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Clothed Connections



A Transition Design-led Ideation
of a Holistic Future Fashion System

A thesis presented in partial fulfilment of the requirements
for the degree of Master of Design at Massey University,
Wellington, New Zealand.

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Research Question & Aims

How can transition design-led conceptions of holistic future fashion systems be applied through a fashion design process, to facilitate engagement between wearer and garment?

SYSTEMS THINKING

To evaluate transition design-led conceptions of sustainable future fashion systems, addressing the western fashion system at its core, to consider holistic and actionable pathways forward.

APPLICATION

To research the relationship between designer, wearer and garment with an informed fashion design process, facilitating increased engagement, by carrying out two interconnected case studies that explore a circular and participatory design process of creation, experience and reflection.

KEY THEMES

Interconnections / Circularity / Engagement

Abstract

The fashion system exists within an intricate and dynamic network of interconnections that span ecological, sociological, political and economic systems. As these global systems interact with the behaviours of an anthropocentric, consumer-capitalist, pro-growth, outcome-driven twenty-first century society, more is being taken from the environment than is being regeneratively restored. Resultant, is a global climate emergency, evidenced by sustained earth temperature rise and biodiversity loss. Without repair through urgent system transformation, the pathway ahead is one of irrevocable environmental damage. A mindset shift of our thoughts and behaviours regarding fashion, may guide systems change.

This research proposes a mindset shift through a transition design-led, multi-level perspective ideation of a sustainable future fashion system, integrating theories of everyday life and human need, to challenge the western fashion system at its core.

Mixed methods and a reflective research approach synthesises future fashion system conception with design practice. Concepts of holistic future fashion systems are analysed and synthesised to develop a proposed Emergent Fashion Design Process Model with a Sustainable Design Criteria as outcomes for this research. These are applied through a participatory fashion design process, intended to facilitate stronger engagement between a wearer and their garment.

A connective pathway forward is actioned and tested through this renegotiated fashion design process. A wearer-experience informed fashion design process, conducted two interconnected case studies that explore a circular practice of creation and reflection, through experience and connection.

This exegesis offers a contribution to the growing body of scholarly thought, acknowledging the value of dynamic change in society's engagement with fashion and clothing. A circular, connective, and generative pathway forward is proposed, further contributing to the evolving conversation of environmental conservation throughout fashion, and wider system transformation.



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Robin and Heather Day

Thank you for holding the torches that have illuminated my field of possibility in life. You have lived and breathed the values of connection, care and positive transformation that have guided this body of work. For the loving support and belief you give me, near or far, all of my gratitude is yours.

In loving memory of Dr Robin Day



Research with Intention

Clothed Connections was initiated with deep concern given for the environment and its inhabitants, living in the Earth's current harmful network of systems. This collective eco-system is experiencing significant distress in the physical form of disruptive climate change (United Nations, 2015, p3, para 3) due to wide-spread disconnection between humans and the natural environment, resulting in severe natural resource depletion. Such depletion is propelled by a hegemonic economic-expansion agenda, expressed in the behaviours of over-production and consumption, which require significant quantities of natural resources to sustain (Fletcher and Tham. 2019, page 16, para 2).

The fashion industry has unfortunately evolved to exemplify this resource-depleting, pro-growth directed system. With Fashion's current take-make-dispose model offering a linear system in which significant amounts of non-renewable natural resources are being extracted, to swiftly generate clothing that is minimally worn, to then find permanent residence in landfills or as green-house gases through their incineration. A process which not only depletes sacred natural resources, yet also contributes an abundance of harmful greenhouse-gas emissions (Ellen MacArthur Foundation, 2017, p19). This is a devastating exchange, resultant of a system that requires urgent care, consideration and collective ideation to support its generative transformation.

A deep care for the Earth alongside systems transformation was seeded in my early years. Together as a family, many of our weekends were spent traversing the natural landscapes of Coastal and Central Otago. It was during those early explorations, in which we would marvel at the breadth and nuance of the natural surroundings, while observing incremental changes over the years, that we cultivated a sincere reverence for the local land that is under the care of Kai Tahu. Meanwhile conversations along each journey would be peppered with my parents' passionate discussions about educational and health system transformation, informed by their academic research in the fields.

As threads of environmental care and systems transformation were being woven, my personal philosophy of fashion was also finding formation. Held within the context of my Coastal Otago hometown of Otepoti, Dunedin, a town that hosts a distinct and collective fashion identity, I learned of a local fashion industry that prioritised connection. I observed the tertiary fashion students being educated by academics alongside local industry professionals, I then observed these professionals designing with an understanding for their local

wearer, circulating such knowledge in return to their students. I observed the unique balance between local connectivity and global awareness, cultivated through the annual iD Dunedin Fashion Week, a week-long fashion event that drew together national and global fashion industry participants spanning experience levels to share in a week celebrating various expressions of fashion. Such an upbringing anchored values of environmental care, critical thinking, connection, locality and global awareness that have informed concepts in regard to fashion throughout this body of work. This exegesis was guided by such values and was conducted as a Pakeha, Tangata Tiriti researcher of Otepoti, carrying out research in connection with the local community of Te Whanganui-a-Tara.

With such values at the helm, this exegesis tends to the complex challenge of systems transformation through applying focused consideration of the fashion system. As the fashion system hosts a breadth of reach, dynamically interacting with a variety of global systems, local communities and individuals, Part One of this exegesis provides an essential, extensive and holistic overview of the fashion system. This rich tapestry of context spans considerations of complex systems transformation, fashion's impact on the human experience, sustainable fashion pathways, regenerative fashion futures and the application to the fashion designer. Such context provides the understanding necessary to ideate a collective pathway forward for holistic fashion system transformation.

Resultant of this extensive contextual framework and in alignment with holistic fashion future conceptions, two design outcomes were generated; The Emergent Fashion Design Process Model and The Sustainable Design Criteria. The Emergent Model and The Sustainable Design Criteria were then investigated through two interconnected case studies, applied within a local fashion system. The case studies provided an example of small-scale garment design and creation, held within a circular model that placed emphasis on community connection, reflection and experience, exemplifying an alternative pathway to engage in fashion. While the scope of this research was suited to examine a small-scale, local application of an emergent fashion design process, future study is intended to investigate emergent processes at larger scale. I wish to continue considerations of emergent processes that nurture authentic and meaningful relationships with clothing at varying levels of scale, within local and global communities throughout the fashion industry within further study, a PhD context. I thus intend to contribute to the growing harmony of voices that call for an Earth-honouring change to our global systems and our fashion industry.



Navigation of the Exegesis

To navigate this exegesis, begin by observing with a broad lens two distinct sections, Part One and Part Two. As discussed in the introduction, Part One offers a rich contextual background that addresses the fashion industry's pathway towards long-term sustainable transformation. Meanwhile, Part Two offers multiple design outcomes that examine the application of holistic future fashion conceptions throughout two interconnected case studies, held within a local context.

Part One is partitioned into three chapters. Each chapter follows a similar ideological format to this section, moving from a broad focus toward a niche focus. Chapter One considers the fashion industry from a systems level 'birds eye view'. While Chapter Two increases focus to consider the daily human experience, impacted by the fashion industry, Chapter Three then specifically addresses the practices and processes of the fashion designer. With each chapter applying considerations through the lens of long-term sustainable fashion system transformation.

Part Two transforms Part One's holistic conceptions into application and reflection, presented through Methods and Processes. Chapter Four prepares by laying foundation in methodological design approaches and upon this foundation, multiple design outcomes of future fashion system frameworks are then discussed. These frameworks include a Transition Design-led Holistic Future Fashion Framework, The Emergent Fashion Design Process Model and The Sustainable Design Criteria. These frameworks are then examined within a small-scale, local fashion design and creation process, explained throughout the detailed accounts of Case Study One and Case Study Two. To conclude the exegesis, Chapter Five reviews the integrated journey of Part One and Part Two, contributing considered reflections of sustainable fashion system transformations and holistic fashion futures.

PART ONE

Contextual Review A Consideration of Holistic Fashion Systems

CHAPTER ONE

The Bird's Eye View

“

The world is not a problem
to be solved; it is a living
being to which we belong.

The world is part of our
own self and we are a part
of its suffering wholeness.

THÍCH NHÁT HANH
IN VAUGHAN-LEE, 2013.

