactive market stall successfully demonstrated the mobile studio and catalysed further participation by enabling a public audience to experience the mobile studio. The exploratory *tweet tag* method was not successfully adopted within the *interactive market stall*. But this has potential to be implemented to monitor collaborative consumption between participants, post design and production.

The design facilitator critically refined and reflected upon each iteration of the intervention through the method of *auto-ethnography.* The means of documentation and data gathering could have been improved by applying for funding or bartering resources to recruit a professional photographer. The digital imagery became valuable aids to storyboard each stage of the workshop and were referenced when reflecting. This visual data is one of the most valuable outputs and the quality of the documented data influences the observer's perception. If the data is of a poor quality it fails to demonstrate the highlights or success of the workshop to a broader audience. The participants embody the experience, which is complex, to articulate. The overall impact within still images, and possible filmed sound bites could present an animated account of agency within the future workshops.

6.5.7 Outcomes

This intervention developed an inclusive textile design and making process to support the *co-design* and production of textiles using a *mobile digital textile design studio*. Through participation consumers could explore an alternative means of obtaining material goods. Throughout this intervention a blog was used to provide a shared space for participants to interact with one another beyond facilitated *co-design workshops*.

The physical outcomes of this intervention included the three collective collections of digital textiles.

1. Collective Collection 1: Make Your Mark - produced four scarves, which were co-owned by the original group.

2. Collective Collection 2: Be Bespoke – produced six scarves, which provided a finished scarf for each participant.

3. Collective Collection 3: Mix and Match - produced five digital textiles engineered within a larger piece of cloth. This was printed to showcase and demonstrate the concept but did not provide a final outcome for the original participants.

4. Collective Collection 4: Shared Scarves Showcase - exhibited at 'Future Everything' Digital Festival (2011). Through an interactive market stall a public audience could co-create their own digital textile design, and within this exhibition 60 digital textile prints were produced.

The take away for each participant was;
1. **New Skills** – through participating within textile design and making processes the workshop participants acquired skills to develop and create mood boards, and knowledge of textile design making processes to enable them to design prints for their own design digital textiles. They also gained the necessary skill-set to assemble their own mobile studio and continue the making beyond a facilitated workshop.

2. **An Alternative Fashion Experience** – 'Shared Scarves' provided an alternative fashion experience that promoted sharing and enabled collaboration through the exchange of skills. The mobile studio provided a new design space and social setting for Gen Y fast fashion consumers to experience fashion differently through participation as opposed to passive consumption.

3. **Digital Textile Designs and Scarves** - the mobile digital textile design studio provided a small scale local production unit. While this is in beta form and required technical support (it does not provide professional production quality) the finished scarves that were produced provided surprisingly good results. This could transition into the use phase of the product lifecycle.

The early stage findings of this second textile design intervention were written into a paper titled 'E-Co-Textile Design: Constructing a Community of Practice for Design Education' documented within *Appendix F Published Papers*. This was presented at the European Academy of Design (EAD) 2011 and awarded the Branco Award for the best paper and presentation. As a result, an extended version of this paper was published within the Design Journal (2012).

6.6 Evaluation

6.6.1 Reflection on Facilitation

Through the researchers continued role of design facilitator, the second *textile design intervention* emerged. This chapter further expands upon the sustainable design strategy of design activism combined with 'democratic innovation' (von Hippel, 2008) and 'collaborative consumption' (Botsman and Rogers, 2011) through the method of *co-design*. The outcomes were a series of 'collective collections' of scarves produced through an inclusive textile design and making process, supported by the construct of a mobile studio.

The design facilitator found that a high level of energy was required to promote participant engagement. This intervention was conceptualised by expanding upon the act of sharing to support collaboration. The design, delivery and facilitation of each workshop required trust between the participants and the facilitator. This presented a challenge, as the majority of the participants did not know one another. The technique of using a workshop 'ice-breaker' task was introduced at the beginning of each workshop and involved grouping the participants into pairs and challenging them to identify as many style scenarios as possible. They were provided with a white silk scarf, a digital camera, post-it notes and a sharpie. This activity lasted 15 minutes and they were encouraged to share the role of both model and stylist. For example, one modeled while the other styled and captured an image to document. This provided a light and playful method of introducing the group to each other. This intervention required design facilitation to sustain skill sharing and build the capacity of the mobile studio to trigger "the design, development and cultivation of skills thus opening new vistas for actions" (Von Busch, 2011).

The workshops and demonstrations were effective by illustrating an alternative quick fashion fix by enabling consumer participation within the design process. New design spaces began to emerge and there is further potential to use the mobile studio as a demonstration tool to question the modus operandi of the fast fashion system and industry. From the designer-maker model that characterises pre-industrial mass production, the designer has become increasingly disengaged from the production process and its attendant impacts. Indeed, in the most extreme cases, a fashion or textile designer may never handily the material that their carefully conceived product is to made up in, or know its provenance (Watson, 2013).

6.6.2 Reflection on Participation
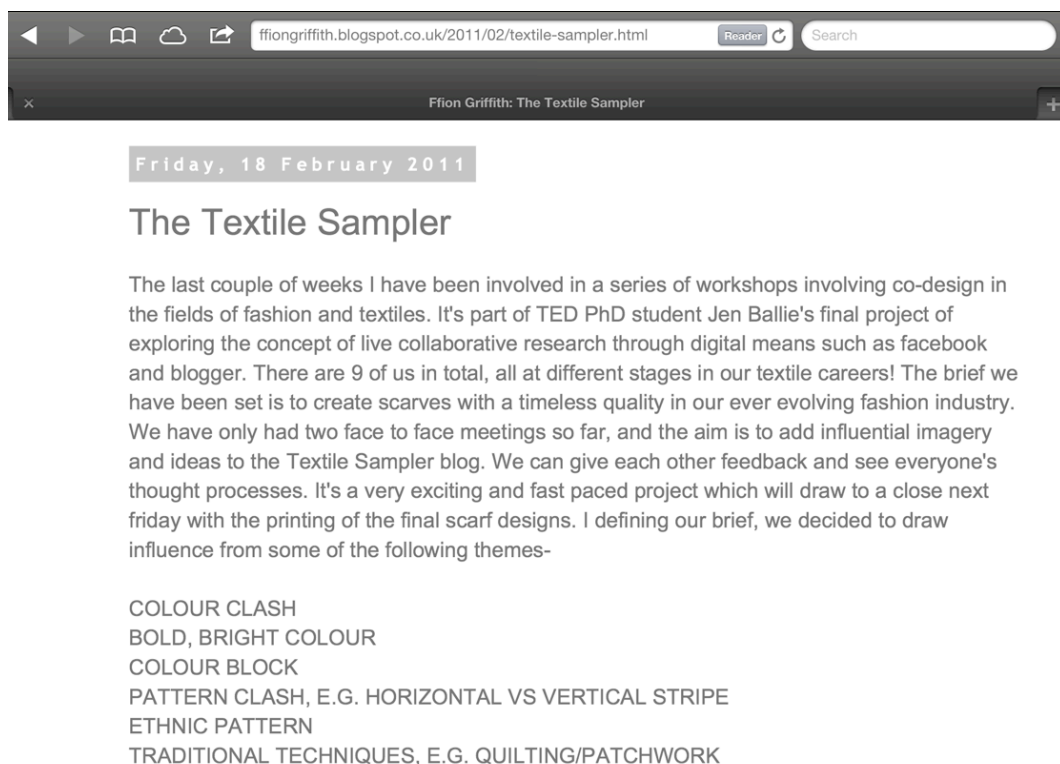
Figure 64 Participant Blog Post
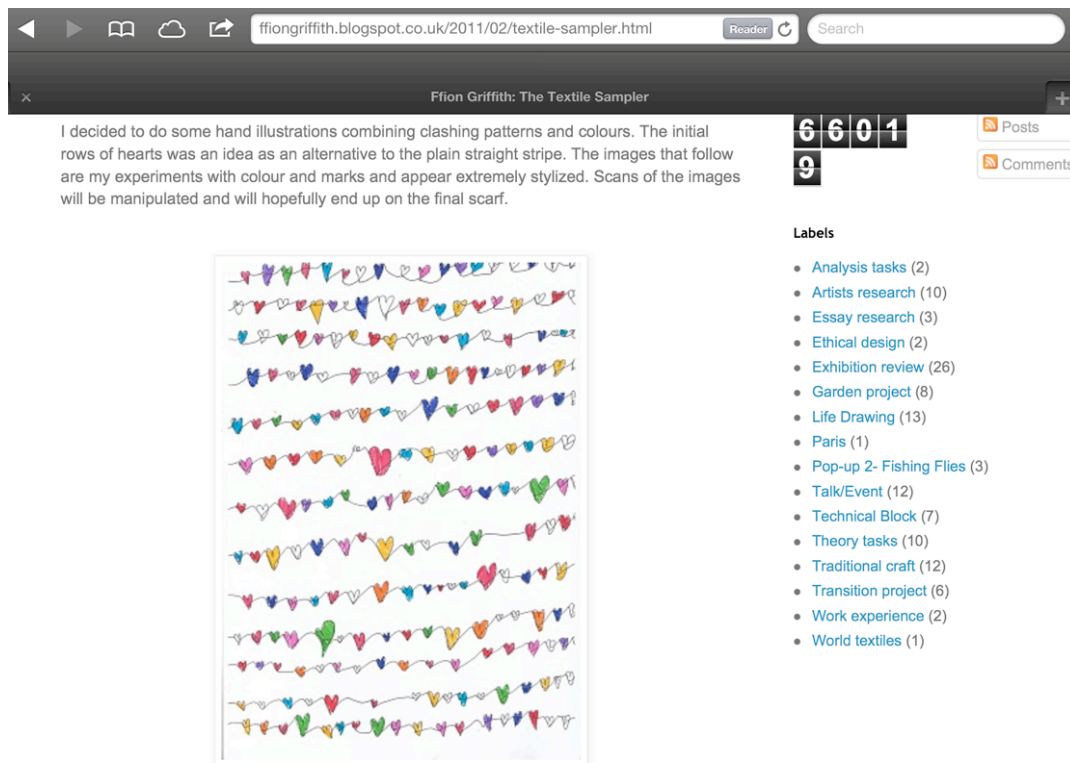
Figure 65 Participant Blog Post

The participants were invited to share the observations, feedback and reflections as they engaged with the mobile studio and naturally made comparisons between the intervention and traditional consumption. The participants were recruited from different backgrounds and this intervention was designed to support varying degrees of participation and different skill sets. The design students or recent graduates brought their creative mindset, but their design training and expertise made them more reluctant to adopt lo-fidelity prototyping tools throughout the design process. The participants from a non-design background had to be supported to build their creative confidence. However, they were more responsive to the mobile studio than those with design expertise. Their feedback highlighted that the ability to work collaboratively towards a shared collection goal within a short period of time expanded their expectations. While the digital materials provided quick and instantaneous results, the participants emphasised how much they enjoyed interacting with the physical materials. Surprisingly, analog materials were the novelty within this intervention. This could be aligned to Fletcher and Groses (2012) argument that objects have become closed off, with consumers locked out of the design process. This intervention addresses this, through an inclusive approach to textile design and development. Further conversations were captured via post-it notes and documented within the feedback matrix to identify the following themes;

Social: the participants highlighted that the mobile studio mediated an alternative fashion experience which allowed them to come together socially with their friends. The participants also formed new alliances beyond the workshops. The social elements of the workshops were a strong element, which

should not be undervalued. Through combining online media, a new social element can emerge which has the potential to explore new forms of social interaction through sharing within textiles for fashion. This provided each participant with a shared sense of ownership and responsibility, which enabled them to become champions for the intervention. For collaborative consumption to emerge, a new infrastructure is required. This can be supported by social media which can be adopted to support the exchange of scarves and orchestrate new opportunities for people to connect to *co-design* and co-production through offering access to mobile studios within new action spaces. Beyond this infrastructure, there is huge potential for Shared Scarves to be designed, managed and maintained by consumers themselves.

Emotional Durability: A selection of these strategies also aimed to put the consumer in a closer position to their product. By creating a base of product understanding, skilled users are able to better maintain their objects and thus ensure them a longer lifespan. A sustainable ideal is the constant evolvement and personalization of the product through repair, redesign and recycling. As stated in the previous chapters, this participation in the design process can foster valued person-product attachment, through personal and emotional value creation. Quite whether this represents a flattening of fashion's long-established authorial hierarchies and the emergence of a new set of relations between brands and consumers, or is simply another means through which capital can exploit consumer labour-power in order to extract additional value remains to be seen.

Connecting the flow and happiness depends on whether the flow-producing activity is complex, whether it leads to new challenges and hence to personal and cultural growth (Csikszentmihalyi & Hunter, 2003). "Happiness comes from creating new things and making discoveries. Enhancing ones creativity may therefore also enhance well-being" (Csikszentmihalyi & Hunter, 2003).

Identity: Through a process of participation the participants could develop their own aesthetic. The design facilitator aimed to provide a starting point without influencing final outcomes. In order to interpret consumption behaviour, it is necessary to study the main drivers and motivation behind it. There are several theories on consumer behaviour, attitude and desire and on spending and saving habits. However it is beyond the scope of this thesis to review those in depth. For example Jackson (2005) summarises several theories and models in his publication: 'Motivating Sustainable Consumption'. Among them is 'The Theory of Reasoned Action' by Ajzen and Fishbein and the extended Theory of Planned Behaviour' by Ajzen.

6.6.3 Reflection on Intervention & Democratic Innovation

The materials and resources required to *co-design* and *co-produce* scarves using the mobile studio were low-cost and easily accessible to reduce any barriers to participation. Expanding upon the work of von Hippel (2008) who highlights when the high cost of prototyping becomes diffused very widely. The mobile studio emerged through an amalgamation of existing tools, applications and platforms, developed by the design facilitator, combining existing software and hardware to demonstrate a lo-fidelity production method to support textile design, sampling and small-scale production. While fast fashion provides an immediate fix for fast fashion consumers through accessible and low cost retail, the mobile studio provides an accessible, affordable solution to support collaborative design and consumption. This expands upon the fast fashion consumer quest for an authentic experience as they have the potential to influence what is designed. The mobile studio offers a new bottom up approach for collaborative consumption to consider sharing within the design process beyond the final stages of production.

Agency was orchestrated through a series of workshops using the mobile studio and demonstrates how to set it up and use it. To provide the participant with the necessary resources to continue this way of working if they wished. Now more than ever, communal consumer conversations have the capacity and critical mass to effectively challenge the assumed power of the producer and consumers are relying less on the authority of conventional branding and advertising campaigns for their consumption knowledge (Crewe, 2013). The powerful network effects made possible by the Internet have enabled consumers to reach out into fashion worlds faster, further, and deeper than ever before and to redefine how and where knowledge is created and disseminated to the point where it has been argued that the technologies of production are now increasingly in the hands, and minds, of consumers (von Hippel, 2005).

The mobile studio provides a domestic tool and has the potential to be set up and curated by fast fashion consumers themselves within their own homes or environments. Furthermore, a textile designer could adopt the mobile studio concept to sample digital textile designs to support their own practice. There are further opportunities for textile designers to develop new techniques to extend the use, function and application of the mobile studio. This intervention demonstrated existing digital and online tools which can be adapted to support textile design practice. There is a plethora of excellent tools for developing craft skills and facilitating distributed production, but there are still very few which encourage these skills to be employed in the context of a deeper understanding of sustainability; few question the fundamental design concepts and associated issues (Hur & Beverley, 2011).

This intervention argues the potential for fashion and textile designers and craft practitioners to facilitate sustainable fashion solutions through co-design, with emphasis on involving the user at the earliest stages of the design process. Involvement in the early design process allows users with sufficient interest and passion to progress through the four levels of creativity; doing, adapting, making and creating (Sanders, 2006).

6.7 Conclusion

The textile design and making processes were supported and demonstrated through the construct of a mobile digital textile design studio. The mobile studio was assembled to demonstrate small scale, local and collaborative design and production by providing a platform to support *co-design* between designers and consumers. Through live demonstrations within workshops and other events the textile design and production process was demystified to share the practice of digital textile design. While the mobile studio could not be labeled as a professional production unit, it proved to be a highly effective sampling tool. There is further potential for the mobile studio to be utalised by consumers themselves to support those who wish to design and produce digital textile designs within their own home. Through each workshop, the researcher was mindful about how it was demonstrated and the pitch promoted it as a domestic digital resource similarly to a laptop or desktop computer. This expanded upon the work of Von Hippel (2005) with the premise of providing consumers with the capacity to innovate within textile design en mass.

To advance the mobile studio to a professional unit requires further research and development. This would also require a service system in order to sustain interaction and provide design support and there could be potential in defining a partnership with a fast fashion brand or retailer. For example, the Apple brand is often accredited as having one of the most successful consumer experiences from a product and service design perspective. Their in store Genius bar service provides their consumers with open access to a team of expert individuals who are available to offer technical support through classes, demonstrations and drop in sessions. Within fashion retail there is no equivalent, while consumers are sold garments no service provision is provided to empower and educate the use-phase of a garment lifecycle. From a sustainability perspective, the lack of service provisions is unacceptable and requires further consideration in regards to the sustainability of fast fashion futures. This intervention raises many questions about how the mobile textile design studio might evolve in the future to support sustainability. There might also be further opportunities to connect the mobile studio through collaboration with a Fab Lab or similar digital design space. Further participation may perhaps be supported by downloadable demonstration and tutorials for Gen Y fast fashion consumers. These patterns could also provide blueprints for digital textile design processes and making similar to home dressmaking. The sewing machine provides a resource for DIY, repairing,

maintaining and altering. There is huge potential to integrate or combine the mobile studio as an additional resource.

There are many opportunities for a textile designer to design and develop sharable processes using the mobile studio within a future context. However, moving this forward requires mindful consideration in regards to sustainability to consider the environmental impact. This intervention highlights the value of developing new social experiences for fast fashion consumers to collaborate and engage with the textile design and making processes by demystifying the act of making, to encourage them to address the environmental impact of consumer waste through overconsumption. However, further research is required to consider how collaborative consumption and democratic innovation can be combined and sustained. The next stages of 'Shared Scarves' will consider how to prolong the lifecycle of the scarves to devise further opportunities to share, swap and style. The consumer appetite for participating needs to be supported and reviewed through observing their interaction long term. Further research will apply a longitudinal study to consider if personalised products prolong the lifecycle and measure how the participants value their scarves beyond the 'Shared Scarves' experience.

CHAPTER SEVEN: Textile Design Intervention 3 – Open Design

7.1 Introduction to 'DRESS UP/DOWNload'

This chapter explores the concept of 'Open Design' with reference to open innovation, a term coined by Chesbourgh (2003). This bottom up approach is maintained by the 'creative commons' (CC) to allow the process of design to become democratised through transparent processes and shared resources, which can be downloaded from the Internet to broaden the remit of participation. Large companies or retailers do not lead open innovation within fashion and to date this movement has been led by independent designers. These designers apply open innovation to their practice by distributing open source templates and patterns as opposed to a finished fashion collection. The individual consumer also has a leading role in the open innovation and is transforming from being the passive consumer into an active maker, and this deepens the feeling of achievement and in turn increases product satisfaction (Niinimäki & Hassi, 2011).

This third textile design intervention titled 'DRESS UP/DOWNload' challenged the construct of 'fast fashion' by applying design activism coupled with open innovation to explore a new form of material interaction for textile design within a fashion context. The fast fashion system provides instant consumer gratification through temporary 'quick fixes', but these interactions are influenced through short moments in time and are quickly become forgotten. In contrast this intervention aims to engage consumers in the long term, by demystifying the textile design a process of making for others to access, review and expand upon. While in beta form, this intervention demonstrates an alternative approach to open design, production and consumption with consideration to how we might achieve a more sustainable fast fashion future. This was achieved by using one basic garment, a simple shift dress as a mechanism to promote agency and consumer participation. The dress provided a shared canvas to project a collection of multiple textile design concepts and participation was facilitated to support the co-development of a 'collective collection' of digital textile prints. These prints were designed using collage techniques and lo-fi materials, then collected, digitised and uploaded online to produce a 'collective collection' of digital textiles that could be downloaded alongside a basic dressmaking pattern to provide the resources to physically produce the dress.