The Bird's Eye View

The bird's eye view casts a sweeping gaze across the ecological, sociological, political and economic systems that suspend the fashion industry amidst a web of interdependent interconnections. As these interconnected systems interact within the ascendent growth-driven, capitalist societies of the late 20th and early 21st century, complex global challenges that require resolution from a multitude of design perspectives and techniques, have emerged. These complex challenges spanning a breadth of interconnections, with proportionately complex resolutions, are considered 'Wicked Problems', a theory established by design scholars Rittel and Webber in 1973 (Rittel et al. 1973). A 'Wicked Problem' of global reach and extensively harmful impact, is the ecological crisis of climate change, of which the fashion industry contributes to in significant measure. This chapter discusses the global crisis of rising earth temperatures, alongside the fashion industry's environmental impact within its current operating model. This then considers a pathway of resolution for 'Wicked Problems', offering a transformative strategy for the fashion system through Transition Design and Systems Thinking theories, followed by critique of Sustainable Fashion System and Holistic Future Fashion Future ideations.

1.1 ENVIRONMENT IN CRISIS AND FASHION'S IMPACT

Nature offers an intricate lacework of structure, sustenance, and spirit to the earth, yet this precious regenerative system is in a state of dis-ease. In this post-industrial epoch (Fuchs. 1979, page 154, para 2), much has been taken with little return, resulting in great environmental deterioration and extensive climate imbalance, with adverse effects across a lattice of life structures (Cohen. 1997, page 111, para 2) (Munasinghe. 1999, page 90, para 4). Consensus among the scientific community has verified the extent of climate change, evidenced through records of rapidly rising earth temperatures. By 2017, a land and sea temperature rise of approximately 1°C above pre-industrial levels was recognised, supported by consistent documentation of above average temperatures, traversing landscape and season. (Masson-Delmotte et al. 2018, p51, para 2). The recognition of this human-induced ecological emergency was further endorsed by The Paris Agreement, a global climate treaty established in December 2015 and signed by dignitaries representing 195 countries (Falkner. 2016, page 1107, para 1). The agreement acknowledges the scientific validity of rising global temperatures, the destructive impact of such and the urgent need to mitigate contributing factors, such as greenhouse gas emissions, through a system of international awareness and accountability. (Falkner. 2016, pages 1114-1118).

As the threads of the fashion industry interweave across international sectors, the industry submits significant contributions to pollution, greenhouse gas emissions and subsequent warming. This ecological deterioration is compounded by the industry's prevalent operating system, a linear, take-make-dispose model (see fig. 1). This model operates by extracting substantial measures of non-renewable resources from the natural world, to rapidly create clothing that is briefly worn and discarded to landfill or to be incinerated. This model exists by means of destructive exchange, where profound amounts of natural resources are withdrawn and excess volumes of waste, greenhouse gas emissions, environmental degradation and economic loss are produced (Ellen MacArthur Foundation. 2017, p19).

TAKE

Extract from the Earth's natural resources to generate materials for products.



MAKE

Generate consumer desirable products, further utilizing natural resources.



Katie Day. MDes. 2024

FIG. 1. DAY. 2024.
Graphic representation of the current, linear, Take-Make-Dispose model of operation in the fashion system.

MAKE

growth &
demand driven
rather utilising
resources.



DISPOSE

Dispose of and disregard
products and future
responsibility of products in
their life-cycle.



To frame the impact of this ruinous resource exchange, the fashion and textile industries withdraw non-renewable resources at a measure of 98 million tonnes per year. Meanwhile, the production of garments uses 93 million cubic metres of water and produces 1.2 billion tonnes of greenhouse gas emissions annually (Ellen MacArthur Foundation. 2017, pages 18-20). Waste continues to compound (see fig. 2) as a quarter of fashion resources are discarded as garment cutting waste, while landfill receives an exorbitant 140-million-pound sterling worth of clothing each year (Centre for Sustainable Fashion (CSF) London College of Fashion and Julie's Bicycle. 2019, page 5).

Contemporary lifestyles of consumption are taking from the earth at a rate that exceeds its regeneration, amplifying our disconnection from the natural cycles of our ecosystem. An ecosystem provides enduring sustenance through air, water and soil quality, alongside strengthening balance through evolutionary transformations, while further offering intangible gifts that support psychological wellbeing (Diaz et al. 2019, page 10, para 3). Our ecosystem is deteriorating at our touch, projecting an increase in environmental instability. The consequences are severe and include extreme weather events, increase in global temperature, biodiversity loss, ocean degradation and subsequent land transformations, resulting in collective risks (see figs. 3 and 4). The impact continues, projecting impairment to vital aspects of human life, such as food supplies, fresh water sources, energy systems, housing, and human health (Masson-Delmotte et al. 2018, chapter 3).

Adverse effects of climate change are evident, calling for necessary and urgent change to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels (United Nations. 2015, page 3, para 3). The Fashion Industry has acknowledged the call for urgent system transformation, establishing the Fashion Industry Charter for Climate Action in 2018, in partnership with the United Nations Climate Change secretariat. The charter acknowledges The Paris Agreement's goal to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels and reduce green house gas emissions to net-zero by the latter half of the twenty-first century. To achieve these goals, the charter establishes commitments to: develop emission reduction pathway plans, transition to renewable,

low impact, transparent and traceable material and manufacturing sources, engage in economic discussions about investment needs in support of charter goals and advocate for governments to align with net-zero emission goals, implementing climate action measures at a policy level (United Nations Climate Change. 2021).

Of importance to note is, when considering transition and development for sustainable systems, there is a broad history of academic research covering a plethora of influencing factors, however for the scope of this research, our articulation for sustainable development is drawn from a source of global recognition, the United Nations. Implicit in the 1987 UN commissioned Brundtland Report and explicit in the 1992 UN Agenda 21 report, are three defined pillars of sustainable development, economic, social and environmental (Purvis et al. 2019, page 686, para 4). The purpose of these holistic pillars of sustainable development were later elaborated, "to advance social and institutional development, to maintain ecological integrity, and to ensure economic prosperity" (UN DESA. 2001, page 13, para 2), articulated in the 2001, UN Commission on Sustainable Development, Indicators of Sustainable Development Framework. These understandings frame this body of research's language for sustainable development, recognising holistic sustainable development is the integrative and generative progression of environmental, social and economic evolution.

From this knowledge, it is observed that the 2018 Fashion Industry Charter for Climate Action appropriately recognises logistical, ecological and economic changes needed to transform the fashion value chain. However to holistically develop the charter's goal, further recognition of social development, through the psychological aspects of fashion, is necessary. Recommendations of actions to develop social aspects of sustainable fashion transition are found in the reflection chapter of this research. The pathway onward for fashion system revolution and environmental restoration is a holistic and integrative journey. A passage that synergises connective aspects of wellbeing, weaving together environmental, physical, spiritual, social, mental, and emotional elements of life transitioned throughout layers of time, with moments of urgent action alongside long-term transformative choices.



TOP
FIG. 2. DAY. 2023.
A display of local waste build-up, including fabric pieces, hats, hard materials and household items, old and new.

BOTTOM
FIG. 3&4. DAY. 2023.
Images of the local marine environment of Te Whanganui-a-Tara, Wellington, at risk of enduring ecological devastation under current natural resource-depleting growth-driven societal structures.



1.2 A TRANSITION DESIGN AND SYSTEMS THINKING PERSPECTIVE

Transition is needed to propel the systems and structures of 21st century society towards a sustainable future. A system is described as “an interconnected set of elements that is coherently organised in a way that achieves something.” (Meadows. 2008, page 2, para 1). The term Systems Thinking then offers language to describe and understand the interconnected elements of a whole, that dynamically interact to achieve a purpose. The vocabulary of systems change is also introduced, speaking purely to the exercise of transitioning a system, through constituent element interventions (Hacking. page 1, para 2).

A core systems change theory underpinning this research is Transition Design, an interconnected design-led approach to transitioning complex systems while resolving ‘Wicked Problems’. This open-source framework was developed in 2012 by design researchers associated with Carnegie Mellon University of Pittsburg, USA (Irwin et al. 2015, p10, para 1). Transition Design understands that we currently exist at a crux of societal transformation and proposes long-term design solutions propelled by sustainable, holistically envisioned futures to address the complexities of the modern world. Values of interconnectedness, interdependency (Irwin. 2015, page 230, para 1) and knowledge found within natural ecological systems guide this framework (Irwin. 2015, page 232, para 1).