7.3 Problem

The research within this intervention continues to acknowledge that fast fashion consumers are becoming overwhelmed by the influx of available offers, this has been described as the 'burden of choice' (Tapscott & Williams, 2010). The market place has become flooded with cheap, low quality, disposable garments. The most sustainable solution would be to dematerialise (Fletcher and Grose, 2012) and prevent further fast fashion mass manufacture and production. Commercially this is not economically viable and unless government policy regulations change, retailers will continue to supply to a growing consumer demand. Furthermore, consumers are not ready to commit to regulated consumption of their own accord. This intervention explores how design might intervene by exploring opportunities to engage with materials differently to identify what can be achieved using fewer materials. This intervention addresses this problem by implementing a lo-fidelity textile design and making process to enable participants to engage with an alternative fast fashion experience by using fewer materials.

Alongside material affluence, digital consumption is on the increase due to the increase of user generated content. Digital consumers are also reporting feeling overwhelmed due to an influx of socially connected web platforms and applications. Online media and new technology innovates at a much higher frequency than fast fashion through a highly paced approach to innovation. Both landscapes have become crowded, noisy and overstocked. The pace and flow of consumer interaction can be supported by online interaction but the opportunity to engage with the physical process of making might have the potential to promote a slower pace of design and production.

7.4 Sustainable Design Strategies

Through conceptualising this intervention, the researcher was mindful that implementing another 'quick fashion fix' would not resolve these problems, only contribute to further environmental impact. Therefore, the reseacher developed an open innovation toolkit to enable fast fashion consumers to experience the act of making using small scale lo-fidelity resources. These concepts have the potential to become more refined by implementing digital textile design techniques and processes to produce higher fidelity concepts as the participants experience progressed and they were genuinely satisfied with the results. While the making process was analog and required physical materials, the resources and techniques were shared online to enable a broader audience to engage with the process beyond orchestrated workshops or events. Following participation, the textile print concepts were scanned by the design facilitator and shared by uploading a digital look book for the participants and a broader group of consumers could access online and download. As participation increased through agency a 'collective collection' of digital textile design began to emerge. This was

shared online using integrating existing social media tools.

The open innovation approach within this intervention considers the complete lifecycle of the dress from concept development through to design and production. This lifecycle has been prototyped and demonstrated, but consumer participation is limited to a short workshop package to produce a lo-fidelity outcome. The previous interventions identified that not everyone has the appetite or creative mindset to play an active role within the complete design process. Therefore, design facilitators need to design for varying degrees of participation. This intervention challenges the existing fast fashion paradigm through an alternative affordable and accessible system. The open innovation toolkit supports a simple, shareable and accessible package to demonstrate an immediate 'quick fix' for a broader audience. This next stage of the innovation process requires more advanced workshops which continue to combine textile design and making with an integrated social media platform to amplify an open source approach to further fast fashion consumer participation.

7.5 Developing Textile Design Intervention 3

7.5.1 Inspiration

This intervention was inspired by the practice of open innovation. Within a fashion context new approaches are beginning to emerge online to provide a democratic, inclusive and transparent design process from concept through to the final stages of design and distribution. Through a practical review of existing open innovation processes, this intervention identified existing online spaces that provide opportunities for fast fashion consumer participation. The social media platform, Pinterest (2013) provides a space to source and store inspiration by uploading images or videos or to edit digital mood boards. Their database has grown exponentially by 45% from 2012-13 with an estimated 70 million users (Matheiken, 2013). This online space had been identified to support 'Do It Yourself' concepts within fashion and there are currently approximately 1,262 digital mood boards demonstrating how to make and customize your own fashion using online patterns supported by diagrams and instructions (Dorsey, 2013). Furthermore, a selection of high-end fashion designers have integrated social media tools. Oscar de la Renta (2012) crowdsourced the inspiration phase of his Spring/Summer 2013 collection by developing an open source mood board space titled 'The Board' under the tag line 'don't tell me, show me' (See figure 66 below). This interactive board was accessible online and projected live in real time onto a project space within their design studio to inspire the concept stage of the design process.
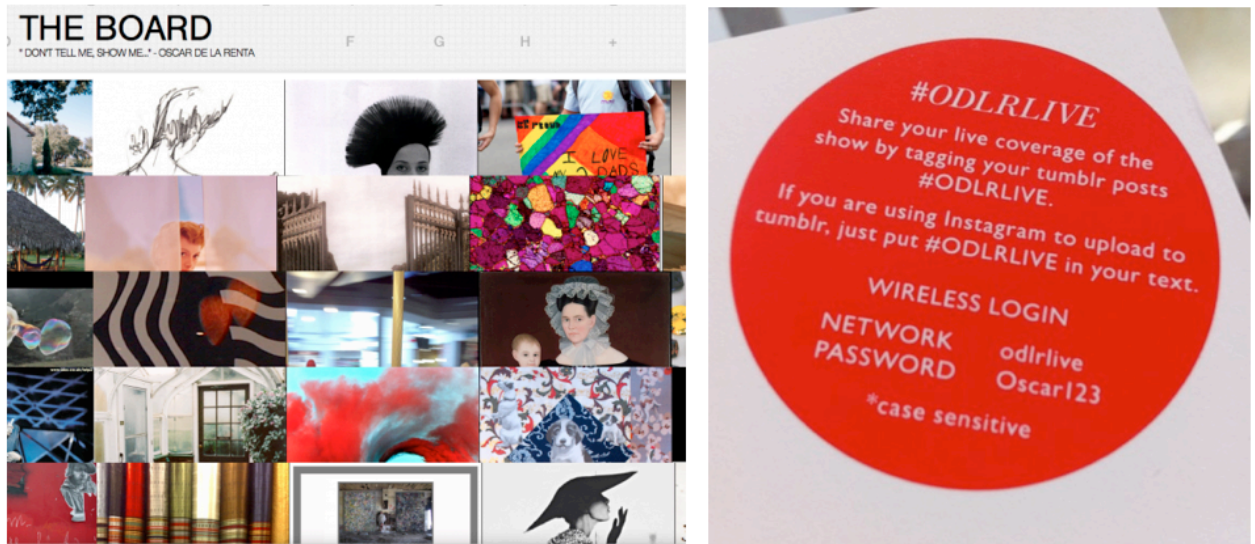
Figure 66 Oscar De La Renta The Board (2012)

However, the most high profile open source example is, SHOW Studio's 'Design Download' project (2009 - ongoing). This project demonstrates how high-end fashion could become democratised online to the masses but for this to become reality, it would require a feasible business model with incentives or benefits for designers to apply open source design approaches to distribute their work. This project provides a small scale demonstration of downloadable fashion garment patterns from previous catwalk collections from seven high profile fashion designers (McQueen, Galliano, Pugh, Yamamoto, Watanabe, Price, Margiela, 2009). Their work can be previewed below within *Figure 66*, demonstrating the open source garment design alongside the catwalk version of the dress by Watanabe. Following a process of participation to make their own interpretation of the dress using the open source pattern, individuals are encouraged to share the outcome and uploaded it online. The participant motivation to engage with these downloads is enabled by an inclusive approach and further influenced by their desire to engage with high-end fashion which would be otherwise inaccessible.
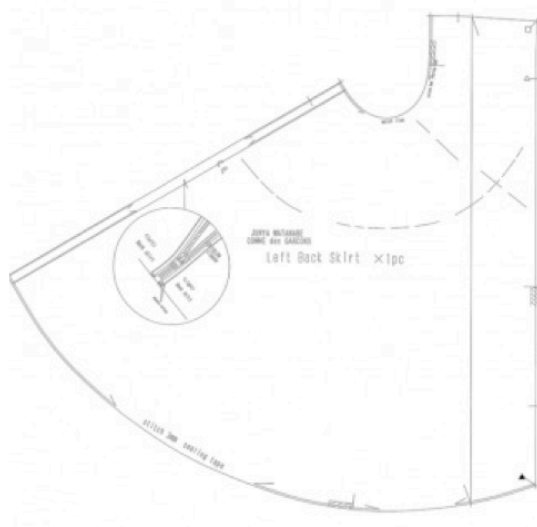
Figure 67 SHOWstudio Design Download (2009-13)
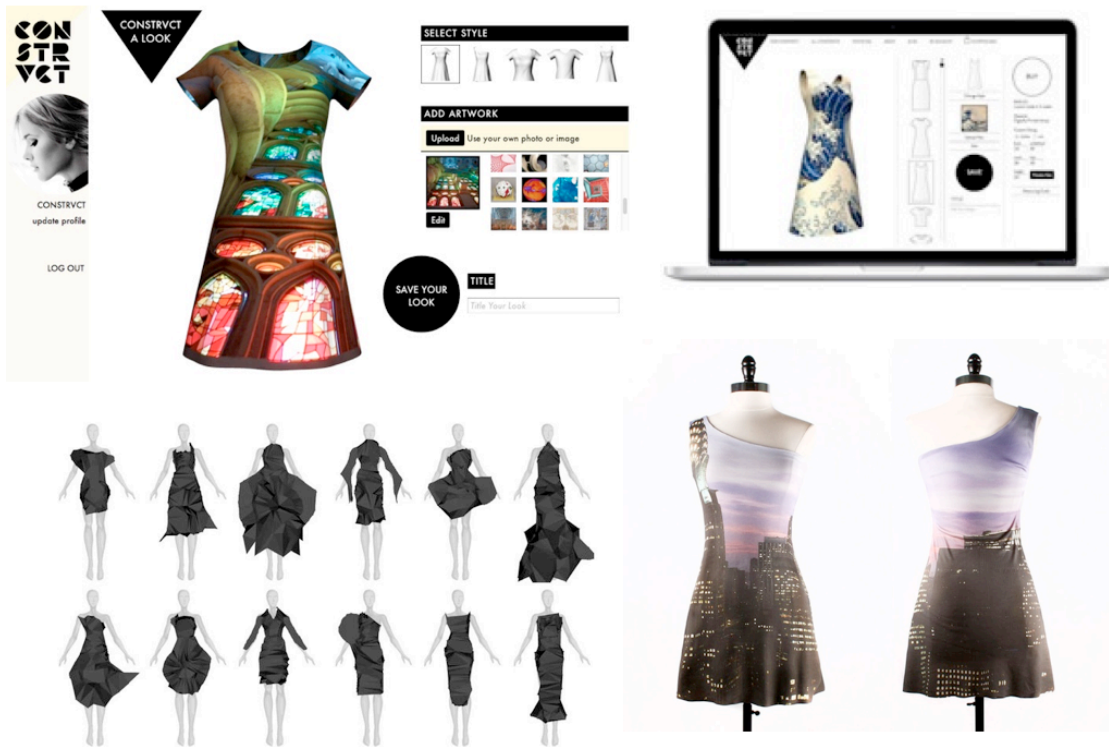
Figure 68 Contnuum Digital Fashion Platform (2013)

The practice review identified further examples that apply an open innovation process to support the design, production and consumption of a simple dress. The CONSTRVCT label developed by Continuum (2013) has developed online digital software to enable consumers to experiment with digital tools to generate textile prints for a dress (see Figure 68 above). While in the early stages of development, this platform demonstrates new developments within the field of personalisation and participatory design for fashion.

Figure 69 The Uniform Project *(2010-11)*

The Uniform Project (2010-11) applied and adopted social media tools to extend the lifecycle of a simple dress design. Shenna (2011) initiated the intervention by pledging to wear a series of identical dresses as her uniform each day, for one year (see *Figure 69 above*). This exploration emerged as an experiment and personal exercise to challenge the perception of sustainable fashion. By capturing and sharing self documented photographs daily, the Uniform Project shifted the boundaries and perceptions of fashion use, through the practice of everyday styling. The online platform became an archive to engage an extended online audience who could respond to the personal narrative shared by one individual, more than they could relate to a brand.

Further examples of open source fashion can be accessed through Burda Style (2013), Open Wear (2013) and DIY Couture (2013).

7.5.2 Conceptualisation

This differs from fast fashion by demystifying a process of making, for others to access, review and expand upon. Through conceptualising this intervention, the researcher was mindful that implementing another 'quick fix' would not resolve, only contribute to further environmental impact.

The open innovation toolkit enabled fast fashion consumers to experience the act of making on a small scale using low-fidelity resources. These concepts became more refined as participation evolved, by implementing digital textile design techniques and processes to produce higher fidelity concepts. Through agency a 'collective collection' of digital textile designs emerged which were shared online using integrated social media tools. While the making process was analog and required physical materials, the resources and techniques were shared online to enable a broader audience to engage with the process beyond orchestrated workshops or events. Following participation, the textile print concepts were scanned by the design facilitator and shared by uploading a digital look book for the participants and a broader group of consumers who could access online and download.
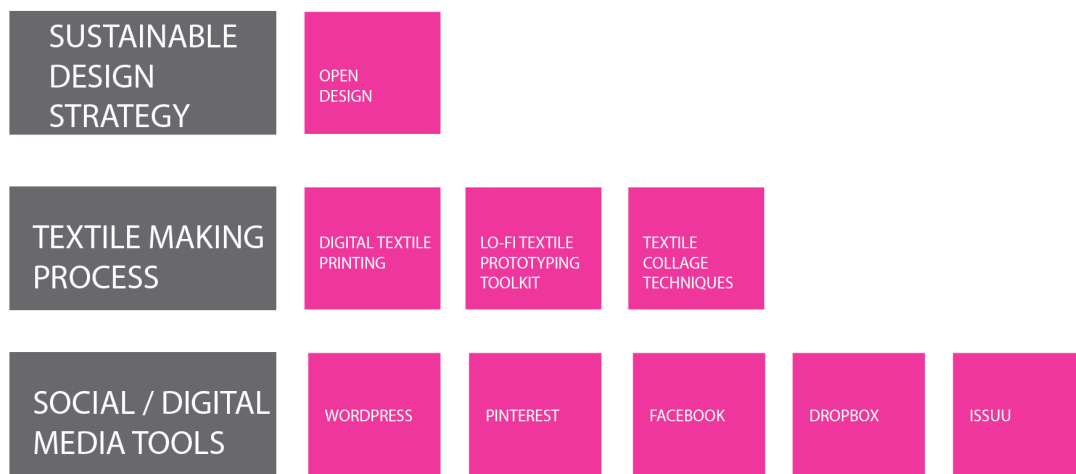
Figure 70 Conceptualising Intervention 3

Through a process of open innovation, an inclusive textile design and making process was identified to develop a toolkit specifically for fast fashion consumers. This was a physical toolkit comprising of pre-cut geometric shapes using coloured card, pens, glue and scissors included in addition to a fashion illustration and dress template. The collage techniques applied within the toolkit were low-fidelity and required physical material to create pattern and print designs within approximately 20 minutes. To support open innovation, existing social media tools were adopted (wordpress, dropbox and facebook) to share participant interaction with the physical toolkit by posting the results online.

Following physical interaction with the toolkit to create a textile print concept, the final designs were scanned and digitally re-worked using Adobe packages to produce more advanced prototypes. Through adapting the scale and resolution these digital textile designs could be professionally printed onto cloth. An open source shift dress pattern was also modified into a simple pattern. Digital textile prints could be placed directly onto the dress template to produce a digitally engineered textile print with professional support. Following a professional digital textile printing process, the dress could be cut and assembled within approximately one hour.

While the advanced design and production process of producing a finished dress was not included within the toolkit, a sample collection of high fidelity prototype dresses were designed and demonstrated to showcase potential final outcomes.

7.5.3 Research Methods

PLANNING	PILOT	BRAINSTORM	MOOD BOARD	DEMONSTRATION	DESIGN FACILITATION SHEETS
ACTION	PROTOTYPING	CO-DESIGN WORKSHOP	TEXTILE DESIGN INTERVENTION	LO-FIDELITY PROTOTYPING	LOW-FIDELITY PROTOTYPING KIT
OBSERVATION	AUTO ETHNOGRAPHY	AUTO DOCUMENTATION	PHOTOGRAPHY	USER GENERATED CONTENT	STORYBOARDING & SKETCHNOTES
REFLECTION	PARTICIPANT POSTCARDS	FEEDBACK SHEETS	SCENARIOS	SOCIAL MEDIA SHARE	LOOK BOOKS

Figure 71 Design Facilitation Toolkit Intervention 3

The research methods applied within this intervention are illustrated within *Figure 71,* this began with a *pilot workshop* followed by three additional *workshops.* The textile design and making processes expanding upon the analogue craft of collage and a *lo-fi textile making and prototyping toolkit* was assembled. The facilitation of this intervention was supported by a design facilitation worksheet, which was designed in collaboration with Fan Xia (2011). The *facilitation sheet* mapped the participants' journey, beginning with a quick icebreaker followed by a *storyboarded* textile design and making process, visualised through four simple steps. The process of making was piloted to refine participant engagement and interaction.

To date this intervention has been shared within three public events, each offered a different 'action space' (Von Busch, 2008) and provided a real world context for the intervention. The *workshops* concluded with a showcase of final concepts, encouraging participants to share their finished concept. The facilitation sheet concluded with a short evaluation capturing feedback on the intervention, making process and participant interest in regards to further participation. This was an asset as it

gathered data from each participant, documenting their overall experience, and a photograph was taken of their final textile print for the dress and attached to the worksheet. To document each iteration *auto-documentation and auto-ethnography* were applied. The researcher continued to apply the method of *auto-ethnography* to reflect upon the role of design facilitation through each iterative stage of the intervention.

7.6 Design & Implementation

This intervention was designed to include a lo-fidelity textile design and making toolkits but to make it open source a KIT was packaged and instructions of how to make your own KIT was shared online. Alongside sharing the textile techniques and materials, the outcomes were also shared online. To support online beta testing a wordpress blog was customised by integrating tools such as Pinterest, Facebook, Dropbox and Issuu. The participant's lo-fi textile design concepts were documented by producing a digital look book to share concepts online.

To construct a community of practice around the intervention a strategic approach was applied to develop new action spaces. This was achieved by sharing previous interventions online through social media. As a result invitations came to deliver workshops for a 'Friday Night Late' at the Victoria and Albert Museum (2011), at DESIGNERS|BLOCK during the London Design Festival (2011) and the Centre for Sustainable Fashion's 'Transformational Thinking and Practice Field Day' (2012). The design of this intervention begins and concludes with a pilot, introducing the first iteration of workshops and exploring possible future directions.

Textile Design Intervention Three 'DRESS UP|DOWNload'	
Purpose: To broaden the remit of fast fashion consumer participation by developing a sampler toolkit to enable individuals to design and develop a low-fidelity textile design pattern within 20-30 minutes. More advanced prototypes were produced to demonstrate the next stages of the design process and showcase potential future outcomes.	
Sustainable Design Strategy: Open Innovation	
Textile Design Making Process	**Online Media**
Low-fidelity textile design and making, using collage techniques. The card to be cut into geometric shapes in advance, cutters used for card making was sourced. The geometric shapes were combined with glue, scissors and pens and packed into a kit. A fashion illustration and shift dress template were also included.	www.wordpress.dressupdownload.com Instagram #dressupdownload Facebook – 52 group members Dropbox Pinterest Issuu

	Textile Design Intervention Three 'DRESS UP|DOWNload'

Purpose: To broaden the remit of fast fashion consumer participation by developing a sampler toolkit to enable individuals to design and develop a low-fidelity textile design pattern within 20-30 minutes. More advanced prototypes were produced to demonstrate the next stages of the design process and showcase potential future outcomes.

Sustainable Design Strategy: Open Innovation

Textile Design Making Process	Online Media
Call for Participation	**Workshop Facilities**
A flyer was designed and promoted within the media and marketed at wider events.	The textile design making process and associated materials required a small flat work surface such as a table. A scanner is required for digital conversion of the analogue textile designs.