Four co-evolving areas of knowledge, reflection and action, frame Transition Design (see fig. 5). The areas are: 1.) Vision 2.) Theories of Change 3.) Mindset and Posture and 4.) New Ways of Designing (Irwin. 2015, page 232, figure 2). Vision extends the capacity to create compelling and ever-evolving ideations of what holistic, regenerative futures with high quality of life, could be and feel like. Intention leads creation through action. To create, one must behold in their mind’s eye what they are to create.

Transition Design visions centre upon lifestyle re-imagination, where human needs are met in alignment with the rhythms and boundaries of natural systems, in holistic, local, place-based ways. The process of vision development is malleable and iterative, ripe to evolve upon ever-expanding insights and variability of change. Theories of Change recognises the consistent nature of change, present in complex and powerful natural systems, and proposes the adaptive flexibility within design, to learn from and evolve throughout transition. Mindset and Posture brings awareness to the influence of a designers’ values and beliefs upon design positions and approaches. As designers participate in and live through a process of transition, a practice of critical self-reflection is necessary. Mindset and Posture offers a challenge to consider development of perception, critically asking, through what lens are we seeing? What are the constituent elements that form this lens, what outcomes are produced and to whom is the benefit? Transition Design proposes that societal transitions are facilitated through mindset transformations, encouraging personal reflection and growth among designers to produce thoughtfully considered and critically aware designers for change (Irwin. 2015, pages 233-235).

Emergent from Vision, Theories of Change and Mindset and Posture, are New Ways of Designing. A synthesis of the co-evolving areas of Transition Design, partnered with a long-term or alternative view of time and a commitment to designing with patience and flexibility, to guide the journey towards sustainable future societies. New Ways of Designing involves a skillset of future-based and long-term vision, partnered with a deep understanding of complex human and natural systems and the fluxes of change that occurs within these. Alongside an observance of emergent solutions and the ability to identify, create and practise through connections, is offered through self reflective practice and a commitment to evolve with the process, throughout the passage of time (Irwin. 2015, page 237).

Vision
Holistically envisioned futures

New Ways of
Designing

Holistic application of
Vision, Change, Mindset &
Posture, to design long-
term systems transition



Theories of
Change

Understanding and moving
with dynamics of change,
while guiding shifts at varying
levels of impact (MLP)

Mindset and Posture
Cultivating conscious awareness,
reflection, engagement and education

Katie Day, MDes, 2024

FIG. 5. DAY. 2023.
Graphic depiction of the four
interconnected and co-evolving
pillars of Transition Design.

1.2.1 METHODS OF CHANGE

In order to effect change, frameworks regarding Theories of Change, are to be understood. In the realm of sustainability transition theory, Multi-Level Perspective offers a leading analytical framework that distils the complexities of socio-technical transitions through scale, across time. The theory introduces three levels of nested hierarchical scale and postulates that transition occurs through dynamic interactions in and amidst these levels (Irwin, et al. 2020, pages 73-74).

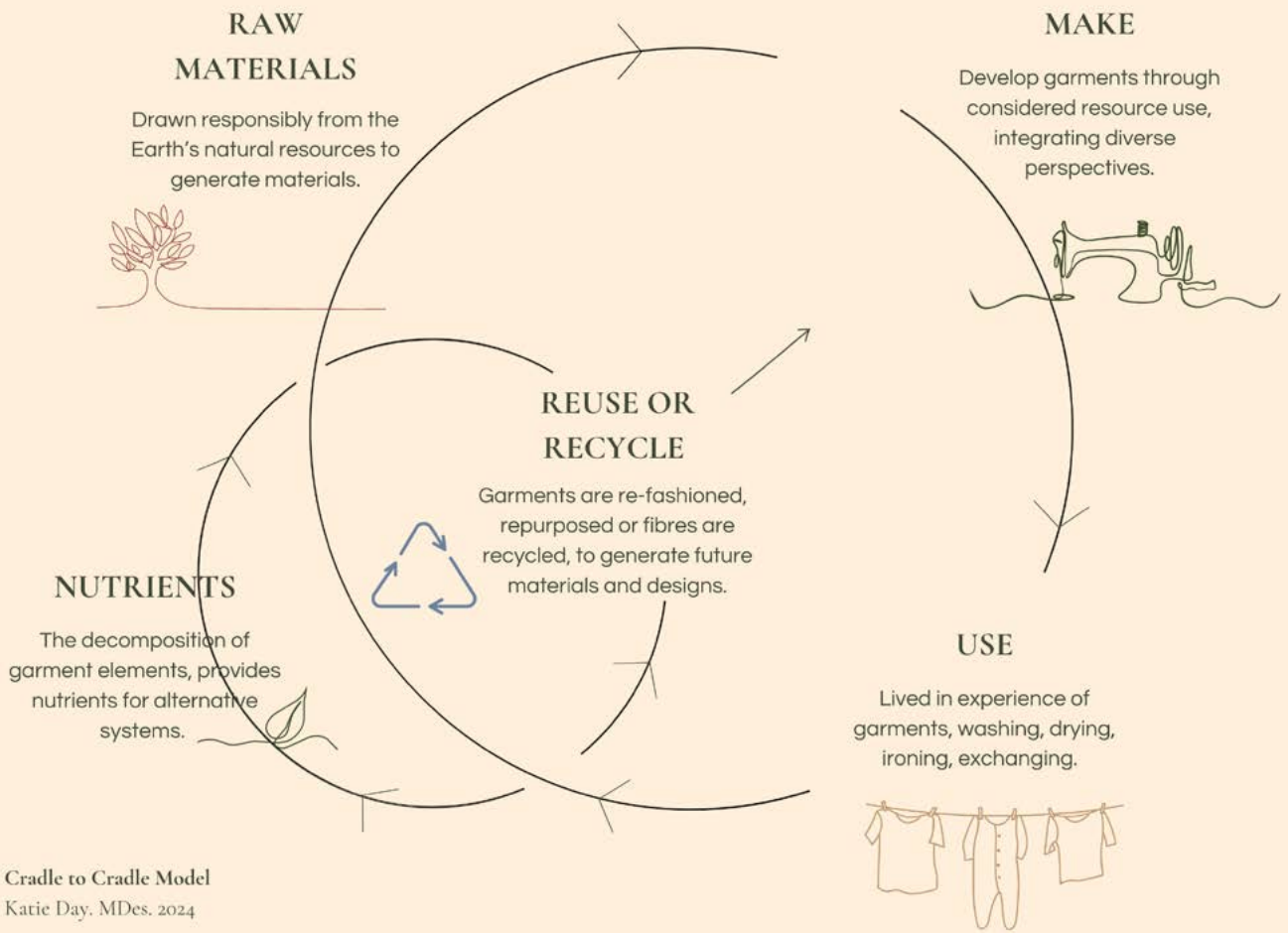
At the micro level are niches, which are 'protected spaces' where innovation, entrepreneurship and experimentation occur. The meso level consists of regimes, the governance, organisations or institutions that regulate behaviours and practices. For change to occur, it is essential that radical innovations developed at the niche level, survive and are diffused within the scale of regime. Established socio-technical infrastructures formulate the macro level of landscapes. Landscapes are vast, slow-moving exogenous structures such as macroeconomics, war and geopolitics (Geels. 2002) (Geels and Schot. 2010) (Kohler et al. 2019, page 4, para 4). As the level of scale increases, stability, structure and span increase, diffusing change at a slower rate. An understanding of dynamics of socio-technical transition through the lens of MLP, can inform the strategic implementation of change at multiple levels of scale, across considered interventions in time (Geels and Schot. 2010) (Irwin, et al. 2020, pages 73-74).

1.3 SUSTAINABLE FASHION SYSTEMS

Throughout the late twentieth and early twenty-first century, sustainable fashion system transformations developed in consideration and momentum, in response to an awareness of increased industry production pace causing environmental harm (Henninger et al. 2016, page 401, para 1). Terms such as eco-fashion, green, ethical fashion and clothing with a conscience were developed giving language for sustainably considered clothing (Hethorn and Ulasewicz. 2015, page xxiv, para 1). Whilst the conversation of sustainable fashion system transformation was governed by core ideas of Cradle to Cradle, Zero-Waste Design and The Slow Fashion Movement.