Documentation of Each Iteration of Action Research

Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
Pilot **Date:** 12/08/2012 **Time & Duration:**2-3 (1 hour) **Venue & Location**: Duncan of Jordanstone College of Art & Design (DJCAD), University of Dundee	The premise of the pilot workshop was to test the usability and design capacity of the physical materials. These materials were prepared in advance to support usability.	1		x	Gen Y	Lo-fi Textile print
		2		x	Gen Y	Lo-fi Textile print
		3		x	Gen Y	Lo-fi Textile print
		4		x	Gen Y	Lo-fi Textile print
		5		x	Gen Y	Lo-fi Textile print
		6		x	Gen X	Lo-fi Textile print
Workshop 1 **Date:** 26/08/2012 – 27/08/2012	This workshop was designed and facilitated within 20-minute taster sessions.	1		x	Gen Y	Lo-fi Textile print
		2		x	Gen Y	Lo-fi Textile

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
Time & Duration: **Venue & Location:** Victoria and Albert Museum (V&A), London	To support the quick pace and deliver of these short workshops a design facilitation sheet was created – this included; an icebreaker activity, 5 simple instructions, which were storyboarded visually, and also a section to capture feedback. A fashion illustration template, a small dress template and a selection of geometric shapes were also prepared in advanced.					print
		3		x	Gen Y	Lo-fi Textile print
		4		x	Gen Y	Lo-fi Textile print
		5		x	Gen Y	Lo-fi Textile print
		6		x	Gen Y	Lo-fi Textile print
		7		x	Gen Y	Lo-fi Textile print
		8		x	Gen Y	Lo-fi Textile print
		9		x	Gen Y	Lo-fi Textile print
		10		x	Gen Y	Lo-fi Textile print
		11		x	Gen Y	Lo-fi Textile print
		12		x	Gen Y	Lo-fi Textile print
		13		x	Gen Y	Lo-fi Textile print
		14		x	Gen Y	Lo-fi Textile print
		15		x	Gen Y	Lo-fi Textile print
		16		x	Gen Y	Lo-fi Textile print
		17		x	Gen Y	Lo-fi Textile print
		18		x	Gen Y	Lo-fi Textile print

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
		19		x	Gen Y	Lo-fi Textile print
		20		x	Gen Y	Lo-fi Textile print
		21		x	Gen Y	Lo-fi Textile print
		22		x	Gen Y	Lo-fi Textile print
		23		x	Gen Y	Lo-fi Textile print
		24		x	Gen Y	Lo-fi Textile print
		25		x	Gen Y	Lo-fi Textile print
		26		x	Gen Y	Lo-fi Textile print
		27		x	Gen Y	Lo-fi Textile print
		28		x	Gen Y	Lo-fi Textile print
		29		x	Gen Y	Lo-fi Textile print
		30		x	Gen Y	Lo-fi Textile print
		31		x	Gen Y	Lo-fi Textile print
		32		x	Gen Y	Lo-fi Textile print
		33		x	Gen Y	Lo-fi Textile print
		34		x	Gen Y	Lo-fi Textile print

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
		35		X	Gen Y	Lo-fi Textile print
		36		X	Gen Y	Lo-fi Textile print
		37		X	Gen Y	Lo-fi Textile print
		38		X	Gen Y	Lo-fi Textile print
		39		X	Gen Y	Lo-fi Textile print
		40		X	Gen Y	Lo-fi Textile print
		41		X	Gen Y	Lo-fi Textile print
		42		X	Gen Y	Lo-fi Textile print
		43		X	Gen Y	Lo-fi Textile print
		44		X	Gen Y	Lo-fi Textile print
		45		X	Gen Y	Lo-fi Textile print
Workshop 2 **Date:** 22/09/2011 **Time & Duration:** 12-4 (4 hours) **Venue & Location:** Designers Block, London Design Festival, Clerkenwell, London	This workshop facilitated the use of the DRESS UP/DOWNload collage kit. The materials were made available to access through a series of drop in sessions.	1		X	Gen Y	Lo-fi Textile print
		2		X	Gen Y	Lo-fi Textile print
		3		X	Gen Y	Lo-fi Textile print
		4		X	Gen Y	Lo-fi Textile print

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
		5		x	Gen Y	Lo-fi Textile print
		6		x	Gen Y	Lo-fi Textile print
		7		x	Gen Y	Lo-fi Textile print
		8		x	Gen Y	Lo-fi Textile print
		9		x	Gen Y	Lo-fi Textile print
		10		x	Gen Y	Lo-fi Textile print
		11		x	Gen Y	Lo-fi Textile print
		12		x	Gen Y	Lo-fi Textile print
		13		x	Gen Y	Lo-fi Textile print
		14		x	Gen Y	Lo-fi Textile print
		15		x	Gen Y	Lo-fi Textile print
		16		x	Gen Y	Lo-fi Textile print
		17		x	Gen Y	Lo-fi Textile print
		18		x	Gen Y	Lo-fi Textile print
		19		x	Gen Y	Lo-fi Textile print
		20		x	Gen Y	Lo-fi Textile print

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
Workshop 3 **Date:** 15/05/2012 **Time & Duration:** 2-3 **Venue & Location:** London College of Fashion (LCF), London	This workshop facilitated the use of the DRESS UP/DOWNload collage kit. The materials were made available to access through a series of drop in sessions.	1		x	Gen Y	Lo-fi Textile print
		2		x	Gen Y	Lo-fi Textile print
		3		x	Gen Y	Lo-fi Textile print
		4		x	Gen Y	Lo-fi Textile print
		5		x	Gen Y	Lo-fi Textile print
		6		x	Gen Y	Lo-fi Textile print
		7		x	Gen Y	Lo-fi Textile print
		8		x	Gen Y	Lo-fi Textile print
		9		x	Gen Y	Lo-fi Textile print
		10		x	Gen Y	Lo-fi Textile print
		11		x	Gen Y	Lo-fi Textile print
		12		x	Gen Y	Lo-fi Textile print
		13		x	Gen Y	Lo-fi Textile print
		14		x	Gen Y	Lo-fi Textile print
		15		x	Gen Y	Lo-fi Textile print

Documentation of Each Iteration of Action Research						
Workshop Details	Workshop Description	Participant	M	F	age group	Outcome
TOTAL		86		86		

Figure 72 Table of Intervention

7.6.1 Piloting the Intervention

The pilot was delivered to test the lo-fi textile design and making process and supporting toolkit. Also with a focus to refine a 20-minute workshop package and develop lo-fidelity prototyping tools. The theme of 'Geometric Pattern and Print' was selected and a mood board was prepared to provide inspiration using the online application Pinterest (see *Figure 73 below*).
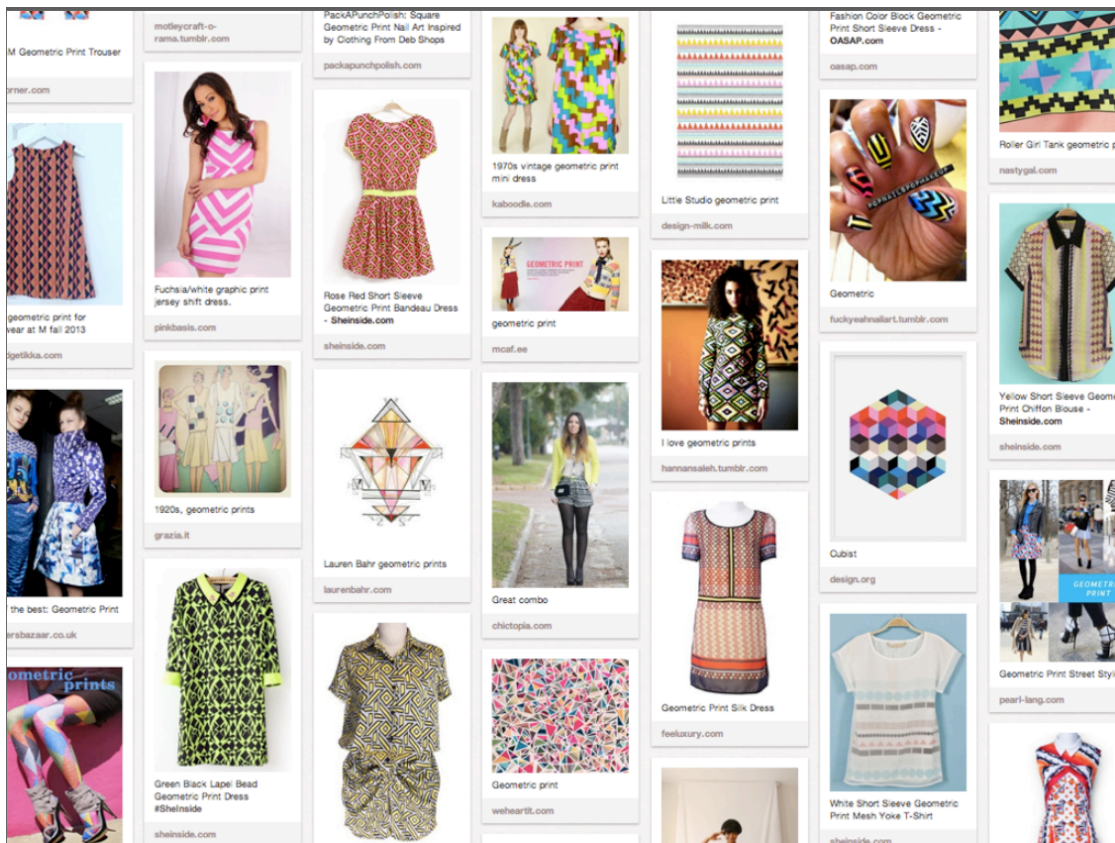
Figure 73 DRESS UP/DOWNload Pinterest Board

The toolkit was designed to provide optimum results at a low cost. The textile technique of collage became the main method of making and was supported by preparing a kit that included pre-cut geometric shapes limited to a pallet of six key colours. Through editing the kit in advance, it enabled the content to be curated as a cohesive collection. The toolkit also included card, glue, scissors and ProMarkers. The dress provided a shared canvas to project textile pattern and print concepts as they were developed. A paper garment and fashion illustration template was designed by Hale (2011) to represent the final outcome on a small scale.

Figure 74 lo-fi textile design prototyping toolkit

The participants successfully engaged with the textile design and making process during the pilot and through observing their experimentation the researcher observed and identified technical changes to improve the templates to re-work them and improve usability. But, the pilot identified that the lo-fidelity prototyping approach required a future context, to enable users to imagine how their participation might transition beyond a short demonstration. The participants struggled to imagine how their designs could possibly be translated into a larger piece of cloth for a finished garment.
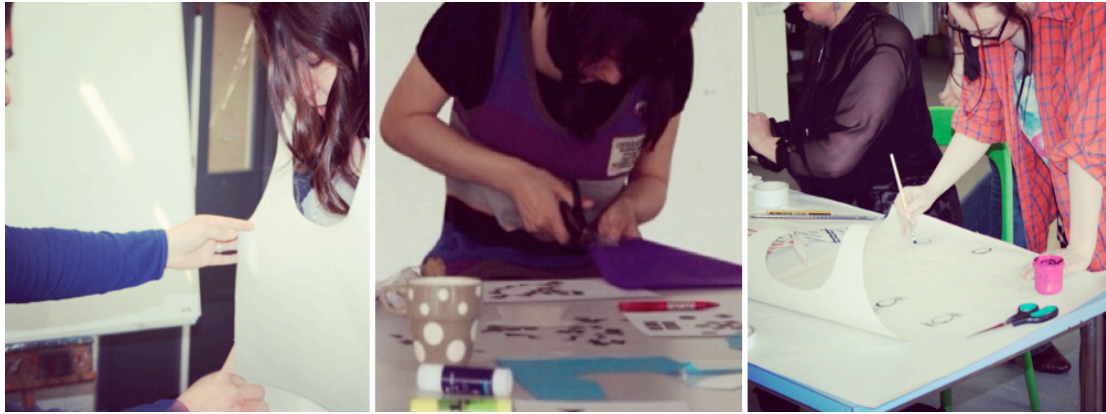
Figure 75 Pilot Workshop

Following the pilot, a shift dress garment home dressmaking pattern, was source. This was adapted to provide a prototype for an open source garment. The final stages of digitally printing, producing and making the dress were prototyped to demonstrate the complete design process. The prints developed within the pilot were edited to produce textile designs for a small collection of prototype garments. These prototypes provided examples to demonstrate the further stages of the design process, to enable users to imagine how their participation could evolve over time.

7.6.2 Iteration 1

The first 'action space' emerged in response to an invitation to design and deliver a workshop within a 'FRIDAY LATE' event, focusing on design and making processes organized by the Victoria and Albert Museum, London (2011). The intervention was executed in this public space over a two-day period, and was delivered through a series of twenty-minute demonstration and workshop sessions. Through the iterative approach of demonstrating and delivering the intervention, new insights began to emerge and the process became more refined. Throughout this event, approximately 100 participants engaged with the 'DRESS UP/DOWNload' intervention. The results are filtered within this research to share the experience of fast fashion consumers defined through a Generation Y demographic. But it is worth highlighting that a broader range of participants aged 3-83 years old participated.

Figure 76 DRESS UP/DOWNload Dress

Figure 77 Design Facilitation Sheet

This action produced design content to support the intervention. But delivery from a research perspective proved to be more challenging within this specific action space, as it was not possible to take photographs in order to gather data for the research. This was resolved through *auto-documentation*, which allowed participants to capture their own photographs and additionally the images were shared by the museum. The design facilitation sheet within *figure 77* (above) was developed in collaboration with Fan Xia (2011) provided an aid to manage the pace and flow of navigating a large group through the textile design and making process. This method also provided valuable research data by capturing feedback from each participant to document their participation. Approximately 43 participants defined as fast fashion consumers expressed an interest to participate within further, more advanced workshops, and they enquired about the cost implications of designing and making a finished garment. The costing and servicing of this intervention was identified to be crucial factor towards achieving more engagement from the target demographic.
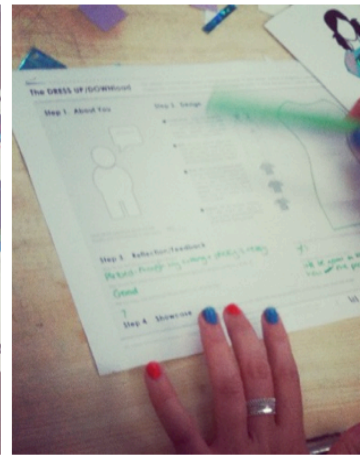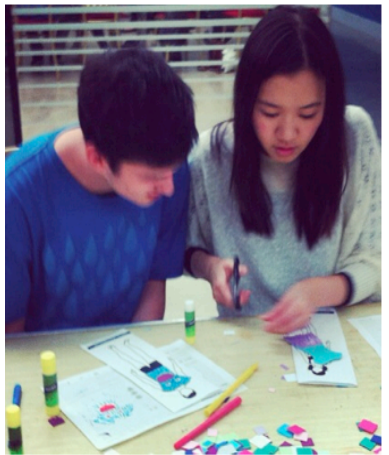
Figure 78 Workshop 1 at the V&A Friday Night Late (2011)

7.6.3 Iteration 2

The previous iteration of workshops were shared online and subsequently an invitation from textile design collective Puff and Flock (2011) emerged to share the intervention within a workshop series they were orchestrating for DESIGNERS|BLOCK at the London Design Festival, 2011. This workshop was not restricted to 20 minutes and was available to access through a series of open access drop in sessions. The blog and previously produced prototypes varying from low to high fidelity were exhibited. Throughout these sessions the participants hopefully engaged in a state of flow, the meditative state of creative engagement (Csikszentmihalyi & Hunter, 2003). They were responsive to the physical materials. Those from a non-design background were the most experimental (see *Figure 79 below*).

Figure 79 lo-fi textile design and making toolkit

7.6.4 Iteration 3

The third iteration was delivered through a demonstration at a field day hosted in London by the Centre for Sustainable Fashion, titled 'Transformational Thinking and Practice' (2012). The design facilitator, introduced the blog and a preview of a look book, followed by a demonstration of more advanced prototypes of digitally printed dresses. The textile design and making process was then demonstrated using the toolkit. Through a series of drop in sessions approximately 15 participants created their own textile print for the dress. The participants engaged with the process of making but the higher fidelity prototypes proved to be more appealing and the participants became excited by future possibilities. While this specific group did not experience the same state of 'flow' as previous iterations, the process enabled more in-depth conversations to occur concerning more sustainable practice. The participants had experience of working within the fashion industry, education and academic research, therefore their personal experiences were different to those from a non-design background.

Figure 80 workshop 3

7.6.5 Reflection on Methods

The 'DRESS UP/DOWNload' intervention aimed to promote participation through an open innovation approach. Demonstrating prototypes and developing a toolkit to share the process of 'textile design and making', supported this further. The *pilot* refined the concept, demonstration and toolkit to support the design and implementation of the workshops that followed. The toolkit provided a mechanism to support democratic and inclusive textile design at a low cost using accessible and user-friendly tools. This became a learning device to support 'collective imagining' (Kimbell, 2009). Through participation each consumer contributed to a 'collective collection' of digital textile print concepts for one dress using a quick and accessible textile design and making process, which followed a staged approach. The decision to condense the process was applied to broaden the research remit from a

small group of participants to a larger group through developing twenty-minute workshop package. This enabled the participants to sample the process and experience the act of making on a small scale. The *design facilitation sheet* provided valuable support when delivering the workshop during a compressed period of time for a large audience. This structured the pace and flow of prototyping and workshop experiences, and the high fidelity prototypes demonstrated how their participation might be further expanded upon.

7.6.6 Outcomes

This intervention evolved from the early stages of identifying an inclusive textile design process and toolkit to promote making with physical materials and techniques. The pilot study supported usability and was followed by four workshops and through these iterations a combined 'collective collection' of 86 low-fidelity design concepts for the dress were produced. Within these public 'action spaces' agency emerged from participation for a demographic ranging from 3-83 years old. Their age and design experience was documented within the design facilitation sheet, and this output gathered further data to support the final evaluation of this intervention. While the evaluation process of reflection only evaluates the experience and contribution of fast fashion consumers within a Gen Y fast fashion consumer demographic, the look book does not exclude their contribution.

The blog incorporated additional social media tools such as Facebook, Pinterest, Issuu and Dropbox. Through these online channels, further digital content emerged to build a network of participants, enabling them to share further inspiration online, and provide them with ongoing access to the digital look book. The open dropbox folder allows them to share new physical textile print concepts as they appear. The blog provides instructions to re-produce the analog toolkit or to develop digital textile prints using identified Apps.

Alongside the digital content a physical body of work was developed through prototyping each stage of this intervention. These outcomes include samples, lo-high fidelity prototypes and the physical and digital toolkit.
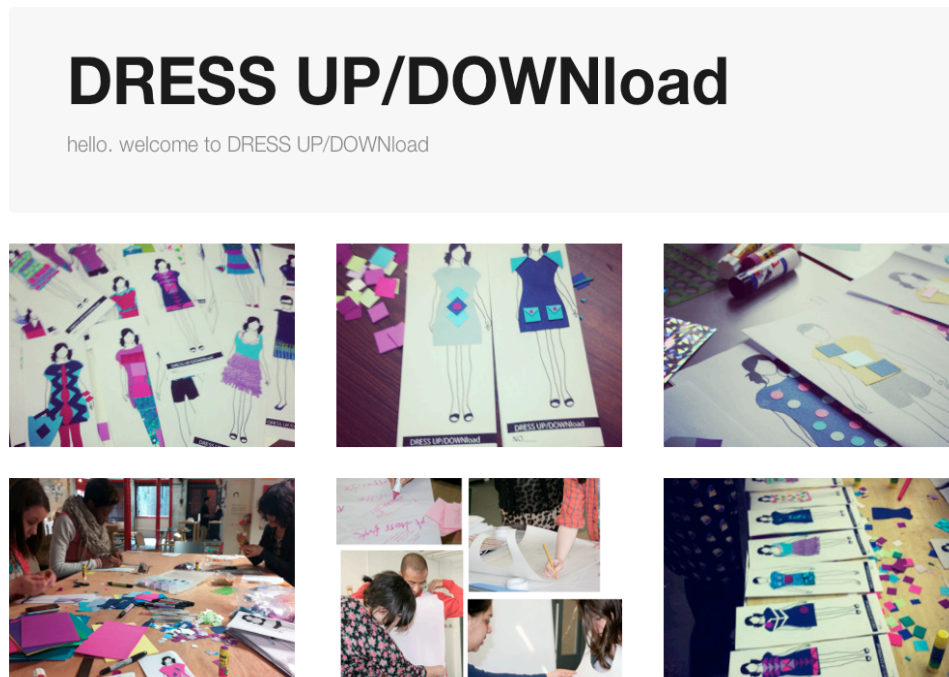
Figure 81 DRESS UP/DOWNload blog
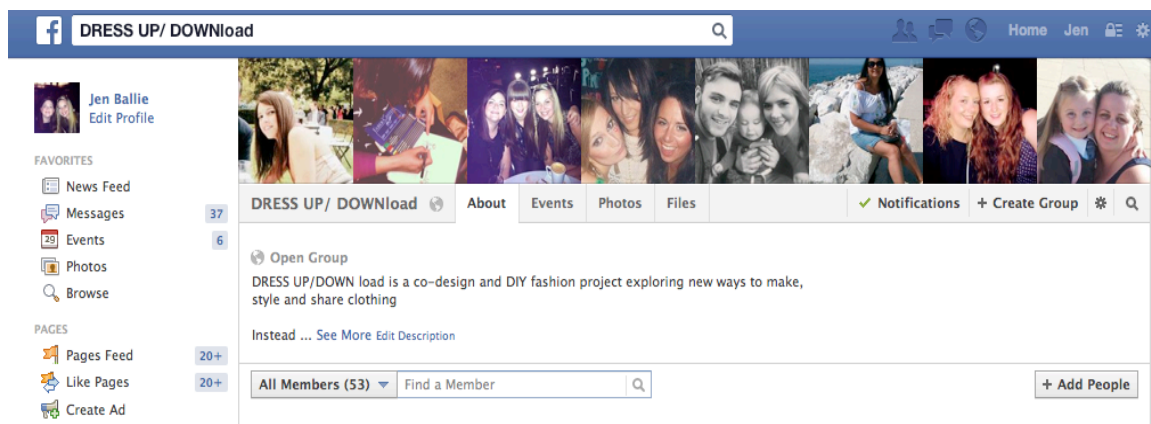
Figure 82 DRESS UP/DOWNload facebook page

7.7 Evaluation

7.7.1 Reflection on Facilitation

The 'DRESS UP/DOWNload' intervention expanded upon the design facilitation toolkit by identifying new methods and tools. The *design facilitation sheet* was applied to support action within each workshop and provided a physical prop to manage participant interaction, thus valuable data was gathered to support observation and reflection. The delivery of a short, workshop was more complex

to design and deliver. The time constraints required accurate delivery following a rehearsed structure to include a demonstration. The making process was reduced to four simple steps, and all props within the toolkit were prepared in advance. This would not have been possible to achieve without referencing the design facilitation toolkit and reflecting upon previous interventions.

The open innovation approach required the design and implementation of a transparent and inclusive textile design and making process. The toolkit developed supported broad participation from fast fashion consumers with varying design skills ranging from novice to expert. The design facilitator managed the pace of each workshop but online interaction was not facilitated. The flow of content within offline and online space was documented to demonstrate the early stages of textile print conceptualisation. The lo-fidelity examples were continuously advanced through more prototypes, demonstrating the following stages of the design process towards a finished dress. This method of prototyping supported the facilitation process and demonstrated the value of combing both design and facilitation skills.

The integration of social media tools supported this intervention but further testing is required to evaluate how they can best support design facilitation. Future research would consider developing a complete online system to support uploading and downloading content or even virtual workshops.

7.7.2 Evaluation Reflection on Participation

This intervention attracted the largest group of the target consumer group, Gen Y who became active participants by engaging with a textile design and making process. The open innovation approach supported participation by considering how their contribution could be managed to enable each participant to share and preview their own contribution. The workshops began by introducing the DRESS UP/DOWNload concept through a physical demonstration to share the complete design process from the early stages of concept development through to the finished stage of design and production by showcasing prototype garments. The high-fidelity prototype demonstration provided further support by enabling users to project their participation into a futures context.

This intervention addresses the challenge of time constraints when trying to compete with the appeal of fast fashion to devise a process and toolkit to enable participants to re-connect with physical materials and achieve a finished outcome within a short period of time. The feedback highlights that the participants physical interaction with materials was more of a novelty than digital interaction. The participants identified their interaction with the physical materials and their experience of making was a positive experience. Through interacting with the materials they successfully expressed 'flow', a meditative state within the creative process, this supports individual wellbeing by offering an outlet

to assert creative control (Csikszentmihalyi & Hunter, 2003).

The social experience was an incentive for participants to come together collectively with their friends. While this intervention is very much in beta form, the participant feedback expressed a desire for alternative fashion services to support participation and approximately 65% (all characterised as Gen Y) of the participants signed up to receive further information about future workshops (please refer to Appendix E Textile Design Intervention 3).

7.7.3 Evaluation Reflection on Intervention and Open Innovation

The open innovation approach applied throughout this intervention provided an alternative way of working within a fast fashion context. The experience is quick, accessible and inclusive but varies through a process of participation. This did not support participation beyond the early stages of conceptualisation but the complete design process was prototyped and demonstrated. This approach alongside textile design and making process was more sustainable than previous attempts by adopting lo-fidelity materials and making processes to reduce environmental impact. The staged approach to participation could be expanded upon through further research by providing a sampler session to demonstrate and showcase textile design interventions.

The online system was prototyped by assembling existing social media tools and applications. To provide a professional service, an online system would be required to develop an infrastructure for uploading and downloading concepts. The higher fidelity digital textile design concepts would be of a higher resolution and require a larger server. Further research would be required to facilitate the progression from low-high fidelity prototyping. This could evolve through a more advanced workshop series where an additional online system could be explored. The open innovation approach required a re-think of intellectual property (IP) and ownership. The creative commons act offers an existing model for managing shared ownership within open source textile design and development. But as concepts become more advanced and participants invest more time they could become more precious about the results. Within these workshops, this was not perceived to be a problem and the participants expressed they would be more satisfied if another individual downloaded and produced or re-worked their original design. But there were concerns about high street retailers replicating or reproducing the design work for monetary gain. This intervention also requires a process to define what is designed and produced. The open source system could enable fast fashion consumers to download and produce their own dress on demand or with professional support. Or a crowdsourcing campaign could be initiated to identify the highest rated design concepts prior to producing a sample collection.

7.8 Conclusion

The DRESS UP/DOWNload intervention applied open innovation by designing an inclusive package and sharing a lo-fi textile design and making process which was further amplified using online media. This inclusive package included a lo-fi analogue textile design and making kit with templates, making materials and facilitation sheet. The textile making kit provided a resource to support lo-fidelity textile design and while the outcomes require further design and development to support more advanced design and production, the simplified process enabled a larger group of participants to achieve quick and immediate results.

The practice within this intervention differed from traditional textile design practice by sharing and documenting the physical processes of making online. The process of sharing the lo-fidelity concepts provided a finale by producing a digital look book to showcase the complete collective collection online alongside additional downloadable resources.

This intervention focused on broadening the remit of fast fashion consumer participation by simplifying the making process. Through digitally re-working the lo-fi prototypes, the outcomes became more refined to demonstrate how digital tools could provide further assistance within future workshops. However, the high cost of professional digital textile production services challenge the inclusive and democratic ethos of this intervention. The design and production of digital textile design remains exclusive with restricted access to facilities. There are a series of local hubs, labs and bureaus emerging but they do not provide open access to their facilities to play, prototype or experiment with the tools or technologies that Fab Labs and 3D printing hubs provide. Bowles, & Isaac (2009) argues that within the near future, new scenarios for this way of working will begin to emerge and by predicting a fast fashion future, these services will exist on the high street alongside fast fashion retailers. Further research can expand upon new future scenarios to consider how open design has the potential to support a sustainable fast fashion future. Future research might explore the impact of virtual consumption to consider if it is essential for the participant to physically produce each concept.

CHAPTER EIGHT - Textile Design Intervention 4: e-Co-Textile Design

8.1 Introduction to 'Citizen Cloth'

This chapter introduces an exploratory model titled 'e-Co-Textile Design' which emerged through reflecting on of Part Two of this thesis. The research undertaken within the previous section applied three different approaches that were supported by new and existing design methods and tools to support consumer participation with textile design and making processes. The Design Facilitation Toolkit within Appendix B provided a shared resource for other designers wishing to consider the design, development and implementation of an intervention. The 'e-Co-Textile Design' model supports the application of the toolkit by providing a framework to support the development of participatory fashion experiences through facilitating design led workshops and events combined with online interactions. The model supports the application of the Design Facilitation Toolkit through supporting combination of social media tools with collaborative design methods to support consumer participation within textile design and making processes. This combination is required to design and deliver an intervention that has the capacity and potential to encourage participatory consumer action on a larger scale. Through developing and testing this model, this chapter will consider how consumers might continue to engage with the textile design and making processes beyond a facilitated workshop or event.

Within this chapter a final intervention titled 'Citizen Cloth' has been developed through application of the 'e-Co-Textile Design' model. This final intervention differs from previous by conducting an ethnographic observational study directly on the high street. These findings were expanding upon through a *co-design* workshop with fast fashion consumers recruited from a Gen Y demographic. Through collaborative conceptualization an app concept emerged as a lo-fi prototype. This chapter explores how online media might be combined with textile design and making processes to support consumer participation and work towards supporting a more sustainable fast fashion future.

8.2 Problem

Part two of this thesis introduced the exploratory method of *textile design interventions* in an attempt to challenge the status quo of fast fashion to disrupt and intercept speedy consumption cycles. To sustain and support a long term impact, the agency within an intervention needs to continue to be as present as fast fashion, within the consumers daily lives, otherwise they are lured back into the cycle of the fast fashion system. The fast fashion marketplace has become over crowded and visually noisy, this often depletes the psychic attention of the consumer. Elements that might attract an emotional attachment to a piece of clothing are often drowned out (Fletcher and Grose, 2012). Within an

abundant material world it is a formidable challenge to evoke empathy from consumers. Fletcher and Grose (2012) argue that existing models surrounding design, production and consumption often restrict innovation within the paradigm of sustainable fashion. To truly influence sustainable change requires outside interventions alongside new models to develop alternative fashion systems (Fletcher, 2013).

The researcher acknowledged from the outset of this research that a consumer impact study would not be possible within the time frame of this research and this would require a longitudinal study. However, it is worth addressing the sustainability of interventions themselves. Through working with consumers from a Gen Y demographic, this research actively demonstrates a case for supporting consumer involvement within the textile design process. Those who had engaged had the appetite to become more involved and saw that there was value in contributing towards both the design and production of their clothing. The final part of this thesis expands upon the Design Facilitation Toolkit documented within Appendix B to explore how design interventions might be supported beyond a facilitated workshop to sustain consumer interaction for a longer period of time.

8.3 Sustainable Design Strategies

The sustainable design strategy of design activism has been combined with open innovation and collaborative consumption. The exploratory model of 'e-Co-Textile Design' was applied to support the application of sustainable design strategically and ultimately the complete lifecycle of a fashion accessory was considered, in order to identify an alternative system to satisfy fast fashion consumption.

This research expands upon the field of service and interaction design to consider sustainable design strategies beyond a materials perspective. To explore how the designer might play a more strategic role beyond the complete stages of a garment design process. To consider the retail experience and consumer interaction with their garment beyond the point of purchase consumers have the potential to play a more active role in the design process (Hur & Beverley, 2011). The retail experience is not commonly thought of as being a consideration of the design process. However, in designing for sustainability, retail is an opportunity to engage with consumers in new ways, whether through *co-design or* through implementing product service systems (PSS) (Morelli, 2002).
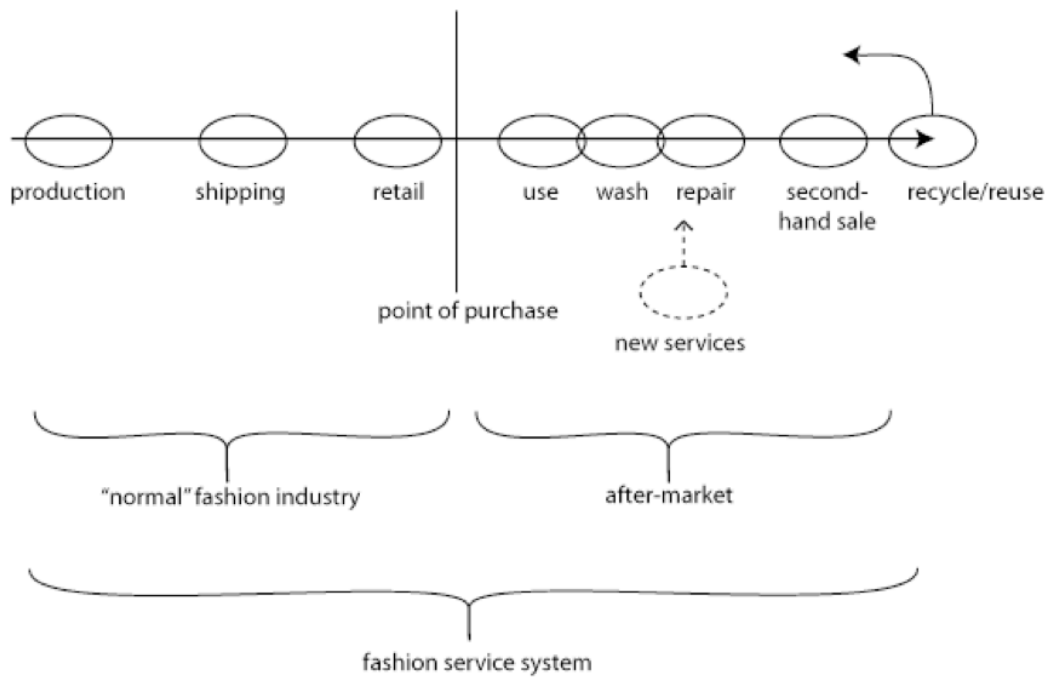
Figure 83 Fashion Service System (von Busch, 2009)

Currently, there are limited service design provisions provided by fast fashion retailers beyond the point of purchase. Within *figure 83 (above)* von Busch (2009) highlights new opportunity spaces for service design. The advantage of PSS for sustainability is that the consumer's need can be met by a service rather than a product, thereby lessening the volume of the product sold (Morelli, 2002). This intervention positions this as being a strategy for sustainability.

Due to increased consumer awareness and more transparent supply chains, informed buyers are increasingly requesting more personalised products. This new demand drives towards lower standard production volumes and higher personalised production, enabled by the Internet. Niessen (2005) argues this has the potential to redraw the global manufacturing map as production becomes more localised, closer to the consumer and influences new ways of working. Through web 2.0 a digital infrastructure has emerged to support new models. These are beginning to emerge to support micro or macro business development on a small scale and can be connected to a larger marketplace. The long tail or peer-to-peer production is new economic models applied to exchanging goods online (Castells 2000; Tapscott & Williams 2006; Anderson 2006). They can be contrasted with the materialist, inflexible or even destructive nature of material fashion consumption.

8.4 Developing Textile Design Intervention 4

8.4.1 Inspiration

New platforms are emerging online through technological innovation, in terms of both hardware and software to facilitate content creation and consumer interaction. New creative consumers are beginning to flourish by playing a central role within the design process, through collaborative online networks. These networks are highly accessible (easy to get to) and scalable (can be used to reach large numbers) (Brogan, 2010 and Zarella, 2010). They also support the democratisation of information and transform individuals from mere content consumers into content producers. Kaplan and Haenlein (2010: 61) describe social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content." As Hanna, Rohm, and Crittenden (2011) argued, the real power of the social media ecosystem is that "we are all connected."

Berthon, Pitt, Plangger, & Shapiro (2012) highlight that the terms associated with Web 2.0, social media, and creative consumers are often used inaccurately and interchangeably due to how closely related and they are. However, we need to understand the nuances of each to better serve the worldwide marketplace. *Figure 83* (below) Web 2.0 can be thought of as the technical infrastructure that enables the social phenomenon of collective media, and facilitates consumer-generated content.

"Web 2.0 technologies have caused three effects: (1) a shift in locus of activity from the desktop to the Web, (2) a shift in locus of value production from the firm to the consumer, and (3) a shift in the locus of power away from the firm to the consumer" (Berthon et al., 2012)
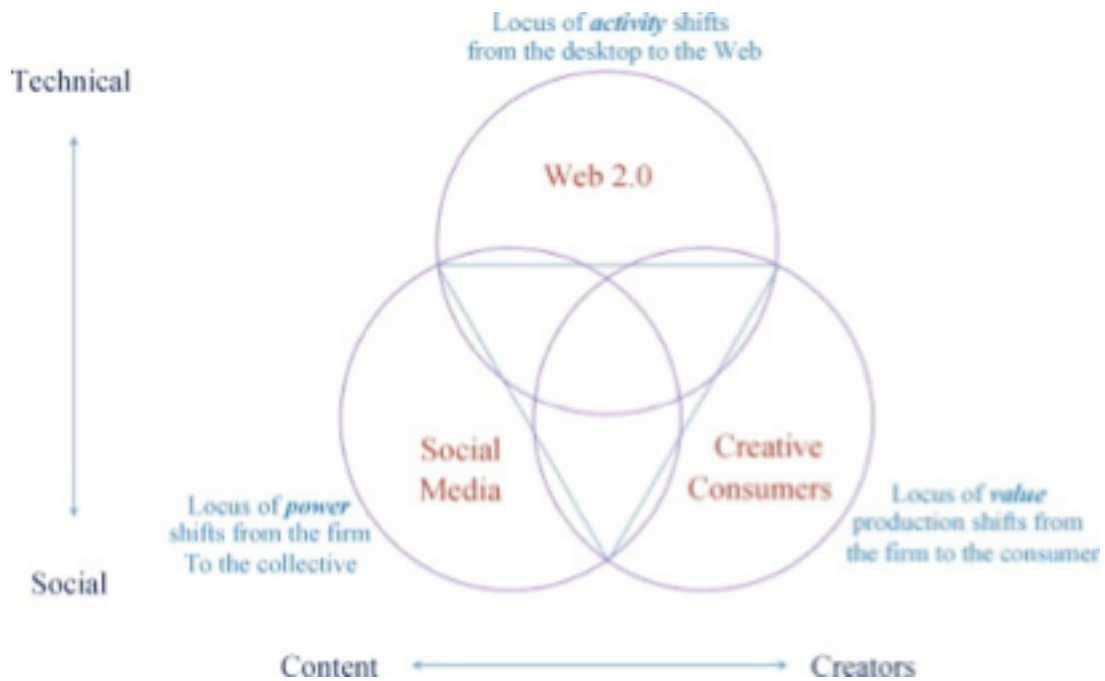
Figure 84 Web 2.0, Social Media and Creative Consumers (Berthon, 2012)

This research expands upon the individual's evolution from content consumer to content creator, by focusing on the evolution of the Apps. This feature is a social media tool that has steadily evolved throughout the duration of this PhD research. The success of smart phone applications could not have been anticipated demonstrating new ways of working which have evolved through the progression of new digital and social media applications. To support the design and implementation of a final design intervention, a review of existing Apps was undertaken to identify how they might be expanded upon to support textile design and making processes. The table in *figure 84* (below) documents the Apps which were downloaded and reviewed – they are categorized into two sections. Design and Wardrobe management. The features within some existing Apps in the design section have the potential to support development of digital textile design processes, which may for example be physically realised using digital printing.