CRADLE TO CRADLE

Cradle to Cradle, ideated by William McDonough & Dr. Michael Braungart, stands as a circular design framework that gleans wisdom from and replicates patterns found in nature, within the design process (McDonough and Braungart. 2002). Cradle to Cradle is a closed-loop model that follows three principles, 1. Everything Equals Food, 2. Produce with Renewable Energy and 3. Celebrate Diversity (Gullingsrud and Perkins. 2015, page 297, para 1). Within the fashion system, 'Everything Equals Food' considers every constituent element of the garment lifecycle, from design, through the supply chain to post-wear, as offerings of food for alternative systems. Thus inviting a considered making or re-making processes for the designer, as their practices offer interconnected systems nutrients (Gullingsrud and Perkins. 2015, page 298, para 2). 'Produce with Renewable Energy' finds application, articulated in the principle itself, requiring production to be sourced by solar, wind, hydro and geothermal power. Considerations of carbon management and water stewardship, are equally administered throughout the garment lifecycle. (Gullingsrud and Perkins. 2015, page 301). The third principle, 'Celebrate Diversity' acknowledges the ways environmental, social and economic diversity provides strength and resilience to a system (Toxopeus, M. E., et al. 2015, page 385, para 5). To observe this circular model applied to fashion, see figure 6.

An example of Cradle to Cradle within the fashion industry, is presented through the Blue suit, a small Italian-based fashion label. The Blue suit, in collaboration with the Circular Clothing Cooperative of Switzerland, have applied a Cradle to Cradle model within their fashion business, gaining Switzerland's first Cradle to Cradle clothing certification (EPEA Switzerland. 2022, para 2), through the meticulously considered design process of their 2022 Black Denim collection. A collection that offers a tailored Black Denim three-piece suit, comprising a jacket, waistcoat and pants. The diligent process to certify said collection, was gained through the Cradle to Cradle Products Innovation Institute, who asses five core areas of circularity: Material Health, Product Circularity, Clean Air & Climate Protection, Water & Soil Stewardship and Social Fairness (Cradle to Cradle Products Innovation Institute. 2021, page 3, para 1).

The three principles of Cradle to Cradle can be recognised in this assessment, as 'Everything Equals Food' being applied through the criteria of Material Health and Product Circularity, 'Produce with Renewable Energy' applied through Clean Air & Climate Protection and Water & Soil Stewardship and 'Celebrate Diversity' through Social Fairness. Each stage in the Black Denim collection's process of creation, from material sourcing to production methods, were audited in alignment with the five areas of assessment to gain certification.

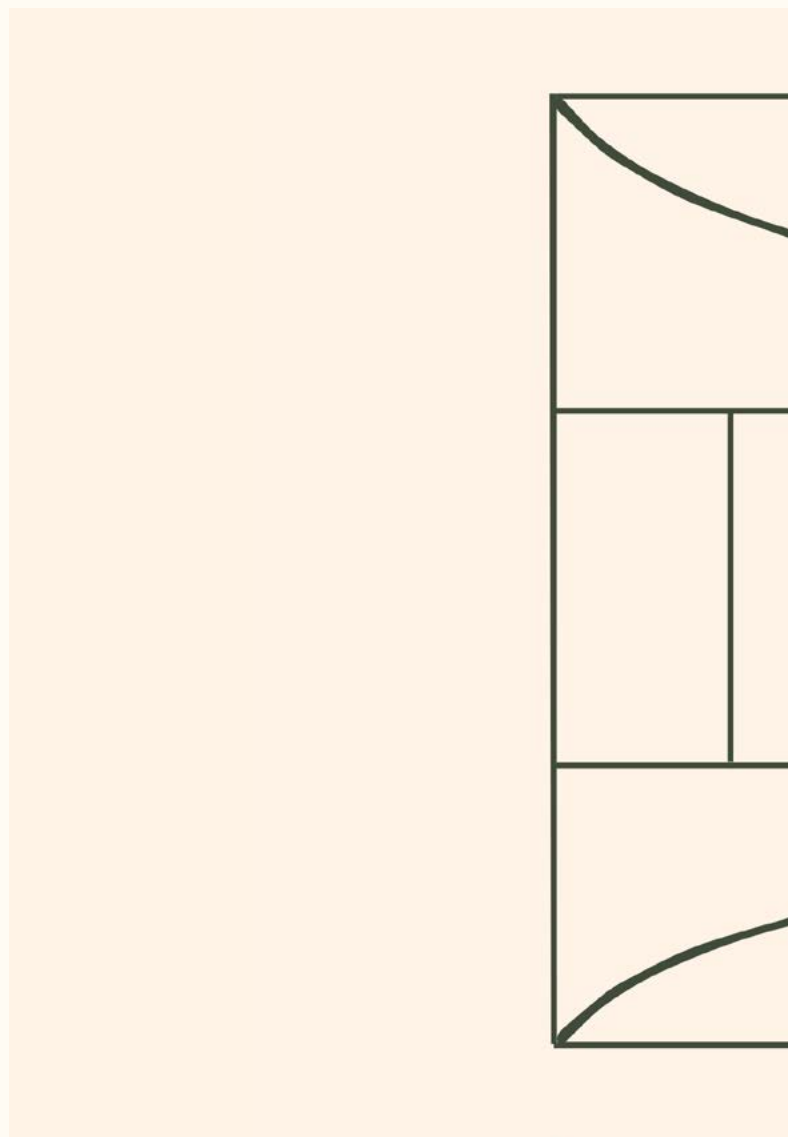
Material development and sourcing occurred locally between Italy and Switzerland, as the black denim for the garments outer panels were generated in Italy, without use of toxic chemicals, producing a biologically safe material. While the garment's lining was sourced from Swiss, Cradle to Cradle Certified company OceanSafe, in support of circular processes and safe biodegradability, engaging with renewable energy sources and offering food for other systems when composted (Circular Clothing. 2022, para 3). Though production steps are not explicit, what can be garnered is that designs were developed by the Blue suit co-founder's Karen Rauschenbach and Yvonne Vermeulen alongside an employed patternmaker, Luca. Designs inspired by the tailoring tradition of Northern Italy, were created to comprise values of timelessness, quality and care for fit, giving attention to the longevity of the garment's lifespan. The designs were then materialised through small family-run production companies in Italy, where attention was given to traditional tailoring techniques, for a highly detailed quality of make for the garment and quality of life for the maker, addressing social fairness (the Blue suit GmbH. 2023). Thus illuminating a Cradle to Cradle approach throughout a fashion design process, however there is more information to be sought about the full scope of this approach, that can only be distinguished with rigorous observation over the breadth of the garments lifetime and beyond.

FIG. 6. DAY. 2024.

Graphic visualisation of the circular Cradle to Cradle model, applied to a fashion system process.

FIG. 7. DAY. 2024.