The previous stage of this research applied the use of existing App's to support fast fashion consumer participation in the design process. Further investigation identified a plethora of new Apps, available to support amateur progression within digital photography. Smart phone devices include cameras with sophisticated and advanced features. The suite of available Apps available provides filters, scaling, composition and other image editing tools. The most successful is Instagram (2013), which has digitally reinstated Polaroid photography effects via a digital interface. 'Citizen Cloth' references Instagram as a template for a prototype social media tool that could support textile design. The features and functions have been configured to provide a menu of editing tools, filters and functions. The capacity to share was also considered to orchestrate digital interaction (online) and analogue

interaction (offline).

This review did not identify any smart phone applications that specifically support textile or fashion design. But this review did identify a further group of Apps that have the potential to support collaborative consumption through wardrobe management. These require data input from the consumer. They have the potential to support the peer-to-peer exchange of styling advice through street fashion photography and outfit configuration tools, alongside physical swapping and bartering of material goods using ecommerce.

App	Description	Website	Share Functions	Cost
Design				
DreamApp	Shoe customisation using a suite of tools enabling the user to personalize colour, select materials. The availability to buy the shoes designed.	Supporting website www.dreamapp.it	Facebook Twitter Email	Free
Make Your Own Clothes	An archive of 450 video tutorials for home sewing and dressmaking	n/a	n/a	£6.99
Pattern Tool	This allows the user to create patterns from any image. Just select an existing or capture a new photograph and specify a section.	n/a	Twitter integration	£1.99
Seamless Lite	A pattern tool with features to create different colours, palettes and patterns	http://www.colourlovers.com/seamless	Integrated online community with internal forum and blog functions	Free
Kaleidomatic	This transforms the simple into something unique and mesmerizing. With this easy-to-use app, your iPhone, iPad or iPod touch becomes an interactive kaleidoscope, allowing you to create high-quality images using 12 different kaleidoscope patterns and over 20 image styles.	http://www.stuffmatic.com/kaleidomatic/	Twitter Facebook Instagram Tumblr Flickr Photo bucket Picasa	free
Instagram	This allows the user to edit smart phone photography through polaroid filters.	http://instagram.com	Twitter Facebook	free
Camera Plus Pro	Advanced digital features for photo editing		Instagram Twitter Facebook	£1.49

			Email	
Cycloramic	This allows the user to take panoramic photographs. This also supports the 'selfie' concept of taking your own photograph, a 'group selfie' photograph to be taken hands free	http://www.cycloram ic.com	Instagram Twitter Facebook Email	£2.99
Sketchbook Pro	This app has advanced drawing features by proving a palette of digital tools	n/a	Instagram Twitter Facebook Email	£2.99
Wardrobe Management				
Pickn'Tell	The consumer can connect to the mirror's tablet by inputting a unique connection code; that code turns on the camera inside the mirror. Using the smartphone, the shopper can then direct the mirror to either record a video for five seconds or take a snapshot. That footage then appears on the shopper's smartphone, which he or she can then post to Facebook or Twitter, for friends to comment on.	http://www.pickntell .com/web/retailer/	Instagram Twitter Facebook Email	free
Go Try It On	The app allows you to upload something your considering purchasing and get opinions and feedback from other users within this global social network.	http://www.gotryito n.com	Within app	free
Trendable	A fashion specific social network, by uploading photographs and tagging them with the label, price point and availability. There is also a feature to browse others outfits.	Community network integrating into the app	Within app	free
Rent the Runway	Take a photograph of any dress, fabric or pattern and the app will source a similar style to rent.	https://www.rentthe runway.com/mobile	Facebook Twitter Email Instagram	free
Swivel	A virtual try-on system that allows you to see yourself "wearing" clothing, accessories and even makeup on a screen.	n/a	Facebook Twitter Email	free
What Did I wear	Wardrobe management, document garments using a smart phone or computer webcam. This doesn't make outfit recommendations, it	Supporting website www.whatdidiwear.c om	Facebook Twitter Email	£2.99

	encourages the user to documents outfits daily. The catalogue can then be accessed to provide a weekly, monthly and yearly overview.			

Figure 85 Review of Apps supporting Collaborative Consumption and Co-Design

8.4.2 Conceptualisation
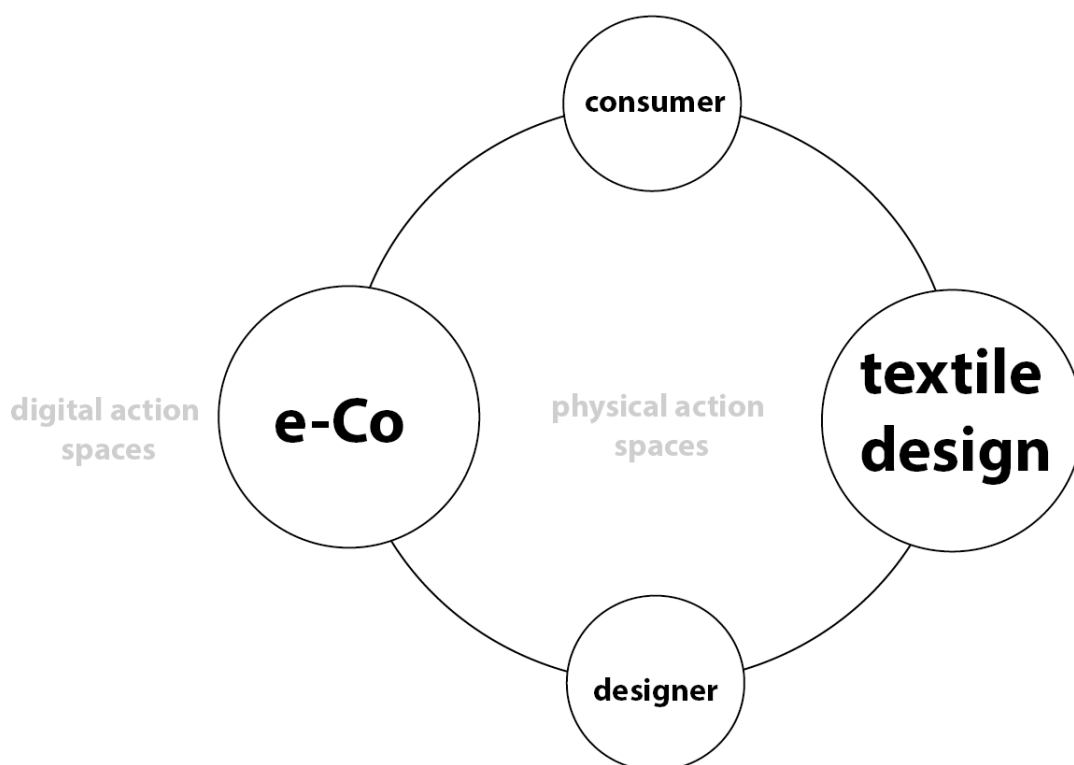
Figure 86 e-Co Textile Design Model

The 'e-Co Textile Design' model illustrated within *figure 86* (above) is an exploratory model that emerged following reflection upon part two of this thesis. The design and development of each intervention was intended to provoke sustainable behavior change within the paradigm of fast fashion, thus 'eco' being the main focus of each designed intervention. The combination of 'e' and 'Co' refers to the integration of digital and social media to support collaborative design between designers and non designers, within this research non designers were fast fashion consumers recruited from a Gen Y demographic. The designer was the researcher who adopted a facilitator role. The circle represents an iterative cycle and the research identified that an intervention often requires several small-scale iterations of designer and consumer interactions before the agency within any

157

intervention has the potential to be scaled up. The textile design element within this diagram refers to the textile design and making processes, throughout this research the techniques selected have been defined through a lo-fi approach to support democratic innovation and an inclusive ethos. There is no specific starting point when initiating an intervention, within part two of this research the designer initiated a concept and then focused on identifying a textile design and making process. This was piloted with a sample group of consumers and online media was then integrated prior to initiated another iteration of action. However, this model illustrates that consumers themselves also have the capacity to initiate their own actions and identify collaborative relationships with designers.

The intervention was conceptualised through applying 'e-Co-Textile Design' strategically (see *Figure 87* below). This chapter applied this model by beginning at the 'e-Co' stage and this provided a starting point in advance of identifying a textile design and making processes. The action spaces within any intervention are both digital and physical. Through conceptualising this final intervention titled 'Citizen Cloth' the researcher addressed how both might be considered to consider a range of interactions through combining social and digital media tools which might have the potential support sustainable fast fashion futures.

SUSTAINABLE DESIGN STRATEGY	e-Co-TEXTILE DESIGN			
TEXTILE MAKING PROCESS	DIGITAL TEXTILE DESIGN TOOLS	EXPERIENCE PROTOTPYE OF DIGITAL APP		
SOCIAL / DIGITAL MEDIA TOOLS	OMNIGRAFFE	INSTAGRAM	TWITTER	SURVEY MONKEY
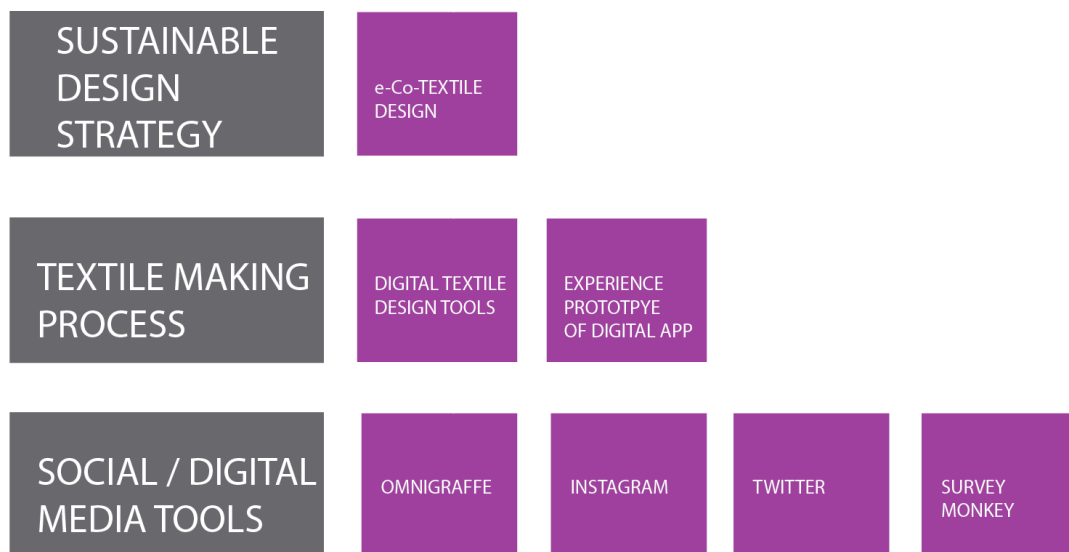
Figure 87 Conceptualising Intervention 4

To support development of the innovation outlined in this final chapter, the researcher completed the online course 'Hack Design' (2013) developed by a California based group of interaction designers who have expertise in the support and development of digital startups. The course provided an insight into user experience design, digital prototyping and interface design and development.

Additionally the researcher attended a Make-a-thon hosted by IDEO London (February, 2013). This expanded upon IDEO's 'build to think' philosophy by connecting a diverse group of participants and providing them with tools, facilities and resources to collectively address a designated design challenge. Both experiences demonstrated the value of a lo-fidelity approach to prototyping and user testing within the early stages of concept development. It is possible to mock up digital tools, platforms and interactions in a lo-fidelity form without coding and programming expertise. For example, the principal mechanisms of a webpage can be mocked up in power point or an App can be sketched in pencil and wire framed through a variety of free development tools.

This intervention proposes beta testing an App concept, that may be applied more broadly in fast fashion contexts. The App concept titled 'Citizen Cloth' focuses on scarves, a simple universal accessory and considers all stages of design, production and consumption. The aim to demystify the design process by sharing resources, techniques and production methods to amplify local agency on a global scale. This intervention considers the complete lifecycle of scarves, the process of production may be outsourced e.g. via a digital textile printing bureau. This intervention explores how to enable fast fashion consumers to readily access simple design and production processes. This particular intervention proposes that the App provide an online system to support creative offline methods for the fast fashion consumer to engage in, maintain, modify and share, using scarves initially as the wearable conduit.

This exploratory model titled 'e-Co-Textile Design' was applied to define, design, develop and deliver this final textile design intervention. The 'e' component was addressed using the App concept, to consider how participatory action might be amplified on a larger scale. The 'textile design' and making processes within an intervention require initial support from a design facilitator with textile design knowledge. The 'co' element was supported from the outset through a process of co-design, inviting Gen Y fast fashion consumers to ideate and contribute to the conceptualisation of this intervention. A new ecosystem was considered to propose how digital textile printing might evolve within the future, through consumer creation beyond workshops, facilitated by an App connected to local production methods. This concept aims to extent the lifecycle of scarves within this ecosystem by identifying further opportunities to mediate shared ownership and encourage re-use.

8.4.3 Research Methods

The design facilitation toolkit within Figure 88 (below) was referenced and expanded upon and supported through the action research methodology. The research methods within this differ to support user involvement within the early stages of conceptualising the intervention, opposed to facilitating consumer participation within a finished intervention. Empathy building methods were

applied to capture insights from the fast fashion consumers perspective. Expanding upon Kolkos (2011) work within empathy building techniques, he claims that a highly reflective process and offers an intimate view of people's aspirations and emotions. To gather data, the design facilitator developed experimental ethnographic methods, *street style interviews* and an *online twitter survey*. The documentation methods of *photography, observation sheets* alongside an interview template were designed to enable the consumers to share their own feedback, *'street style interviews'*.

Two *workshops* were delivered for the purpose of ideation and conceptualization. Firstly, in the ideation *workshop,* an ideation map was developed with fast fashion consumers to develop *design propositions* for 'Citizen Cloth'. Secondly, the conceptualisation workshop was staged in two parts to pilot a digital textile design and making toolkit concept through *lo-fidelity prototyping*. The digital tools within the app were mocked up and presented to develop an *experience prototype.* This data captured was reflected upon through *auto-ethnography* and *auto-documentation* to evaluate data from the perspective of the researcher and the participant.
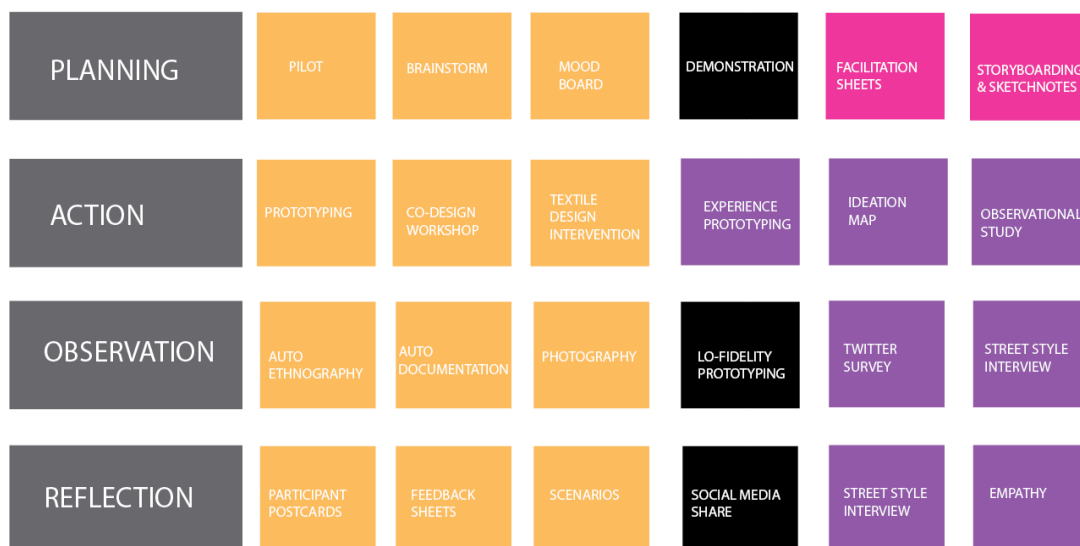
Figure 88 Design Facilitation Kit Intervention 4

8.5 Design & Implementation

This intervention was staged through three iterationa;, an observational study, an ideation workshop and finally a lo-fidelity Citizen Cloth user experience prototype. Six fast fashion consumers from a Gen Y demographic became agents within both workshops, and their participation provided new insights that refined the design and implementation of 'Citizen Cloth'.

Textile Design Intervention Four 'Citizen Cloth'		
Purpose: To develop a product service system around scarves, to consider how fast fashion consumer participation could be expanded upon beyond a workshop /event.		
Sustainable Design Strategy: design activism, open innovation, collaborative consumption		

Textile Design Making Process	Online Media
The mobile studio was assembled using a laptop connected to a desktop printer / scanner. iPhone app's were used to design and develop digital textile prints. The app's used were; • colorLOVES • Pattern Tool • Kaleidoscope Fabric required advanced treatment to enable it to be fed directly through the printer. A solution titled Bubble Jet Set was sourced to treat the fabric, the same brand of retail backing paper used for the fabric. This needs to be fixed using an iron. Parchment paper used for home baking provides a cheaper alternative but the width needs to be cut to the size of 20cm.	Survey Monkey Twitter Instagram

Call for Participation	Workshop Facilities
Participants were recruited for the workshop using social media networks - Facebook and twitter.	The ideation workshop and experience prototype workshops were both hosted within a small room within Duncan of Jordanstone (DJCAD), University of Dundee.

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**age group**	**Outcome**
Fast Fashion Observational Study **Date:** 10th March 2013 **Time & Duration:** 1 day **Venue & Location:** Oxford Street, London	The exploratory method of the 'Street style interviews' were orchestrated using a Polaroid app on an iPhone. An interview template was designed in advance to capture	29 participants		x	Gen Y	Participant feedback supported by researcher observations

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**age group**	**Outcome**
	information. The researcher spent a day on Oxford Street, London approaching fast fashion consumers who appeared to be within a Gen Y demographic and wearing a scarf.					
	The exploratory method of the 'Twitter survey' was delivering using survey monkey combined with twitter. This generated 44 responses in total but only half could be defined as responses from a Gen Y consumer demographic.	44 responses in total 22 from female Gen Y consumer demographic		x	Gen Y	Participant feedback supported by researcher observations
Workshop 1: Ideation Workshop **Date:** 23rd April 2013 **Time & Duration:** 10-12 **Venue & Location:** University of Dundee, Dundee	An ideation matrix was defined in advance of this workshop.	1		x	Gen Y	Participant input into an ideation matrix
		2		x	Gen Y	
		3		x	Gen Y	
		4		x	Gen Y	
		5		x	Gen Y	
		6		x	Gen Y	
Workshop 2: Expérience Prototype	A citizen cloth user experience prototype was mocked up in	1		x	Gen Y	Participant feedback on the app
		2		x	Gen Y	

Documentation of Each Iteration of Action Research						
Workshop Details	**Workshop Description**	**Participant**	**M**	**F**	**age group**	**Outcome**
Workshop	advance of this workshop.	3		x	Gen Y	experience prototype.
		4		x	Gen Y	
Date:		5		x	Gen Y	Researcher observations
Time & Duration:		6		x	Gen Y	
Venue & Location:						
TOTAL				52 +6		

Figure 89 Intervention 4 Template

8.5.1 Fast Fashion Consumer Observation Study

The design facilitator orchestrated an observational study to develop a deeper understanding of the fast fashion consumer. Empathy was applied through ethnographic methods adopted by the design facilitator, who spent a day talking to consumers at one of the busiest fast fashion locations in the UK, Oxford Circus, London. Scarves were identified as the conduit, and the researcher explored how they were purchased, maintained, used and cared for. The researcher approached those wearing scarves, which provided a physical prompt for conversation and that captured relevant personal insights from willing participants. A *feedback sheet* was designed in advance to gather data from the *street style interviews*. Those approached were not keen to be photographed but were happy to share stories about their scarves, which became an integral interface between the researcher and the consumer. The scarves themselves were photographed. The data gathered provided an indication of consumer interest and motivation towards alternative systems of fashion consumption and a desire to become more aware of personalisation, styling and participatory design services. They were open to new online and offline fast fashion experiences and importantly the proposal for a new App concept appealed to this audience.