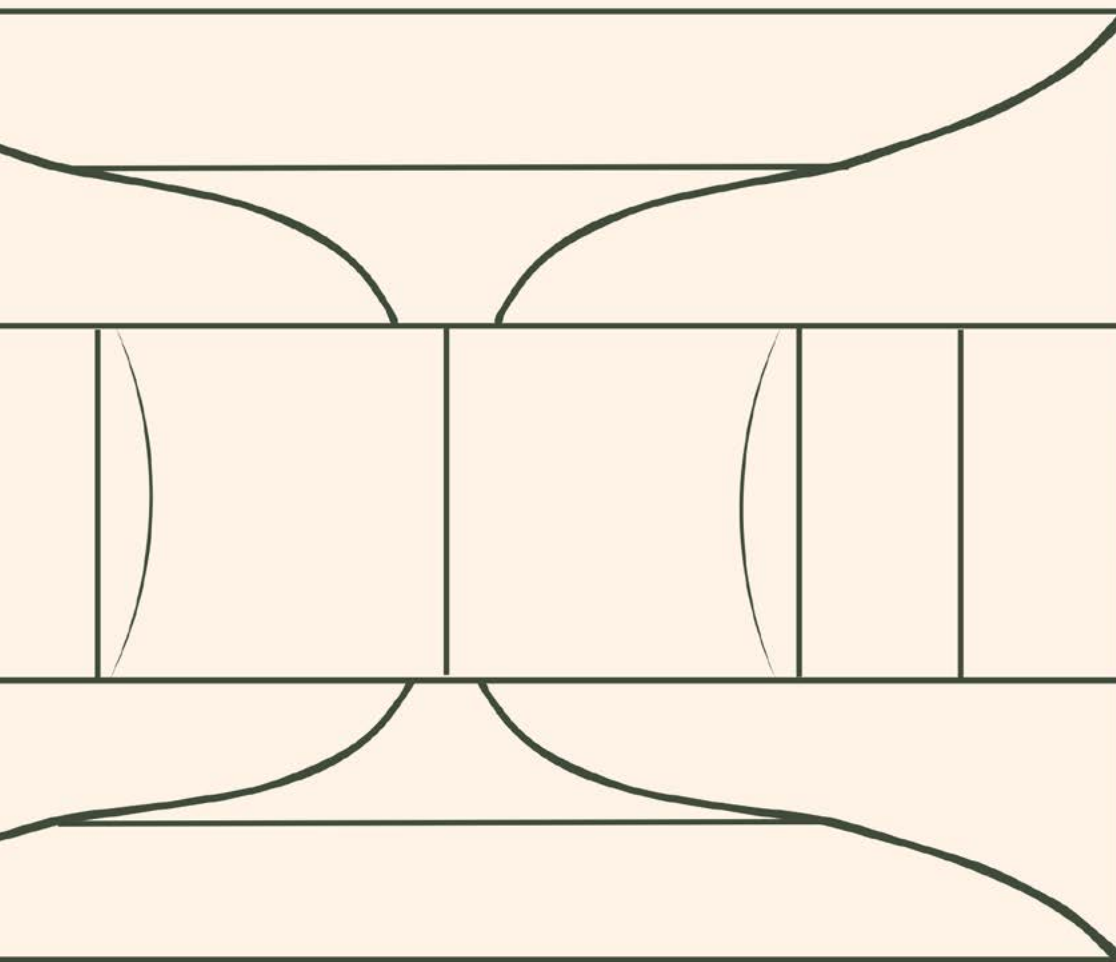
A Zer0-Waste pattern lay designed by Katie Day, for an everyday-wear top, with the rectangle representing the length of fabric and the lines representing cut lines of the garment pieces.



1.3.2 ZERO-WASTE

Zero-Waste design echoes the circular process of Cradle to Cradle, in a closed-loop practice of by-product re-integration and material reuse (Palmer. 2001, page 259, para 10). Chemist and innovative recycling theorist, Paul Palmer, articulated Zero-Waste theory and practice in the early 1970's, founding Zero-Waste Systems Inc. (Palmer. 2001, page 259). Several decades later, throughout the early 2010's, Zero-Waste thinking found application within fashion design research, being defined as designing a garment with no fabric waste. However, a holistic view of zero-waste garment design further incorporates lifecycle consideration, through designed garment-disposal delay. (Rissanen. 2013, page 14, para 1). The Zero-Waste creation of clothing is no new phenomena however, as fashion history offers extensive documentation of minimal-waste garments, across cultures and time (Rissanen. 2015, page 187, para 1).

Rissanen articulates Zero-Waste design considerations, gathered from historic garment references, to provide a pathway forward for contemporary sustainable design. The three areas of consideration are: Fabric, Pattern Design and Garment Design. Fabric recognises the idea that the full width and length of the fabric composes the garment, thus no waste is produced (see fig. 7). Attention is given to fabric width, to determine how pattern pieces may be developed in accordance. Pattern Design refers to the method of configuring geometric shapes on a fabric length to produce garment forms. Through cut, fold, slash and interlock techniques, two dimensional pattern lays are transformed into three dimensional garment form. Garment Design then elaborates considerations, examining multiple garment interaction through fabric yield optimisation, alongside aesthetic development. Optimisation identifies ways a fabric length can house multiple garment pattern pieces,



meanwhile aesthetic considerations apply textile design to fabric, offering cohesive differentiation within a single piece of fabric, to separate garment pieces (Rissanen. 2015, pages 187-198).

The conversation and practice of Zero-Waste fashion design continues to progress throughout fashion design education and small business practice, advanced by a vanguard of Zero-Waste fashion design theorists and practitioners including Holly McQuillan and Timo Rissanen. A McQuillan-led research project, Make/Use, developed in partnership with Massey University and Objectspace of Auckland, New Zealand, exemplifies zero-waste in practice. The Make/Use project offers an accessible pathway for users to engage with Zero-Waste fashion design through an open source, participatory design model for making user-modified Zero-Waste fashion (McQuillan. 2018, para 1). The project engages technologies of parametric matrix

with textile print, to form an embedded textile guide for the user, that deepens their functional understanding of the make of a garment and how it can be modified. This allows the user to develop engagement and agency with their garment through understanding and personal modification, while also enhancing emotional connection to support the enduring life of the garment, through guides for future modification and repair (McQuillan et al. 2018, page 8, para 1). The Zero-Waste Make/Use model admirably addresses multiple levels of scale within their approach, melding universal transformation alongside the individual. The environmental impact of the fashion system's current modus operandi is identified and posed a challenge, through offering an open-source framework, democratising sustainable garment creation and skill development, additionally supporting individual transformation through intuitive garment understanding.

1.3.3 SLOW FASHION

While the Cradle to Cradle and Zero-waste models address fashion's sustainability from a waste-eliminating, circular production lens, The Slow Fashion Movement extends this view to an interconnected systems perspective, addressing the environmental and social costs of fashion within present structures of a consumer-capitalist, pro-growth society (Fletcher. 2010, page 262, para 1). Sustainable fashion theorist Kate Fletcher articulated a Slow Fashion framework in 2010, challenging the aforementioned growth-driven economy in which, scale of production is maximised while cost is minimised, as time pressure is applied for increased material output, occurring at the cost of social and environmental wellbeing (Fletcher. 2010, page 261, para 1). Fletcher proposed Slow Fashion as systems change through a shift in worldview, with values derived from Slow Culture's philosophy of pleasure proceeding from awareness and responsibility (Fletcher. 2007, para 6). Further distinction for Slow Fashion's guiding principles was drawn from Slow Culture's value given to quality (see fig. 8), skill and democratisation, while biological and cultural diversity is protected (Fletcher. 2007, para 6). Fashion theorist, Hazel Clark, validates Slow Fashion's philosophies of awareness, responsibility and quality highlighting local resources, transparent production and sustainable and sensorial high quality products, as core aspects of 'Slow and Fashion' (Clark. 2019, page 311, para 3). The Slow Fashion model requires an unlearning of the prevalent linear system of growth, in partnership with renegotiated values of success, to promote an operating system reflective of ecological systems dynamic state of balance, supporting holistic conceptions of wellbeing. In this fashion system renegotiation, Clark furthermore elevates concepts of women's wisdom, embracing feminine qualities of compassion, empathy, gentleness and community in the development, care and re-use of clothing (Clark. 2019, page 314, para 1).

Upholding Slow Fashion values within small business practice, is design studio, Study NY, founded by Tara St James in 2009. Study NY exemplifies qualities of awareness, responsibility, quality, diversity & community, while operating outside of given structures of the fashion industry, generating garments at a considered pace, in opposition to the traditional fashion calendar (Study NY. 2013, para 3). Awareness and responsibility are demonstrated through transparency throughout production and supply chain processes, Zero-Waste fashion design techniques, open-sourcing of industry contacts, and consumer education on sustainable practices and the craft of making (Rissanen. 2015, page 199). As Study NY creates a transparent dialogue with their customer, awareness and responsibility surrounding the garment life cycle is increased. Slow Fashion's values of quality, diversity and community, are equally developed through the design studio's collaboration with artists and textile designers, alongside ensuring production occurs through local manufactures and small fair trade textile mills. Whilst, quality and longevity are supported through informed design, facilitating wearer-experience through personalisation (Rissanen. 2015, page 199). Study NY demonstrates this with attention given to a diverse community of suppliers, makers and producers, a transparent, fair and alternatively paced model of fashion can occur.

FIG. 8. DAY. 2024.

A local maker demonstrates slow fashion values of quality, locality and awareness, pressing their tailored, hand-made garment in the home.







SUMMARY

Cradle to Cradle, Zero-Waste and Slow Fashion have contributed generative models towards fashion system transformation, while each accentuating differing areas of sustainable development as defined by the UN (UN DESA. 2001, page 13, para 2). The Cradle to Cradle model emphasises the environmental aspect of sustainable development, providing the fashion system with an evidenced guide towards circularity and environmental sustainability. Meanwhile, Zero-Waste echoes environmental development, through practices that reduce environmental injury by way of scrupulous garment-waste reduction within the production and wearing phases of the garment life cycle. Both offer revitalising systems addressing the environmental aspect of sustainable development, however, as systems-thinking perspective's illuminate, a system is formulated by the organisation of parts (Meadows. 2008, page 2, para 1), and with the understanding that the UN's defined areas of Sustainable Development extend beyond environment, to include social and economic maturing, it would be apt to propose that a holistic system requires the integration of social, economic and environmental sustainability processes, in its development of dynamic harmony. Here, a space for reflection, development and integration is invited. To beckon the collaboration of aforementioned models, alongside other designed models which elevate social sustainability, such as Slow Fashion through the principals of awareness and responsibility (Fletcher. 2007, para 6) and models propelling expertise in appropriate economic development within planetary boundaries. The collaboration of such models may collectively clarify a holistic pathway forward. A pathway that sustains a fashion system flourishing in integrated states of development, environmental, social and economic.

With a foundation laid, establishing understanding of the sustainable fashion systems currently operating and contributing to change, let us now cast our vision towards ideations of holistic fashion futures. The visions of which will guide long-term transition. When envisioning fashion futures, a core framework takes precedence among the literature, forming foundations from which many associated theorists reference. The framework of reference is The Earth Logic Action Research Plan, generated in 2019 by sustainable fashion theorists of distinction, Kate Fletcher and Mathilda Tham. In essence, Earth Logic is a framework of values and actions compiled to address the current state of 'growth-logic', in which Western systems are propelled by economic growth, and proposes a direct challenge, to shift centres from growth as priority, to Earth stewardship as the priority of these interconnected systems (Fletcher and Tham. 2019, page 14, para 1).

Fletcher and Tham express their mission, "to call out as fiction the idea that sustainability can be achieved within growth logic and instead to 'stay with the trouble' of envisioning fashion connected with nature, people and long term healthy futures." (Fletcher and Tham. 2019, page 14, para 1).

Earth Logic stands on the foundational understanding of the limited time available, approximately ten years, to avert catastrophic climate devastation (Fletcher and Tham. 2019, page 16, para 2) and that a radical reduction in resource-use is needed, inviting revolutionary systems change. (Fletcher and Tham. 2019, page 14, para 2). A systems change, centred on the aforementioned values shift from growth prosperity to Earth prosperity, while considering the environmental, social and economic aspects of sustainable development (Fletcher and Tham. 2019, page 14, para 3).

Earth Logic proposes system transformation through the mode of paradigm shift, a core shift in the purpose of a system, addressed through mindset and value (Fletcher and Tham. 2019, page 32, para 2). Earth Logic further offers a fashion system purpose, to uphold the health and wellbeing of the planet above economic growth (Fletcher and Tham. 2019, page 16, para 2) and invites those aware and willing, towards the complex task of living in connection with each-other and our injured planet (Fletcher and Tham. 2019, page 21, para 3). Here, values of care and maintenance are elevated, in opposition to growth and accumulation (Fletcher and Tham. 2019, page 24, para 4). As the Earth Logic Action Research Plan is

guided by the essential speed and extent of systems change needed, eight specific values underpin proposed transformation, these are as follows: Multiple Centres, Interdependency, Diverse Ways of Knowing, Co-Creation, Action Research, Grounded Imagination, Care of World, Care of Self (Fletcher and Tham. 2019, page 27, para 1).

Multiple Centres offers an additional paradigm shift, through a shift from an anthropocentric, single human-centred focus, to a plural focus with diversified centres of attention. Here, a multiplicity of perspectives are included in considerations, specifically non-human and non-western perspectives (Fletcher and Tham. 2019, page 32, para 1). Furthermore, a sensitive awareness is given to intersectionality - the interconnected systems of inequality and dynamics of power (Cho et al. 2013, page 778, para 2) - to provide a paradigm shift where a multiplicity of voices are acknowledged and celebrated (Fletcher and Tham. 2019, page 32, para 1), this value offers a reflection of what is recognised in nature through biodiversity, that diversity brings stability and resilience (Tilman. 2006, page 631, para 2).

Emergent and inseparable from Multiple Centres is the value of Interdependency. As Multiple Centres invites a diversifying of scope, Interdependency is concerned with the quality of connections within this diversity. When considering connections, Interdependency further understands the ripple effects of interactions upon each connection within the system, alongside broader aspects of the system (Fletcher and Tham. 2019, page 33, para 2). Thus inviting researchers to extend beyond isolated partitions of knowledge and to connect, engaging as active participants within an Earth Logic considered system (Fletcher and Tham. 2019, page 33, para 3).

Also in accordance with Multiple Centres, Diverse Ways of Knowing acknowledges the abundant multiplicity of knowledge sources to engage with, in developing generative change. These knowledge flows span from direct experience, to Indigenous knowledge, to artistic inquiry and extend beyond (Fletcher and Tham. 2019, page 34, para 1). Through the diversity enacted by values of Multiple Centres and Diverse Ways of Knowing, an Earth Logic system is offered continual resilience and increasing stability (Fletcher and Tham. 2019, page 34, para 1).

As a foundation of resilient diversity and connectedness is established, the value of Co-Creation applies action to philosophy. Co-Creation

encourages the development of a collaborative skillset, including skills of listening and connective dialogue, whilst enhancing the quality of connections through care. As an environment of understanding and trust is developed, safety is increased to support creative risk-taking, generating an emergence of new ideas and movements to offer systems transformation (Fletcher and Tham. 2019, page 34, para 2). In extension, the value of Grounded Imagination highlights the collaborative creative problem solving capacities of the imagination and its essential role in visualising the impacts of actions on the interconnected whole (Fletcher and Tham. 2019, page 35, para 1).

The value of Care of the World speaks to the core paradigm shift of Earth logic, to give care and consideration to the Earth and her inhabitants, non-human and human alike, uplifting Earth-care above the value of economic growth (Fletcher and Tham. 2019, page 36, para 1). With emphasis given to care, qualities of nurture, growth, maintenance, continuity, responsibility and repair arise, alongside contextual considerations of community and local environmental care (Fletcher and Tham. 2019, page 36, para 1). Once more affirming the relational, connection-concerned underpinnings of an Earth Logic system (Fletcher and Tham. 2019, page 36, para 3).

Care for Self concludes the Framework's eight values, extending increased relational awareness observed through Care of the World, to an empathic awareness of self within the processes of urgent system transformation (Fletcher and Tham. 2019, page 37, para 1). Care of Self acknowledges the measures of loss and grief that occur through rapid transition and gives attention to the maintenance of internal support and resilience, required for all community members to move through manifold change and conflict involved in transitioning systems (Fletcher and Tham. 2019, page 37, para 4). Further emphasis of care is given to strengthening relationship resilience in transition as Fletcher and Tham speak to creating a whole space within relationships, that host both difficulty and delight, "There needs to be space for voicing difficult feelings as well as celebrating life, humour and having fun." (Fletcher and Tham. 2019, page 37, para 4).

With the eight values of the Earth Logic Action Research Plan observed, the framework proceeds to detail considerations for the accountability and guidance of the practitioner-researcher. These parameters of accountability condemn actions

of individualism, homogenous approaches, the withholding of knowledge and the pursuit of perfection (Fletcher and Tham. 2019, page 39). Whilst uplifting actions of collaboration, diverse ways of knowing, multiplicity of approaches and grounded action in the 'real world' (Fletcher and Tham. 2019, page 39).

Upon establishing core motivation, paradigm shift, value set and accountability parameters, Earth Logic outlines six holistic landscapes for urgent system transformation. As the landscapes of change are holistic in nature, they can be interacted with in varying degrees and compositions for the differing needs of various communities (Fletcher and Tham. 2019, page 41, para 2). The first trio of fashion landscapes address actions of fashion and are as follows: 1. Less, Grow out of Growth, To recenter and minimise our consumption behaviours, giving value to quality over quantity (Fletcher and Tham. 2019, page 43, para 1). 2. Local, Scaling, Re-Centring, To decentralise power through embracing localism, in which diverse ecosystems and communities are acknowledged and local resources, knowledge and connections are engaged with (Fletcher and Tham. 2019, page 48, para 1). 3. Plural, New Centres for Fashion, The decolonisation of fashion through acknowledging diversity of voices, elevating marginalised voices and acknowledging the multiplicity of ways of creation and perception within fashion (Fletcher and Tham. 2019, page 52, para 1).