Figure 90 Street Style Interview Location

These *street style interviews* were expanded upon through an *online twitter survey*. The research combined *twitter* and *survey monkey* to capture feedback from five simple questions. These methods gathered data differently, with the aim of discovering the most effective approach for engaging fast fashion consumers. The online survey had a higher response rate but richer data was captured through face to face conversation. The methods were tailored to capture qualitative data and the insights gathered from the interviews and online survey was combined and reviewed to identify five main themes:

1. **Personalisation** - an interest and motivation to have input in the design process but cost, time and skills were highlighted as barriers

2. **Experiential consumption** - the majority indicated that they enjoyed purchasing new items but often found the fast fashion consumer experience stressful. The high street stores are crowded, overstocked and customer service is limited due to increased consumer demand.

3. **Styling support** - the feedback suggests that a real time styling service or tool would support the user beyond the point of purchase. There was an interest expressed for services to go beyond promoting purchases and considering the consumers' existing wardrobe

4. **Social media & sharing culture** - expressed was a desire for more mechanisms to share the fast fashion consumer experience. There was a stigma attached to swapping existing clothing and accessories with strangers. One consumer suggested a lifetime's system to highlight short life garments, which had not been worn more than 1-3 times.

5. **Fast fashion services** – all of those approaches expressed a frustration at the lack of services to maintain and repair clothing. These consumers were open to participatory and experiential concepts that also enabled them to socialise with their friends.

8.5.2 Ideation Workshop

The design facilitator supported six fast fashion consumer participants to ideate service provisions for 'Citizen Cloth'. This final *textile design intervention* differed by applying a user centered design approach and involving fast fashion consumers within the process of concept development. The ideation workshop invited six fast fashion consumers to participate. Using an ideation map to facilitate brainstorming a product service system (PSS) around the lifecycle of a scarf. The *ideation map* focused on four sections, facilitated consumer creation, digitally mediated consumer creation, production and use. This provided a structure to support the flow of conversation and capture feedback as it emerged.

a.   DESIGN – facilitated within physical workshop or event

b.   DESIGN – digitally mediated and facilitated by an App and digital tools

c.   PRODUCTION - local service provision via a digital textile print beuro or hub

d.   USE PHASE - styling tutorials, techniques and exchange services

Citizen Cloth Ideation Map

DESIGN facilitated event

scarves product service system

DESIGN digital resource

How might Citizen Cloth enable fast **personalisation** through textile design**?**

How might Citizen Cloth support more **experiential consumption?**

PRODUCTION local service

USE PHASE styling & swapping

How might Citizen Cloth offer **styling support?**

How might Citizen Cloth utalise **social media** to **share**?

Figure 91: Ideation Map

The ideation workshop expanded upon the themes identified within the observational study. The design facilitator clustered new ideas as they emerged. Four focused questions were used to prompt discussion and expand dialogue, which facilitated ideation;

1.   How might Citizen Cloth enable fashion **personalisation** through textile design?

2.   How might Citizen Cloth support more **experiential consumption**?

3.   How might Citizen Cloth offer **styling support**?

4.   How might Citizen Cloth utilise **social media** channels to **share**?

The participants were prompted to consider these question and their responses were documented within the ideation map (see *Figure 91* above & *92* below). A summary of each quadrant of the ideation map is documented below.

Citizen Cloth Ideation Map

DESIGN facilitated event

workshop series led by design graduates	toolkits v fashion collections	inspiration space / in store mood-board
satalite projects led by pro bloggers	habadashery pick and mix swapping event	drop in sessions within a shared space
Pop Up events on the high street	upcycling masterclass	stories of making evening lectures

DESIGN digital resource

you tube video series	online directory of resources	digital editing tools
twitter challenges	geo tagging scarves	rip and mix feature - mash up content
online support available	Pinterest digital shared mood board	down-load-able how-to's

scarves product service system

PRODUCTION local service

partnership with digital textile print hub	upcycling station	digital cottage industry production
fashion / textile fab lab	maker spaces	crowd-sourced design challenges
Pop Up events on the high street	local community challenges	mobile digital textile design studio

USE PHASE styling & swapping

monthly subscription to DIY KIT	online directory of swap stations	swap stations
style cards	geo tagging scarves	stories of sharing event/ zine
fashion illsurator collaboration	swishing events	down-load-able how-to's

Figure 92: Ideation Map Content

8.5.2 (a) DESIGN IDEATION: Consumer Creation within a Physical Workshop or Event

Identifying a new action space to deliver a physical workshop or event, could support the first stage of the participatory design process. This would require identification of an inclusive textile making process, following the design and implementation of the previous interventions. The group expanded upon personalisation and experiential consumption. Their ideas explored how the physical events could be staged to develop content which could feed directly back to the 'Citizen Cloth' App. While the App could provide digital design tools, aspects of resulting processes could also be applied by hand. Through a series of live events with newly established and emerging textile or fashion

designers, the App could initiate agency and promote up-skilling by combining digital design processes with traditional making.

8.5.2 (b) DESIGN IDEATION: Consumer Creation Facilitated by a Digital App

As well as the App incorporating digital imaging tools to support textile making through a process of ideation, the group expanded upon personalisation, styling and sharing. The Instagram App was demonstrated to inspire the group to consider how similar features could be integrated or adapted. The group fed back that the 'Citizen Cloth' app should also include inspirational content to inform and influence new trends, themes and techniques. This may be in the form of a 'Rip and Mix' feature that could combine existing digital content.

Through a brainstorming session the groups explored new ideas for events and service provisions to support an online and offline community within the App. The group explored how this could provide a digital space for local citizens to connect and collaborate on a local scale globally. The technology of geo-tagging was discussed to explore how online users could map their local geography so that any design could be mapped to share user interaction and encourage citizens to share stories of the scarves pre and post production.

8.5.2 (c) PRODUCTION IDEATION: Local Service Provision

The 'Citizen Cloth' intervention requires a production and distribution method to develop into an alternative fashion system. This intervention could promote small scale, local production by upcycling scarves rather than creating more new products. This could be achieved through establishing partnerships with digital fabric printing bureaus within HE (higher education) or art school settings, which are more cost effective than mainstream commercial bureaus. Just as the open source design movement is empowering global networks, individual participation and consequently innovation online. Production processes require further consideration in order to support viable alternatives to a fast fashion future. Further research is required to explore how to sync the App to a digital service to provide on demand production. The conversation focused on a production model for the scarves, and highlighted it would not be appropriate to physically produce each digital output which would work against the sustainable agenda of this research. However a series of staged interactions could support design development to ensure only the top rated designs go into production. Further research could consider the impact of virtual consumption to identify if the process of online or digital textile design and making in some form could satisfy the consumer's need, even for a temporary period of time. The group also expressed an interest for more experiential consumption, a stage that could also be incorporated into a future workshop events series.

8.5.2 (d) USE PHASE IDEATION: Styling

The ideation workshop concluded by considering how 'Citizen Cloth' might develop digital touch points or physical tools to support consumer interaction post design and production. The scarves would be designed through some form of collaboration, thus extending the scope for narrative and new personal experiences to emerge. The App could encourage 'street styling' and 'swapping' through promotions. A lasting emotional and meaningful connection with the scarves in this case or other creative output, requires personal experiences, which are beyond the influence or direct control of the design facilitator. But the App could develop content through online style demonstrations to promote re-use. There is also potential to develop physical touch points to facilitate new interactions. The group discussed 'grazes boxes', a subscription based service which distributes samples weekly to monthly. Within the beauty industry, similar services are beginning to emerge but there is no equivalent within a fashion context which 'staves' off current consumption. There is potential here to develop a service which sends out a package monthly or bi monthly, to sustain the use phase.

8.5.3   Citizen Cloth Design Propositions from Ideation Workshop

1. **Citizen Cloth Hack Events:** could be hosted annually to demonstrate and demystify the textile making processes. This event could connect professional designers with fast fashion consumers, providing them with the opportunity to work collaboratively over an intense period of time. Within other design disciplines and industry sectors, design jams and make-a-thons are a new approach to contemporary creative practices which supports collective action by addressing a shared challenge (IDEO make-a-thon, Service Design Jam, 2013). These events are also streamed online to sync local action globally. This therefore provides the opportunity to stream events live online to sync textile making sessions.

2. **Citizen Cloth Network:** with the potential to build a global social network online there is further potential to support a variety of different local communities, globally, offline through a series of satellite projects. Focusing specifically on Gen Y participants, perhaps in collaboration with a Gen Y fashion blogger, local services can also be championed. Locally sourced traditional or other identifiable textile skills may also be integrated into the creative process, shared and profiled online. Small collections of textile prints for scarves and other garments could be created and produced throughout this process.

3. **Citizen Cloth Pop Up's:** mobile studios could travel around to engage people through real time events, activities and skills exchange. This could be supported by sustainability partnerships with fashion brands seeking new types of engagement and profiling as 'material resource' and sustainability issues increase. Brands begin to seek new ways to engage with the consumer.

4. **Citizen Cloth How-To Tutorials:** an open source library of downloadable textile design toolkits could be assembled and available for others to access. They could be demonstrated through film (online) and workshops (offline)

5. **Citizen Cloth Swap Shop:** a limited edition collection could be retailed via ASOS marketplace to promote the platform. This could offer finished collections as well as promote the personalisation service through the download of the app.

8.5.4 Citizen Cloth User Experience Prototype Workshop

The final workshop applied lo-fidelity prototyping to mock up a 'Citizen Cloth' user *experience prototype.* This enabled the same group of six fast fashion consumers to interact with physical, visual and tangible materials to develop a deeper understanding of 'Citizen Cloth'. The App was prototyped in beta form; firstly, through paper prototyping, before refining a series of simple transitions to develop a digital demonstration. The interface templates were digitally created and wire framed using OmniGraffle (2013). This provided content to demonstrate the App concept on a tablet device. The lo-fidelity prototype could not support participant navigation but was a useful prop to support design facilitation and demonstrate potential functionality. The mock up provided the participants with tangible props to experience the interface first hand and preview the menu of available options, essentially a test interface to enable participants to imagine how the App concept might perform and consequently share feedback on the features.

Figure 92 Experience Prototype Citizen Cloth App

A digital making process was facilitated to enable participants to create their own textile design concepts. The textile design and making methods from textile design intervention 'Shared Scarves' supported this process. This workshop was titled 'PRINT MASH UP' and promoted the idea of juxtaposing, combining and collaging digital textile print and pattern to achieve new concepts. A mood board and resource was created on digital platform Pinterest to inspire design and

development. A digital editing process was provided using the apps to refine each concept in terms of scale, pattern repeat or composition before selecting colour using tonal palettes. Throughout this interactive demonstration, prototype textile design and making processes emerged. Through trailing and testing existing applications key established features and components were also identified. This content could be expanded upon through the next iteration of the 'Citizen Cloth' App demonstrator.

8.5.5 Reflection on Methods

Through the action research methodology an iterative approach was adopted to support each cycle of experimentation. The observational study captured fresh insights from the fast fashion consumers perspective to consider their attitudes and perceptions of sustainability. Through the observational study the fast fashion consumers perceptions of sustainability was addressed. Fulton Suri (2009) argues the value of observing designed artifacts, in contexts of use. New insights can begin to emerge to identify trends, behaviour and even problems and needs that have gone un-noticed or un-addressed due to the ordinariness. The observational methods provided an opportunity to learn more about fast fashion consumer's needs, wants, hopes and aspirations as they went about their everyday lives on the high street. The exploratory methods of *twitter surveys* and *street style interviews* support empathy building throughout the early stages of designing and developing the intervention. The twitter survey was championed by professional bloggers such as Final Fashion and Vanilla Ink (2013). These individuals were already successfully adopting digital tools to design and implement their own online marketplace. The *street style interview* referenced an approach applied by service design agency Snook (2013) who advocate bottom up market research by going out onto the street to talk directly with end users. Initiating face to face conversation was challenging but some of the most valuable qualitative data was captured and the researcher would apply this method again to collate primary data for future research.

The participant *ideation map* provided a tool to facilitate conversation and capture participant feedback. Through brainstorming, new ideas were captured and clustered to expand upon the map by providing a future context. The fast fashion consumers played an active role in defining the main service features tailored to meet their specific needs and interests. The participant experience prototype informed development of the Citizen Cloth App concept and identified relevant features from existing App's. Overall the prototype required a significant level of design facilitation in order to demonstrate user interaction.

8.5.6 Outcomes

The outcomes of this intervention differ to the previous action research projects, as the process of designing and developing this intervention has been left open and will require further refinement. The observational study applied empathy building methods to undertake market research on a sample group of fast fashion consumers. Their participation has been detailed within 44 complete twitter surveys and 29 street style interviews documented within Appendix D. The *ideation workshop* resulted in a participant *ideation map* to highlight potential service design features and these were expanded upon in greater detail and refined through participation and feedback. A physical body of work emerged to support the *experience prototype* through the App demonstration.

8.6 Evaluation

8.6.1 Reflection on Facilitation

The role of the design facilitator was expanded upon through this final textile design intervention by applying user centred design. Design methods were implemented to capture participant feedback and enable contributions through ideation and conceptualisation. The design facilitator iterated and refined the concept through both physical and digital prototyping. The prototypes provided props to support the research process and provided a structure to direct the pace and flow of participant input.

The observational study was exploratory and required a direct approach from the design facilitator. The street style interviews were the most challenging feature to deliver, as the fast fashion consumers were not often experienced in sharing insights and observations. Approaching potential participants directly on the high street while they were immersed in fast fashion consumerism activities proved effective. However in outlining contexts of sustainability, the researcher had to be sensitive. This was not an exercise to preach, demand or convert but rather to capture an understanding of the consumer's motivation. The practical task of approaching, questioning and photographing consumers on the high street improved throughout the course of the day. On reflection this could have been improved by integrating social media to share feedback and responses in real time, or to run the twitter survey in parallel to the street style interviews. The participants could have then accessed the data and expanded upon their feedback through their own reflection. This may have provided a richer context for people to share their input.

For the design researcher, both the *ideation workshop* and *experience prototype* were exciting methods to facilitate. The participant ideation map was designed in advance to support the flow of conversation. Ideas were refined in the final stages of the workshop with a view to what was

currently technically possible to deliver and what might emerge in the future. Six future scenarios emerged as a result. The final workshop focused on developing an *experience prototype* to implement a physical presentation of the stages of design, production, distribution and use. This involved a demonstration of a physical workshop to demonstrate how 'Citizen Cloth' might emerge by mocking up the app, showcasing digital production and finally presenting a finished fashion accessory.

8.6.2 Reflection on Participation

The street style interviews captured multiple insights around personalisation, experiential consumption, styling support through sharing, and the advancement of fast fashion service provisions. Highlighting that cost, time and accessibility would forever be a challenge. Fast fashion consumers have become accustomed to obtaining cheap clothing and their feedback identified that alternative propositions would require a highly unique selling point to appeal to a mass consumer audience. This consumer mind set presents one of the biggest challenges toward achieving more sustainable consumption. However the data acquired helped to identify five themes that may support new ways of working. For example, the publics interest in the textile design and making processes. They were curious about their potential role in influencing or contributing to a design and making process that leads to the enhancement of existing products. The same sample group of six fast fashion consumers who participated in the *ideation* and *experience prototype workshop*, that focused on developing a complete lifecycle for scarves, expressed feelings of creative empowerment and were excited to be engaged in developing processes that were traditionally beyond their control. The participants contributed towards ideation and were excited to experience the prototypes. The participants were encouraged to be open and honest about their own perceptions of their overall experience.

8.6.3 Reflection on the Intervention

This intervention does not disconnect itself from consumption but it applies the e-Co-Textile Design model, which argues a more mindful approach through the celebration of local resources, skills, and people. Prototyping a range of service features through design interactions, interfaces and events enabled broader participation and juxtaposed the fast fashion experience. This was supported through application of the exploratory 'e-Co-Textile Design' model to promote an inclusive approach to textile design and making, combined with the use of social media tools via an App concept. While this intervention did not evolve beyond the conceptualization stage of the design process, the observational study and ideation workshop applied a user centered approach, to identify a new model through empathy building and working directly with fast fashion consumers. The ideation map and experience prototype, presented fast fashion consumers with physical props and prototypes to engage with the concept design features, through a process of co-design, development and demonstration.

This final textile design intervention requires refinement of the App through a partnership or collaboration with a developer. The lo-fidelity prototypes, which emerged through ideation and conceptualisation provide props, feedback and insights to support the App development.

8.7 Conclusion

This chapter considered how an intervention might go beyond integrating existing social media tools to develop a proposal for a new App concept. The App development explored how consumer participation might be expanded upon by providing them with ability to create beyond a one off workshop or event. Through digital prototyping and ethnographic research, the researcher explored how offline interaction might be sustained online. The 'Citizen Cloth' concept did not progress beyond ideation and lo-fi prototyping and consumers played an active role throughout the process of ideation which resulted in their request for local satellite projects, workshops and events. The participants identified a gap within offline engagement and there are very few options for them to engage with social interaction outside the fast fashion system. Those who participated within the workshops proposed that offline community interaction could be fed directly into the app. A series of satellite projects or a workshop event series could potentially engage and empower fast fashion consumers in the development of online content, community engagement and social interaction, resulting in more sustainable activities. This concept has the capability to support fast fashion consumers in their transition to becoming more involved and creative and more sustainable consumers and communities.

The sustainability of 'Citizen Cloth' as an alternative fashion system depends on the ability to direct revenue flow from the services it might offer. Future research may necessitate development of a business model to assign a cost of creating, delivering and maintaining each stage of the App design process. 'Citizen Cloth' would also need to emerge as a brand. Guedes and Roncha (2012) state this is one of the most powerful assets of any business model as the brand evolves into an effective and efficient link between the consumer's needs and the organisations value propositions, representing the functional and emotional advantages of the concept, which capitalises on the ambitions and aspirations of the consumer.

Through engaging fast fashion consumers within a participatory design processes this research identified a deeper understanding of their needs. This could be expanded upon on a more authentic level to support the design of alternative systems of creative 'consumption' using emerging social media tools, present new and more sustainable modes of consumer engagement, fast fashion fixes. The App presents an opportunity to achieve a sustainable online alternative through an eco-consumer

system for fast fashion. Through online agency individuals and communities can shape and form their own narratives and ecologies.

CHAPTER NINE: Conclusion

9.1 Thesis Summary

The research practice aimed to counteract the unsustainable impact of fast fashion through the exploratory method of *textile design interventions.* The action research methodology supported the iterative process of learning through doing, achieving success through informed trial and error. The action research methodology also supported the design development of a Design Facilitation Toolkit, documented within Appendix B. The toolkit was applied to support the development of four action research projects, each delivering a different approach but connected through the overarching aim of demystifying the practice of textile design and making, to enable consumer involvement within the design, production and maintenance of their clothing. For the purposes of this research the researcher adopted a design facilitator role to design, develop and deliver each intervention.

To attain sustainable improvements in the relationship between production and consumption a radical new mindset among designers, manufacturers and consumers is essential in order to find more sustainable ways to fulfill consumer needs. Fast fashion, only represents one very direct model of material interaction and it is clearly failing to fulfill consumer needs long term. Approximately 2 per cent of an average clothing budget covers repair or lengthens the lifespan of garments and accessories (Lee, 2008). The rise in cheap labour in the third world, has resulted in short-life garments that generally end up fulfilling unsatisfying consumption fixes. The lifecycle of fast fashion garments are shortening and outside intervention is urgently required. In order to move beyond a throw away society, fast fashion consumers need to be encouraged and supported to regularly re-engage with their garments beyond the point of purchase.