The latter three holistic landscapes address the modes of creation, continuation and assessment of Earth Logic and are as follows: 4. Learning, New Knowledge, Skills, Mindsets for Fashion, The unlearning of growth logic and a developed understanding of competencies of care within Earth Logic (Fletcher and Tham. 2019, page 56, para 1). 5. Language, New Communication for Fashion, To develop a new language in association with fashion, transitioning the language paradigm from production and consumption, to creation and care (Fletcher and Tham. 2019, page 60, para 2). 6. Governance, New Ways of Organising Fashion, The organisation and governance of an Earth Logic fashion system in response to climate change, democratising fashion practices by the dispersion of power throughout local latticeworks, with relationship cultivation as an underpinning guide for the development of governing structures (Fletcher and Tham. 2019, page 64).

Earth Logic provides a deeply considered and applicable framework for fashion system

transformation and establishes clear vision and guiding values for fashion futures, in which the Earth and her sustained care are the central premise. These considerations offer practitioners and researchers of fashion sustainability and transition a collective framework to integrate and build upon with haste.

One year prior to the release of *Earth Logic* in 2019, Fletcher and Tham, alongside peers Lynda Grose, and Timo Rissanen, formed the Union of Concerned Researchers in Fashion (UCRF), to gather a global community of voices raising the alarm of destructive fashion practices, whilst advocating for and ideating urgent systems change (UCRF. 2022, para 2). In connection with this collective, aligned concerned researchers continually contribute their evaluated understandings to the collective picture of holistic fashion futures. One such researcher, designer and educator of fashion systems is Jennifer Whitty. Whitty expands considerations of *Earth Logic*, contributing theories of Time and Place, alongside a deep respect for the listening and guidance of Indigenous Knowledge. Whitty distils 'growth logic' to a root cause of colonisation (Whitty. 2021 a, page 357, para 1) and postulates the critical decolonisation of the fashion system, calling for the necessity to be guided by Indigenous Knowledge, grounded in interdependency with the Earth (Whitty. 2021 a, page 364, para 3) and non-linear conceptions of time and place (see fig. 9). Accompanied by the rewilding of fashion space, to reform our relationship with fashion, offering transition from the linear and destructive take-make-dispose model toward evolving systems of interconnections, interdependency and regeneration. Moreover, evoking a move from linear singularity of visual fashion culture, to non-linear plurality of the experience of fashion through multiple sources (Whitty. 2021 a, page 366). Whitty further contributes knowledge and application of Systems Thinking, Transition Design and The Four Orders of Design, towards active fashion system transformation. Her contributions emphasise the understanding of systems mapping, transition dynamics, re-centring relationship and the value of feedback rich loops in the transitioning and co-creating of an interconnected, generative fashion system (Whitty. 2021 b, page 19).

Whitty offers, "Fashion needs a period of radical change that systems thinking can bring in order to remain relevant in the twenty-first century, to move away from a linear economy towards an inclusive, circular, regenerative economy, based on feedback-

rich flows. The future of the fashion system is ripe for new models of practice that transform the dominant logic of all our relationships and experiences between designer, producer and people." (Whitty. 2021 a, page 370, para 3).

Further contributing to the body of knowledge ideating holistic fashion futures through Systems Thinking is UCRF co-founder, fashion sustainability researcher and Zero-Waste practitioner, Timo Rissanen. Within a 2017 manifesto on 'Possibility in Fashion Design Education', Rissanen reconsiders the fashion system alongside fashion design education, contributing theories of plurality, the immensity of possibility and designing for human need in future system renewal (Rissanen. 2017, page 528, para 1). Here, *Earth Logic*'s value of plurality and localism finds resonance, with Rissanen encouraging the development of micro-utopias that offer pluralised adaptability and co-ideated possibility, to re-imagine and apply localised system transformations, generated within the fashion classroom (Rissanen. 2017, page 532, para 3). Resonance is also found with Whitty's considerations of reconsidered time and place, with Rissanen advocating for a non-linear conception of time, proposing time as flow, cyclical and layered in the ideation of fashion futures (Rissanen. 2017, page 533, para 2). Rissanen further aligns with *Earth Logic*'s principle of multiple centres and collaboration, proposing that future fashion designers may be collaborative co-designers with psychologists, scientists, politicians, business analysts and more, designing to satisfy fundamental human needs (Rissanen. 2017, page 536, para 2), as drawn from Max-Neef's theory of human need (Max-Neef. 1992, page 199, para 3). Rissanen concludes his manifesto, proposing the immensity of possibility and imagination in ideating fashion futures, emphasising the ideas of letting go of the past and what's conceived possible to ideate the future (Rissanen. 2017, page 543, para 1).

Rissanen articulates, "Critical systems analysis, combined with unconstrained, courageous imagination, facilitates re-imagining fashion systems." (Rissanen. 2017, page 543, para 1).

DESIGN PRECEDENTS

Nestled within local communities and global organisations are designers integrating models of holistic fashion futures that are earth-centred, collaborative and local, while activating modes of operation outside of the linear take, make, waste model. Two designers of example, at differing levels of scale are: small-scale Aotearoa, New Zealand designer, Harry Were and upper mid-scale, United States of America design label, Christy Dawn.

Harry Were, Tamaki Makaurau based designer, runs a small clothing business that demonstrates a holistic model of fashion within industry through values of relationship, localism, collaboration, quality over quantity, differing conceptions of time and Earth-care. Were works collaboratively with local makers around Aotearoa, New Zealand, including a team of hand-knitters who craft jumpers that have been designed by Were (Harry Were. 2023 a, para 2).

Were reflected, "I am forever grateful to the talented women who knit for me." (Harry Were. 2023 a, para 3).

The garments designed and collaboratively made, display value for quality over quantity, highlighting elements of craft such as hand-smocking, embroidery (see fig. 10) and knit, and are frequently developed from up-cycled fabrics such as old duvets, sheets or fabric waste (Harry Were. 2023 b), further emphasising a value for Earth-care through methods of waste reduction and localism. Were proceeds to challenge the prevalent modes of time within 'growth logic' industry, operating on a timeline that aligns with the social sustainability of the makers, sitting outside of the frame of the fashion calendar (Harry Were. 2023 b), thus displaying a relational model of collaborate, make and appreciate, by engaging locally, with a skill-celebrating, time respectful and connective approach.

At an increase in scale, international fashion company Christy Dawn of the United States of America, focuses primarily on Earth-care in their pursuit of fashion's transformation, operating as an industry leader in regenerative practices. Through their farm to closet model, long-term thinking and investment, by means of relationship, time and finance is applied to the cultivation of regenerative farms in Erode, India (Christy Dawn. 2023, para 8). In partnership with local farmers and crafters of the Oshadi Collective, cotton is produced on the regenerative land, which is then ethically transformed into artisanal high quality garments, featuring block printed florals and hand-loomed cottons (Oshadi. 2023, para 8). Thus demonstrating pioneering efforts of Earth-care, collaboration, quality made garments and globally connected localism, in relation to scale.

Aras Baskauskas, Chief Executive Officer of Christy Dawn presents his perspective on the language of regeneration, "The word sustainable is like a dinosaur now... What are we trying to sustain - the fires, the tornadoes, the mass extinction? We don't need to be sustainable, we need to be regenerative." (Baskauskas in Farra. 2020, para 1).

Both design companies exhibit radical changes that can be made at differing levels of scale and in differing areas of Earth-honouring fashion transformation.

Together, these key theorists and practitioners amidst an interconnected network of others, generously offer thought to the growing body of holistic fashion futures, illuminating core theories of Earth Logic, Time and Place, Immensity of Possibility and Design for Human Need, while also calling attention to sub-theories of vision, localism, collaboration, mindset shifts, multiple centres, interdependency, diverse ways of knowing, imagination, quality, relationship, multiplicity of approaches, skill development, grounded action in the 'real world' and care - in all regards of the word. Together, these threads form a versatile web that offers structure to both the pathway of transformation alongside the emerging vision and grounded reality of a holistic future fashion system.