The researcher acknowledged from the outset that it would be a formidable challenge to persuade individuals within a consumer society to slow down and reduce their consumption. This thesis addresses sustainability through the construct of fast fashion, but does so from the designer's perspective. Designers can look for opportunities to design by facilitating change, or to design by educating people. Rather than using design skills to create more products. It has been argued that the implementation of collaborative methods in design practice might ensure products align with the goals of sustainable design, for low impact and enduring life spans (Fletcher, 2008). Within the discipline of textile or fashion design, methodology is rarely discussed. There are few academic publications that specifically address fashion or textile design methodology in the same way that it is addressed and analysed in other design disciplines (Flynn & Foster, 2009). This research argues that both fashion and textile design disciplines would benefit from new design tools and methods, to support connected and joined up practice.

While it has been highlighted that Generation Y are in danger of becoming de-skilled through passive consumption (Fletcher & Grose, 2012), yet they are becoming more active within the design process, to demonstrate a range of new skills and abilities through their advanced digital expertise. Digitally savvy consumers are already utilising their connectivity to share resources and skills to support a new renaissance of making, by sharing offline experiences online. Consequently, there is a new rise in participatory experiences for the fashion consumer. The flow of design, production and distribution is no longer directly influenced or controlled by industry. New models are evolving which support open, connected and bottom up innovation.

Empowering consumers to become agents and participate within the design process was achieved through design activism. Through applying *textile design interventions* as a method to intercept the lifecycle of short life garments post consumption, the aim was to extend the lifecycle through the implementation of sustainable design strategies. The fast fashion system provides instant consumer gratification through temporary 'quick fixes'. This research developed alternative 'fashion fixes' to explore how fast fashion consumers might engage with the process of making to enhance, transform and design garments and accessories, and thus reduce consumption. The design facilitator orchestrated different action spaces through a series of *workshops*. These *workshops* did not preach or demand social responsibility but rather set the scene for people to devise their own action and realise their own principles through participation. As a result, participants began to 'reclaim ownership' of their clothing and the lifecycle of the chosen garment was extended. The long-term impact cannot be quantified within this PhD research and requires a longitudinal study that observes participants and their interactions over a longer period of time.

The *textile design interventions* are aimed at disrupting the speedy flow of fast fashion, to promote a more sustainable fast fashion future. Fletcher and Grose (2012) and von Busch (2011) highlight that new models are required, as the impact initiated by designed interventions will always be limited within the existing paradigm of fast fashion. The final stage of this research developed 'e-Co-Textile Design', an exploratory model, and the overall title of this thesis. This has been demonstrated and tested through a final *textile design intervention* in order to support other designers who wish to define, design, develop and deliver design interventions themselves. This model supports the integration of social media tools within design interventions to amplify and encourage participatory consumer action on a larger scale.

To truly engage in achieving a more sustainable fast fashion future requires a new kind of alternative system geared to meeting the needs of the fast fashion consumer.

9.2 Objective 1

To map consumer participation through a literature and practice review of the participatory design landscape within the context of fashion and textile design

The primary stage of this research conducted a practice and literature review to map the participatory landscape within a fashion and textile design context. This review identified new approaches that support consumer participation by combining social and digital media tools. These findings were uploaded online to share the findings of 'Co-Everything' for others to access, review and expand upon, this has been expanded upon within section 3.3 and is documented within Appendix A. The participatory design landscape was illustrated to produce a diagram to map existing and emerging participation by observing how online media was influencing a new renaissance around making. This review also identified that online social and digital media applications provide an infrastructure and direct route to bring a new service to market. Through novel entrepreneurial approaches, business models are emerging demonstrating contemporary examples of a new range of cottage industries. These demonstrate how the process of making, combined with online media is influencing a new post industrial revolution (Anderson, 2012). These practical case studies were grouped by their approach into five themes and supported by referencing theory within the literature review. This review identified limited academic literature referencing these approaches within the context of fashion, textile or sustainable design. Within this review the discipline and industry of sustainable textile design is also under-represented in contrast to fashion. This presentation did not contribute a practical outcome towards the research practice, however, the decision to share these findings online provided a valuable contribution as new connections were established, alongside invitations to deliver the presentation and workshops internationally. This highlighted the significance of integrating social media tools within the research process, alongside the research practice.

Through online agency individuals and communities can shape and form their own narratives and ecologies.

9.3 Objective 2

To establish the effect of a design facilitation role as a means of broadening the experience of the fast fashion consumer participation through inclusive textile design and making processes

The action research methodology supported an iterative approach to the research practice. Throughout each iteration new insights emerged to support the next stage of research and development. This method of textile design interventions emerged as a new exploratory research approach. However, they required careful construction to knit together a series of techniques to develop their own inclusive process of making. The action research methodology supported design facilitation and through each iterative cycle a patchwork of methods was assembled. The outcome of this was the design facilitation toolkit documented within Appendix B.

Through the method of *textile design interventions* this researcher broadened the experience of the fast fashion consumer by developing inclusive textile design and making processes. Adopting the role of design facilitator was required to pursue the method of researching through *textile design interventions.* The practice of facilitation is not traditionally taught within textile design education and the researcher advanced this skill-set by researching and applying new approaches, expanding upon previous experiences and engaging with further training (Idenk, 2010). This knowledge could not be transferred through a textbook and rather required hands on experiential learning to advance. Through iterative cycles of action research, new design facilitation tools and methods began to emerge. As the facilitation skills became further advanced the pace and flow of each workshop improved. Traditionally designers are not trained to facilitate or design flow (Thorpe, 2011). These skills emerged through rehearsed orchestration, thus enhancing the design and delivery of each workshop or event. The design facilitation toolkit emerged as the practice evolved to include new methods and tools, following each iteration of the action research. Through developing inclusive design processes and designing toolkits to support participation - design facilitation skills and capabilities became more advanced, enabling greater engagement with the participants and subject matter. The Design Facilitation Toolkit was referenced to broaden consumer participation within the textile design and making process, it also supported the integration of social media tools. As a result, new consumer relationships have evolved beyond the workshops facilitated by the researcher. The participants also supported this by sharing their experience within their own social media platforms and online networks.

Designers wishing to contribute to a more sustainable industry and engage consumers need to learn how to be design facilitators – this should be part of their education and professional practice.

9.4 Objective 3

To propose creative strategies for designing and developing textile design interventions to produce a body of work that supports fast fashion consumer engagement and develops new paradigms for fast fashion with regard to sustainability

The construct of a textile design intervention challenges mass consumption through offering an alternative proposition. The main challenge when designing each intervention was the identification of the textile design and making process. The practice of textile making includes a diverse range of skills, techniques and material knowledge. Each intervention required an inclusive approach to enable participants to actively engage with the process of making and to apply their own creativity to achieve a finished outcome. Piloting each process in advance, supported the usability and transferability of digital and physical textile design processes by developing prototypes and practical demonstrations.

Through demonstrations and workshops the mobile studio demystified the design and production process for digital textile design and production. This was not a professional production unit but rather a sampling tool. But there is potential for the mobile studio to support consumers who wish to design digital textile designs and make them within their own home. There is also potential for it to be sustained in partnership with a fast fashion brand or retailer. The Apple brand is often accredited for designing and delivering one of the most successful consumer experiences from a product and service design perspective. Apple's instore Genius bar service provides access to expert individuals who offer technical support through classes, demonstrations and drop in sessions. Within high to low end fashion retail there is no equivalent, as whilst consumers are sold garments by these retailers, they do not offer services to empower and educate consumers towards the possibilities of a range of use or end of life phase interactions. This intervention references this example to consider how the mobile design textile design studio might evolve within the future. Could it be packaged and retailed as a domestic digital resource similar to a laptop or desktop computer? Could an in-store lab style service be provided in partnership with a fast fashion retailer? At present, the high cost of professional digital textile production services challenge the inclusive and democratic ethos of this intervention. The design and production of digital textile design remains exclusive with the restricted access to facilities. There are a series of local hubs, labs and bureaus emerging, but they do not provide open access to their facilities to play, prototype or experiment with the tools or technologies that Fab Labs and 3D printing hubs provide. Bowles (2012) argues that within the near future, new scenarios for this way of working will begin to emerge and by predicting a fast fashion future, these services will exist on the high street alongside fast fashion retailers. The sustainability of textile design interventions to evolve as new models within an alternative fashion system depends on its ability to direct revenue flow from the services it might offer. Future research may necessitate development of a business model to assign a cost of creating, delivering and maintaining such a service.

This research applied a low-fidelity approach to demonstrate that a lot can be achieved by identifying existing tools and applying them differently - the original contributions within this research evolved by combining processes of making, with existing social media tools. This research utilised online media because it offers an accessible, low cost and social medium to connect directly to key stakeholders - in this instance, Gen Y. The social media tools provide a new infrastructure to support consumer participation within textile design and making processes. These interfaces can be adopted to mediate new social interactions and participatory experiences for the fast fashion consumer, and argues a case for considering human interaction as a key imperative for the sustainability agenda. While in the primary stages of this research, it was envisioned that the practice might be staged online or even facilitated remotely, a different proposition emerged through practice. The physical interaction with materials and people could not be replicated online and requires the combination of offline and online action spaces. But the mechanisms to share physical experiences within a digital realm offered a new dimension to each workshop, and through each iteration an alternative fashion system emerged. This research argues that the agency within a textile design intervention needs to go beyond participation within a workshop or one-off event. Through four different action research projects **e-Co-Textile Design** emerged as a new model.

This research has focused on fast fashion consumer participation within a Gen Y demographic as this individual has been identified as the most influential fast fashion consumer (Galloway, 2011). Whilst they are the largest consumer group of fast fashion, they had different characteristics to Gen X. With this in mind it's worth highlighting Gen Z will have even greater experience of digital interfacing, in part due to the increase in digital resources. This is enhanced through their daily interaction with social media tools, and the research identified that Gen Z were already actively co-creating and curating content within digital applications and platforms. This opens up new research opportunities and provides a suite of digital and online tools that could be borrowed and combined with textile design and making processes. The diffusion of digital design tools democratised the opportunity to create and has the potential to define new open production models and methods for fashion. Through action research, reflection and observation this research provided documentation, to support a case for this new way of working.

In future, Gen Z consumers and the way they use social media and online tools will guide sustainable designers and researchers towards a range of possible solutions - where fast fashion may gain a greater understanding, appreciation and a new sense of value may be experienced – leading to consumption decisions that seek models that will deliver products with extended lifespans.

9.5 Contributions to Knowledge

This research addresses the problem of prolific consumption to consider how we might achieve a more sustainable fast fashion future. By demonstrating alternative fast fashion experiences through practical demonstrations, these outcomes support the original contribution by providing a portfolio of four action research projects.

The original contribution of this research emerged through making a synthesis of things that have not been put together. This was achieved by combining textile design and making with social media tools. The synthesis was supported by applying existing participatory approaches such as design activism, democratic innovation, open innovation and collaborative consumption from the broader field of design and re-applying them through the exploratory method of *textile design interventions.* This new method was applied to trail different approaches to encourage fast fashion consumers to maintain their existing wardrobe through newfound skills and resources. This encouraged a process of transformation and new social interactions with fashion to emerge that discouraged short life garments. These experiences could be shared through integrated social media tools to promote further participation.

This thesis offers an insight into how alternative fashion systems might be designed, delivered and supported. This research positions textile design interventions outside of the fashion system to consider an alternative new model. While these interventions have been tested on a Gen Y fast fashion consumer group, mainly within the UK, there is potential to conduct further research with a broader consumer group or conduct a series of satellite project within different geographical locations. Future research requires a longitudinal study to evaluate the impact from the consumers' perspective and LCA analysis regarding the benefits of prolonging the use of fast fashion garments.

References

Books

Alexander, C. Reno, J. (2013). Economies of Recycling: The Global transformation of materials, values and social relations (p. 2). Zed Books.

Anderson, C. (2012). *Makers: The New Industrial Revolution* (p. 257). Random House Business Books.

Atkinson, P. (2011, February 8). Orchestral manoeuvres in design. BIS Publishers.

Barthes, R. (1980). *The Fashion System* (p. 320). Berkeley California: London: University of California Press.

Black, S., & Alexander, H. (2012). *The Sustainable Fashion Handbook* (p. 352). Thames & Hudson.

Botsman, Rachel, Rogers, R. (2011). *What's mine is yours: how collaborative consumption is changing the way we live*. London: Harper Collins.

Bowles, Melanie, Isaac, K. (2009). Digital Textile Design. London: Laurence King.

Braungart, M., & McDonough, W. (2009). *Cradle to Cradle. Remaking the Way We Make Things* (p. 208). Vintage.

Chapman, J. (2005). Subject Object Relationships and Emotionally Durable Design. In *Longer Lasting Solutions: Adavancing Sustainable Development Through Increased Product Durability*. London: Ashgate.

Chapman, J., & Gant, N. (2007). *Designers Visionaries and Other Stories: A Collection of Sustainable Design Essays* (p. 144). Routledge.

Coghlan, D, Brannick, T. (2009). *Doing Action Research in Your Own Organisation* (third edit.). SAGE.

Cross, N. (2011). *Design Thinking: Understanding How Designers Think and Work* (p. 192). Berg Publishers.

Davis, S. (1987). *Future Perfect*. Addison Wesley Longman Publishing Co.

Domesek, E. (2010). *P.S.- I Made This: I See it. I Like it. I Make it: An Inspired Guide to Designer DIY Fashion and Style [Paperback]* (p. 160). London: Harry N. Abrams, Inc.

Evelegh, T. (2014). *BBC Two - The Great British Sewing Bee*. London: Quadrille Publishing Ltd.

Fletcher, K. (2008). *Sustainable Fashion and Textiles: Design Journeys* (p. 212). Routledge.

Fletcher, K., & Grose, L. (2012). *Fashion & Sustainability: Design for Change* (p. 192). Laurence King.

Flynn, J. Z., & Foster, I. M. (2009). *Research Methods for the Fashion Industry* (p. 352). FAIRCHILD.

Fuad-Luke, A. (2009). *Design Activism: Beautiful Strangeness for a Sustainable World* (p. 272). Routledge.

Gauntlett, D. (2011). *Making is Connecting*. *Making is Connecting* (pp. 1–15).

Illich, I., 1970. *Tools for Conviviality.* New York: Marion Boyars.

Jackson, T. (2011). *Prosperity without Growth: Economics for a Finite Planet* (p. 288). Routledge.

Kolko, J. (2011). *Exposing the Magic of Design: A Practitioner's Guide to the Methods and Theory of Synthesis* (p. 208). New York, New York, USA: OUP USA.

Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., & Wensveen, S. (2011). *Design Research Through Practice: From the Lab, Field, and Showroom* (p. 224). Morgan Kaufmann.

Lee, M. (2007). *Eco Chic: The Savvy Shoppers Guide to Ethical Fashion [Paperback]* (p. 288). Gaia Books Ltd.

Lewin, K. (1947). Frontiers in Group Dynamics: II. Channels of Group Life; Social Planning and Action Research. *Human Relations*.

Manzini, E. (2007). Design research for sustainable social innovation. *Scenario*, Design Research Now Board of International Research in Design 2007, pp 233-245.

Moggridge, B. (2006). *Designing Interactions* (p. 816). MIT Press.

Muncey, T. (2010). *Creating Autoethnographies* (p. 168). SAGE Publications Ltd.

Nussbaum, B. (2013a). *Creative Intelligence: Harnessing the Power to Create, Connect, and Inspire* (p. 368). HarperBusiness.

Perrels, Adriaan, Himanen, Veil. Lee-Gosselin, M. (2008). Building Blocks for Sustainable Transport: Obstacles, Trends, Solutions (Google eBook). In M. Perrels, Adriaan, Himanen, Veil. Lee-Gosselin

(Ed.), *Building Blocks for Sustainable Transport: Obstacles, Trends, Solutions* (p. 278). Emerald Group Publishing.

Reason, P., & Bradbury, H. (2006). *Handbook of Action Research*. *Participative Inquiry and Practice London* (p. 468).

Shedroff, N. (2011). *Design Is The Problem*. Rosenfeld Media.

Siegle, L. (2011). *To Die For: Is Fashion Wearing Out the World?* (p. 352). Fourth Estate.

Thackara, J. (2013). Foreward. In J. Walker, Stuart, Giard (Ed.), *The handbook of Design for Sustainability* (p. xxv). New York, New York, USA: Bloomsbury.

Waterhouse, J. (2010). *Indie Craft* (p. 128). Laurence King.

Williams, R. H. (1991). *Dream Worlds: Mass Consumption in Late Nineteenth-century France* (p. 451). University of California Press.

Journal & Conference Papers

Allwood, J. M., Ashby, M. F., Gutowski, T. G., & Worrell, E. (2011). Material efficiency: A white paper. *Resources, Conservation and Recycling*, *55*(3), 362–381.

Barnes, L., & Lea-Greenwood, G. (2010). Fast fashion in the retail store environment. *International Journal of Retail & Distribution Management*, *38*(10), 760–772.

Berthon, P. R., Pitt, L. F., Plangger, K., & Shapiro, D. (2012). Marketing meets Web 2.0, social media, and creative consumers: Implications for international marketing strategy. *Business Horizons*, *55*(3), 261–271.

Bhardwaj, V., & Fairhurst, A. (2010). Fast fashion: response to changes in the fashion industry. *The International Review of Retail, Distribution and Consumer Research*, *20*(1), 165–173.

Body, J, Terrey, N, Tergas, L. (2008). Design Facilitation as an Emerging Design Skill: A Practical Approach. In *Proceedings of Design Thinking Research Symposium 8: Interpreting Design Thinking*.

Brandt, E., Binder, T., Sanders, E., (2012). Tools and Techniques: ways to engage telling, making and enacting. Routledge International Handbook of Participatory Design: pp.145-181. New York: Routledge.

Brogi, S., Calabrese, A., Campisi, D., Capece, G., Costa, R., & Di, F. (2013). The Effects of Online Brand Communities on Brand Equity in the Luxury Fashion Industry. *International Journal of Engineering Business Management*, pp.1.

Bruns, A. (2012, April 23). Ad hoc innovation by users of social networks : the case of Twitter. *ZSI Discussion Paper*. Zentrum für Soziale Innovation – Centre for Social Innovation.

Chesbrough, H. W., & Appleyard, M. M. (2007). Open Innovation and Strategy. *California Management Review*, *50*, pp. 57–77.

Crewe, L. (2013,). When virtual and material worlds collide: democratic fashion in the digital age. *Environment and Planning A*.

Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in Everyday Life: The Uses of Experience Sampling. *Journal of Happiness Studies*, *4*(2), pp. 185–199.

Fricke, V., & Schrader, U. (2012). Pathways to Responsible Living Conference Proceedings. In V. Fricke & U. Schrader (Eds.), *Beyond Consumption: Pathways to Responsbile Living*. Berlin.

Fuad-Luke, Strauss, C. (2008). The Slow Design Principals. In *Changing the Change. Design Visons Proposals and Tools*. Conference, Torino 10th - 11th - 12th July 2008.

Galloway, S. (2010). *Affluents : The End of the Beginning*.

Gassmann, O., Enkel, E., & Chesbrough, H. (2010). The future of open innovation. *R&D Management*, *40*(3), pp. 213–221.

Goworek, H. (2011). Social and environmental sustainability in the clothing industry: a case study of a fair trade retailer. *Social Responsibility Journal*, 7 (1), pp.74 - 86

Hackney, F. (2006). Use Your Hands for Happiness: Home Craft and Make-do-and-Mend in British Women's Magazines in the 1920s and 1930s. *Journal of Design History*, *19*(1), pp. 23–38.

Hackney, F. (2013). Quiet Activism and the New Amateur, *Journal of* Design and Culture 5 (2), pp. 169-193.

Hienerth, C., von Hippel, E. A., & Jensen, M. B. (2011). Innovation as Consumption: Analysis of Consumers' Innovation Efficiency. *SSRN Electronic Journal*.

Hirscher, A. (2013). Joyful participation in new ways of designing and making clothes. - Enabling person-product attachment to potentially reduce unnecessary consumption. Retrieved from https://aaltodoc.aalto.fi:443/handle/123456789/10381, pp 144. Accessed 11th July 2014.

Holt, D. (2002). Why do brands cause trouble? A dialectical theory of consumer culture and branding. *Journal of Consumer Research*, *29*, pp. 70–90.

Hronszky, I., & Kovács, K. (2013). Interactive Value Production through Living Labs On Open Innovation , the Supply Side, *10*(2), pp. 89–108.

Hur, E., & Beverley, K. (2013). The Role of Craft in a Co-Design System for Sustainable Fashion. Making Futures Conference. Plymouth, 2013.

Ison, R. L. (2008, April 15). Systems thinking and practice for action research. Sage Publications. Retrieved from http://oro.open.ac.uk/10576/1/Ison.pdf accessed 11th July 2014.

Jackson, T. (2005). Motivating Sustainable Consumption. *A Review of Evidence on Consumer Behaviour and Behavioural Change In A Report to the Sustainable Development Research Network as Part of the ESRC Sustainable Technologies Programme Centre for Environmental Strategy University of Surrey Guildford*, *15*, pp. 1027–1051.

JOHANSSON, E. (2010, October 13). Slow fashion - the answer for a sustainable fashion industry? University of Borås/Swedish School of Textiles. Retrieved from http://bada.hb.se:80/handle/2320/6776 accessed 11th July 2014.

Kerr, J., & Foster, L. (2011). Sustainable consumption - UK Government activity. *Nutrition Bulletin*, *36*, pp. 422–425.

Kimbell, L. (2009). Design practices in design thinking. *Design*, *May*, 1–24. Retrieved from http://www.lucykimbell.com/stuff/DesignPractices_Kimbell.pdf accessed 11th July 2014.

Kozinets, R.V, Handleman, J. (2004). Adversaries of consumption: consumer movements, activism, and ideologies. *Journal of Consumer Research*, *31*(3), pp. 691–704.

Lloyd, A. E., & Luk, S. T. K. (2010). The Devil Wears Prada or Zara: A Revelation into Customer Perceived Value of Luxury and Mass Fashion Brands. *Journal of Global Fashion Marketing*, *1*(3), pp. 129–141.

Manzini, E. (2009). New design knowledge. *Design Studies*, *30*, 4–12.

Max-Neef, M. (2010). The World on a Collision Course and the Need for a New Economy. *AMBIO*, *39*(3), 200–210.

McDonough, W., & Braungart, M. (2002). *Cradle to Cradle*. *Chemical and Engineering News* Vol. 80, p. 208.

Mogensen, P. H. (1992, August 1). Towards a Prototyping Approach in Systems Development. *DAIMI Report Series*. Retrieved from http://ojs.statsbiblioteket.dk/index.php/daimipb/article/view/6725 accessed 11th July 2014.

Morelli, N. (2002). Designing Product/Service Systems: A Methodological Exploration. *Design Issues*, *18*, pp. 3–17.

Niessen, B. (2005). *OpenWear. Sustainability, Openness and p2p production in the World Of fashion. Research report of the EDUfashion project*. *World* (pp. 1–56).

Niinimäki K. (2010). Eco-Clothing, Consumer Identity and Ideology. *Sustainable Development*. Volume: 18, Issue: 3, pp. 150-162

Niinimäki, K., & Hassi, L. (2011b). Emerging design strategies in sustainable production and consumption of textiles and clothing. *Journal of Cleaner Production*, *19*(16), pp. 1876–1883.

Payne, A. (2011). The Life-cycle of the Fashion Garment and the Role of Australian Mass Market Designers, *7*, pp. 237–246.

Pine, B. J., & Gilmore, J. H. (1999). *The experience economy: work is theatre & every business a stage*. *Business,*. 40, p. 254.

Raelin, J. (2011). From leadership-as-practice to leaderful practice. *Leadership*, *7*(2), pp. 195–211.

Rebecca, E. (2011). *Upcycling Textules: adding value through design.* KEA's Towards Sustainability in the Fashion and Textiles Industry, 26th - 27th April 2011, Copenhagen

Rissanen, T. (2005). *From 15% to 0: Investigating the creation of fashion without the creation of fabric waste*. *Creativity Designer meets Technology Europe*. pp. 1–10.

Ritzer, G., & Jurgenson, N. (2010). Production, Consumption, Prosumption: The nature of capitalism in the age of the digital "prosumer." *Journal of Consumer Culture*, *10*(1), pp. 13–36.

Sanders, E. B.-N. (2006). SCAFFOLDS FOR BUILDING EVERYDAY CREATIVITY. *In Design for Effective Communications: Creating Contexts for Clarity and Meaning. Jorge Frascara (Ed.) Allworth Press, New York,*. Retrieved from http://www.maketools.com/articles-papers/ScaffoldsforBuildingEverydayCreativity_Sanders_06.pdf accessed 11th July 2014.

Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, *4*(1), pp. 5–18.

Stead, L., Goulev, P., Evans, C., & Mamdani, E. (2004). The Emotional Wardrobe. *Personal and Ubiquitous Computing*, *8*(3-4), pp. 282–290.

Tapscott, D., & Williams, A. D. (2010). *Macrowikinomics: Rebooting Business and the World*. *Business Innovation Factory Innovation Story Studio Articles*. Vol. 5, p. 336.

Tham, M., & Jones, H. (2008, July 12). Metadesign Tools: Designing the seeds for shared processes of change. Allemandi Conference Press. Retrieved from http://research.gold.ac.uk/4676/1/4676_Tham.pdf. Accessed 11th July 2014.

Thorpe, A. (2011). Defining Design as Activism. *Journal of Architectural Education*, 1–16. pp 36-41.

Tokatli, N. (2012). Old firms, new tricks and the quest for profits: Burberry's journey from success to failure and back to success again. *Journal of Economic Geography*, *12*, pp. 55–77.

Torrance, H. (2012). Triangulation, Respondent Validation, and Democratic Participation in Mixed Methods Research. *Journal of Mixed Methods Research*, *6*(2), pp. 111–123.

Vezzoli, C., & Manzini, E. (2008). Facilitating Disassembly. *Design for Environmental Sustainability*, pp. 181–197.

Von Busch, O. (2008). *Fashion-able: hacktivism and engaged fashion design*. *Critical Inquiry* Vol. 22, pp. 271-280

Von Busch, O. (2010). Exploring net political craft: From collective to connective. *Craft Research*, *1*(1), pp. 113–124.

Von Hippel, E. (2005). Democratizing innovation: The evolving phenomenon of user innovation. *Journal Betriebswirtschaft*, *55*(1), pp. 63–78.

Walker, S. (2011). Longer Lasting Products: Alternatives to the Throwaway Society. *The Design Journal*. Volume: 14, Issue: 3, pp. 375-380

Wallace, J. (2007). Emotionally charged: A practice-centred enquiry of digital jewellery and personal emotional significance. PhD Thesis. pp. 1–228.

Watson, M. Z. (2013). An Exploratory Study of the Decision Processes of Fast versus Slow Fashion Consumers. *Journal of Fashion Marketing and Management*, *17*, 1. pp 18-26.

Yair, K., & Schwarz, M. (2011). Making value: craft in changing times. *Cultural Trends*, *20*(3-4), pp. 309–316.

Zhang, Q., Vonderembse, M. A., & Lim, J.-S. (2002). Value chain flexibility: A dichotomy of competence and capability. *International Journal of Production Research*, *40*(3), pp. 561–583.

Design Toolkits

IDEO. (2011). *Human-Centered Design Toolkit: An Open-Source Toolkit To Inspire New Solutions in the Developing World*. pp. 1-200.

Kimbell, L. Julier, J. (2014) The Social Design Methods Menu. [online] Available at: http://www.lucykimbell.com/stuff/Fieldstudio_SocialDesignMethodsMenu.pdf [accessed 11th July 20140

OpenIDEO, 2013. OpenIDEO Meet Up Toolkit. [online] Available at: <http://www.openideo.com/open/mayo-clinic/gallery/meetup-toolkit.pdf/> [Accessed on 9 September 2013].

Frog Collective Action Toolkit

Web Resources

ASOS, (2013). ASOS Marketplace: Welcome to the Fashion Democracy. [online] Available at: <https://marketplace.asos.com/help/what-is-asos-marketplace> [accessed 3 August 2013].

A Matter of Style, (2013). [online] Available at: <http://matterofstyle.blogspot.co.uk> [accessed 12 September 2013].

A Pair and a Spare, (2013) [online] Available at: <http://apairandasparediy.com> [accessed 12 September 2013].
Black, S., (2012). *The Sustainable Fashion Handbook.* London: Black Dog Publishing. Buchenau, M., Fulton Suri, J., (2000). Experience Prototyping. [online] Available at: <http://ideodesign.com.au/images/uploads/news/pdfs/FultonSuriBuchenau-Experience_PrototypingACM_8-00.pdf> [accessed 5 August 2013]. Beta Fashion, 2013. [online] Available at: <http://www.betafashion.com> [Accessed on 5 September 2013].

Bag Borrow or Steal, (2013). [online] Available at: <http://www.bagborroworsteal.com> [Accessed on 5 September 2013].

Body, J., Terrey, N., Tergas., L., (2012). Design Facilitation as an Emerging Skill: A Practical Approach. [online] Available at: <http://dab.uts.edu.au/research/conferences/dtrs8/docs/DTRS8-Body.pdf> [Accessed on 5 April 2013].

Burda Style, (2013). [online] Available at: http://www.burdastyle.com [accessed 5 August 2013]. Cunningham, I., 2011. DESIGN YOUR OWN PRINT WITH BASSO & BROOKE [online] Available at: <http://www.harpersbazaar.co.uk/latest-news/design-your-own-print-with-basso-and-brooke-002 > [Accessed on 7 September 2013}

Continuum Fashion, (2013). [online] Available at: <http://www.continuumfashion.com> [Accessed on 10 September 2013].

Colour Lovers, (2013). [online] Available at: < http://www.colourlovers.com> [Accessed on 10 September 2013].

Chictopia, (2013). [online] Available at: <http://www.chictopia.com> [Accessed on 10 September 2013].

DIY Couture, (2013). [online] Available at: <http://diy-couture.co.uk> [Accessed on 10 September 2013].

Davis, T., (2013). Puma is back in the customisation game. [online] Available at: <http://mass-customization.info/post/51558843025/puma-is-back-in-the-customization-game> [Accessed on 10 September 2013].

Defra, (2013). Sustainable Clothing Action Plan. A report to the Department for Environment, Food and Rural Affairs [online] Available at: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69193/pb13206-clothing-action-plan-100216.pdf> [Accessed on 10 September 2013].

Earley, R., Fletcher, K., (2005). The Five Ways Project. [online] Available at: <http://www.5ways.info/docs/intro/intro.htm> [Accessed on 10 September 2013].

Earley, R., and Politowicz, K., (2011-2014). TED's TEN. [online] Available at: <http://www.textiletoolbox.com/about-textile-toolbox/> [Accessed on 5 September 2013].

Fletcher, K., (2013). Local Wisdom. [online] Available at: <http://www.localwisdom.info> [Accessed on 14 September 2013].

Facehunter, (2013). Facehunter. [online] Available at: <http://www.facehunter.com> [Accessed on 14 September 2013].

Final Fashion, (2013). Final Fashion [online] Available at: <http://www.finalfashion.com> [Accessed on 14 September 2013].

Frog, (2012). Design Sprint! [online] Available at: <http://thinkin.frogdesign.com/energy-thinkin/blog/design-sprint.html> [Accessed on 14 September 2013].

Goodone, (2013). [online] Available at: < http://www.goodone.co.uk> [Accessed on 9 March 2013].

Girl Meets Dress, (2013). [online] Available at: < http://www.girlmeetsdress.com> [Accessed on 9 March 2013].

Guedes, M., and Roncha, A., (2012). SUSTAINABILITY AS A KEY ASSET IN ESTABLISHING STRATEGIES FOR FASHION BRANDING. [online] Available at: <http://tinyurl.com/qzheg6n> [Accessed on 6 September 2013].

Galloway,S., (2010). Gen Y Affluents: Media Survey. [online] Available at: <http://tinyurl.com/kbw7ceo> [Accessed on 8 September 2010].

Hale, N., (2011). Joy Nevada Illustration. [online] Available at: < http://joynevada.com> [Accessed on 5 August 2013].

H&M, (2013). Reduce, Reuse, Recycle. [online] Available at: <http://about.hm.com/AboutSection/en/About/Sustainability/Commitments/Reduce-Reuse-Recycle.html> [Accessed on 5 August 2013].

Hack Design., (2013). [online] Available at: <http://hackdesign.org> [Accessed on 5 August 2013].

Hamilton, R., (2013). Everything I Know. [online] Available at: <http://everythingiknow.squarespace.com> [Accessed on 5 August 2013].

IDEO, (2013). IDEO London Make-a-thon. [online] Available at: <http://make-a-thon.org> [Accessed on 12 September 2013].

Instructables, 2013. DIY Instructables: Share What You Make [online] Available at: <http://www.instructables.com> [Accessed on 5 September 2013].

I Spy DIY, (2013. [online] Available at: < http://www.ispydiy.com> [Accessed on 5 September 2013].

Kimbell, L. (2014). Social Design Talk 16: Designing social design toolkits. http://socialdesigntalks.org/2014/03/16/social-design-talk-16-designing-social-design-toolkits/ accessed 11th July 2014.
LeBlanc, Susanne, 2012. Sustainable Fashion Design: Oxymoron No More. [online] Available at: <http://www.bsr.org/reports/BSR_Sustainable_Fashion_Design.pdf> [Accessed on 5 April 2013].

Loi, D., (2004). A suitcase as a PhD? Exploring the potential of travelling containers to articulate the multiple facets of a research thesis. Working Papers in Art and Design. [online] Available at: <http://sitem.herts.ac.uk/artdes_research/papers/wpades/vol3/dlabs.html> [Accessed on 3 September 2013].

 Matheiken, S., (2011). [online] Available at: <http://theuniformprojectblog.com/press/sheena-speaks-at-tedxdubai> [Accessed on 5 September 2013].

Marks and Spender., (2011). Shwop Campaign.[online] Available at: <http://www.marksandspencer.com/Shwop/b/1672188031> [Accessed on 10 September 2013].

Neuberg, E., (2010-ongoing). The Slow Textiles Group [online] Available at: <http://slowtextiles.blogspot.co.uk> [Accessed on13 Sep 2013].
Nussbaum, B., (2011). Design Thinking is a failed experiment so what's next? [online] Available at: *<http://www.fastcodesign. com/1663558>* [Accessed on 5 September 2013].

Oscar de la Renta, (2013). [online] Available at: <http://www.psfk.com/2012/02/oscar-de-la-renta-is-crowdsourcing-his-next-collection.html> [Accessed on 5 September 2013].

Open Wear Project, (2011). [online] Available at: <http://openwear.org> [Accessed on 5 September 2013].

Politowicz, K., (2013). Design Lifetimes: A Manifesto for Strategic Change. [online] Available at: <http://issuu.com/ualresearch/docs/kay_piltowicz_publication_screen_aw/1> [Accessed on 19 September 2013].

Platform 21 Repair Manifesto, (2013). The Repair Manifesto. [online] Available at: <http://www.platform21.nl/page/4375/en> [Accessed on 12 September 2013].

PUMA SUSTAINABLE DESIGN COLLECTIVE – "50 Ways of Working Sustainably". (2013). [online] http://vimeo.com/49756664 accessed 11th July 2014.
Puff and Flock Collective, (2013). [online] Available at: <http://puffandflock.blogspot.co.uk/2011/09/puff-flock-workshops-for-designersblock.html> [Accessed on 12 September 2013].

Prada, (2013). Prada Made to Measure [online] Available at: <http://www.prada.com/en/made-to-measure> [Accessed on 12 September 2013].

Rent The Runway, (2013). [online] Available at: <http://www.renttherunway.com/rtr_home> [Accessed on 12 September 2013].

Scanlon, J., (2004). Seamless: Issey Miyake saw the future of fashion. So he gave up haute couture to become a softwear engineer. [online] Available at: <http://www.wired.com/wired/archive/12.04/miyake_pr.html> [accessed 12 September 2013].
Sonne, P., (2011). Mink or Fox? The Trench Gets Complicated. Burberry Tries to Sell Luxury Shoppers on A Choose-Your-Own Adventure Coat. [online] Available at http://online.wsj.com/article/SB10001424052970203804204577013842801187070.html [Accessed 5 September 2013].
Stead, L., (2005). The Emotional Wardrobe. PhD Thesis. [online] Available at: <http://www.emotionalwardrobe.com/people_lisas.htm> [Accessed on 5 September 2013].

The Amazing's, (2013). [online] Available at: <https://www.theamazings.com> [accessed 12 September 2013].
Totally Love It, 2013. 38 Anthropologie DIY Hacks. [online] Available at: <http://totallyloveit.com/38-anthropologie-diy-hacks/> [accessed 3 August 2013].

Skillshare, (2013). [online] Available at: <http://www.skillshare.com> [Accessed on 7 September 2013].

Spoon Flower, (2013). [online] Available at: <http://www.spoonflower.com/welcome> [Accessed on 7 September 2013].

SHOWstudio, (2009-ongoing). Design_Download Project [online] Available at: http://showstudio.com/project/design_download_giles_deacon [Accessed on 7 September 2013].

Slegg. J., (2013). Pinterest Tops 70million Users. [online] Available at:

<http://searchenginewatch.com/article/2282835/Pinterest-Tops-70-Million-Users-30-Pinned-Repinned-or-Liked-in-June-Study> [Accessed on 3 September 2013].
Stitch Collective, 2013. [online] Available at: < http://stitchcollective.com> [Accessed on 7 September 2013].

Sartorilaist, (2012). [online] Available at: <http://www.thesartorialist.com> [Accessed on 7 September 2013].

TopShop, (2013). STICK 'EM ON. [online] Available at: <http://insideout.topshop.com/2009/07/diy> [Accessed on 3 August 2013].

TopShop, (2013). DIY. [online] Available at: <http://insideout.topshop.com/2009/07/diy> [Accessed on 3 August 2013].

The Peoples Print, (2013). [online] Available at: <http://www.thepeoplesprint.com> [Accessed on 7 September 2013].

Urban Outfitters, (2013). [online] Available at: <http://blog.urbanoutfitters.com/features/diy_or_die_at_uo> [Accessed on 7 September 2013].

Thingiverse, (2013). [online] Available at: < http://www.thingiverse.com> [Accessed on 7 September 2013].

The Uniform Project, (2009-10). [online] Available at: <http://www.theuniformproject.com> [Accessed on 7 September 2013].

WRAP, (2012) [online] Together for a world without waste. *Valuing our clothes - the ture cost of how we design, use and dispose of clothing in the UL*. Available at: <www.wrap.org.uk/clothing> [Accessed on 7 September 2013].

Exhibitions

Knight, N. (2009). SHOWstudio: Fashion Revolution. In *Fashion Revolution,* 17 Sep - 23 Dec 2009. Somerset House, London. [online] Available at: <http://www.somersethouse.org.uk/fashion/showstudio> [Accessed 3 August 2013].

Margelia, (2010). Maison Martin Margelia 20 'The Exhibition'. 3 June – 5 September 2010, Sommerset Hourse, London.

Other Workshops

Earley. R. (2011) TED's TEN Workshop.
Global Service Design Jam, 2013. [online] Available at: <http://planet.globalservicejam.org> [Accessed on 7 September 2013].

Neuberg, E. (2009). Conversations on a Slow Craft Workshop. A Japanese Sashiko embroidery workshop, led by Emma Neuberg of the Slow Textiles Group. Camden, London. September 2009. http://www.tedresearch.net/research/detail/conversations-slow-craft/ accessed 14th July 2014.