FIG. 9. NG. 2022.

Designer re-imagines conceptions of time while viewing local artist, Simon Morris' 'Room of Time', in the City Gallery Wellington Te Whare Toi, 2022.





FIG. 10. DAY. 2023.
The black cushion represents a display of a hand-embroidered textile. A technique employed by Tamaki Makaurau based designer, Were.



FIG. 11. DAY. 2022.
A flourishing Kowhai tree, representing Christy Dawn's contributions to flourishing and regenerative agriculture through their global fashion company.

PART ONE

Contextual Review A Consideration of Holistic Fashion Systems

CHAPTER TWO

The Human Experience

The Human Experience

2.1 THE PSYCHOLOGY OF HUMAN EXPERIENCE AND NEED

To draw in from an expansive bird's eye view, where interconnecting parts of a whole are seen at an expanse, and to step closer, is to consider; Who are the ones interacting with these multiplicity of systems? Here we recognise human beings as creators and engagers of such systems and to take a further step, we may consider; To what purpose are they interacting with these systems? In these considerations, it is observed that human behaviour is propelled by need satisfaction (Kamenetzky. 1992, page 181, para 1). When considering system transformation, understating key participants in the systems, humans, and their needs, motivations and experiences, provides context for positive holistic transformation, in which human needs are met with satisfiers that are held within planetary boundaries. Within this chapter I explore established theories of human need, how human needs are being considered and met through design, and are being integrated within fashion design. Through understanding these aspects of the human experience, we may observe a pathway toward a holistic fashion model in which human needs are being engaged within planetary boundaries.

Contemporary models of human need are drawn from foundations developed across the 20th century. Of these foundations, four distinct theories have gained considerable volume, Maslow's Hierarchy of Needs (Maslow. 1943), Doyal and Gough's Theory of Human Needs (Doyal and Gough. 1984), Max-Neef's Matrix of Human Need (Max-Neef. 1992) and Ryan and Deci's Self-Determination Theory (Ryan and Deci. 2000).

In 1943, Abraham Maslow, a psychologist of the United States of America (Britannica. 2023, para 1), proposed a foundational theory of human need. Maslow posited human needs through a hierarchical framework of prepotency (Maslow. 1943). This hierarchical framework was visualised in pyramid format, establishing five ascending areas of need (McLeod. 2007, para 1). At the foundation of the pyramid, with highest prepotent value, stands 'Physiological Needs' composed of all necessary elements needed for human biological survival, such as food, shelter, sleep and warmth (Maslow. 1943, page 372, para 2). Once physiological needs are fulfilled, a second tier of needs emerges, of which the human is motivated to satisfy. These are the needs of 'Safety', such needs include, social structure, consistency, security and physical or health assurance (Maslow. 1943, page 379, para 1). In ascendance from, and with the satisfaction of physiological and safety needs, emerge social needs, otherwise referred to as the 'Love Needs', which recognise the needs for love, affection and belongingness. Such needs consist of friendship, companionship and the giving and receiving of affection and understanding (Maslow. 1943, page 381, para 1) and when fulfilled give rise to the needs of 'Esteem'. Esteem needs hold dual aspects, to hold esteem for oneself and to be esteemed by others (Maslow. 1943, page 381, para 4). Once each precursory need has gained satisfaction, the conclusive need of 'Self-Actualisation' arises. The essence of Self-Actualisation is found in the name, addressing the need to be actualised or fulfilled in one's personal potential, Maslow expands on this epitomised need, "This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming." (Maslow. 1943, page 382, para 4). The five tiers of human need signify Maslow's initial findings, which found evolution with time, to include

a further three tiers, with two tiers succeeding Esteem needs, being: Cognitive - The need for knowledge and understanding, and Aesthetic - The need for beauty and visual composition (Maslow. 1970, page 51). One further need surpassed the need of Self-Actualisation, to sit atop the pyramid, being the need of Transcendence, to extend beyond oneself into mystical, spiritual or scientific experiences (Dover. 2016, page 6, para 1) (McLeod. 2007). In addition to the theories' evolution, was the acknowledgement of the flexible interplay of needs, in which the positioning of needs is flexible, based on an individual, while also acknowledging that human behaviour can be motivated by a multiplicity of needs (McLeod. 2007).

Maslow's research introduced a revolution in the perception and language of human need, from which further theoretical frameworks found formation, such as Doyal and Gough's Theory of Human Needs presented in 1984. Philosopher, Doyal and Political Economist, Gough collaborated to establish a philosophically grounded theory of human need (Dover. 2016, page 6, para 4). The associates philosophised a hierarchical, albeit unlike Maslow's, model of human needs, in which two Universal Goals flow through to dual Basic Needs then onward to multiple Intermediate Needs (Gough. 2014, page 6, para 2). Universal Goals are positioned atop the hierarchy of needs, by which Basic Needs and Intermediate Needs flow towards. Universal Goals are defined by two motivations, the desire to avoid harm alongside the motivation to be social participants (Gough. 2014, page 7, para 1). To then extend needs understanding beyond the umbrella of Universal Goals, two Basic Needs emerge, the needs for physical health and personal autonomy (Doyal and Gough. 1984, page 10, para 1). Once physical health and survival, alongside personal autonomy are ensured,

Universal Goals of harm avoidance and social participation can be maintained as Gough explains, "Autonomy presupposes interdependence." (Gough. 2014, page 10, para 2). The fulfilment of the Basic Needs of health and autonomy are then advanced into Intermediate Needs, which identify eleven categories that span from nutritional food and water to appropriate housing, health care, education and economics (Gough. 2014, page 14, para 1). Through understanding Doyal and Gough's categorised needs, we observe the flow of need satisfaction to reach Universal Goals, as the meeting of Intermediated Needs are prerequisite for Basic Needs satisfaction, which precedes Universal Goal's fulfilment. In addition, Theory of Human Need casts a net in which the proposed hierarchy of needs are to be maintained, observing four universal societal preconditions for meeting Basic and Intermediate Needs, such preconditions are, production, reproduction, cultural communication and political authority (Doyal and Gough. 1984, page 10, para 3). Thus offering a conceptual expansion for this hierarchical model. Furthermore, though the flows of need satisfaction are tiered, Doyal and Gough propose opposition to Maslow's Hierarchy of Needs, acknowledging the interwoven propensity of human need, giving recognition to the universal nature of needs and the contextual provision of satisfiers. The theorists further assert a theory of need interconnections, positing that an individual is in no separation from society, with the observance of societal preconditions, necessary for need fulfilment (Doyal and Gough. 1984, page 11, para 1).

While Maslow, alongside Doyal and Gough propose hierarchical models of human need (see fig. 12), Manfred Max-Neef, Chilean Economist opposed such assertions, introducing a Matrix of Human Need upon the conclusion of the 20th century (Max-Neef. 1992, page 206). Within economic

theory, human needs were introduced, as an interconnected system without hierarchy, as Max-Neef postulates that needs, satisfiers and economic goods are in a continuous relationship of dynamic change (Max-Neef. 1992, page 204, para 7). Further suggesting that needs are a fundamental aspect of human experience that are ever present, however the satisfaction of which varies, dependent on culture and context (Max-Neef. 1992, page 204, para 3). The formation of the human needs matrix follows an initial differentiation of two categories of need, existential and axiological, allowing for a demonstration of need interaction (Max-Neef. 1992, page 199, para 3). The existential classifies four states of need: Being, Having, Doing, and Interacting, while the axiological presents fundamental needs of: Subsistence, Protection, Affection, Understanding, Participation, Creation, Leisure, Identity and Freedom (Max-Neef. 1992, page 199, para 3). Thus introducing a complex matrix of four by nine differential aspects of need.

Through Max-Neef's work, a deeper understanding of need satisfiers is also developed, with the economist asserting a clear distinction between needs and satisfiers, an example may be the need of subsistence, while the satisfiers of subsistence, may be food and shelter (Max-Neef. 1992, page 199, para 4). Further discussion addresses that need satisfiers articulate culture and differing satisfiers will arise to meet the differing needs of various societies (Max-Neef. 1992, page 200, para 2). Here, it is suggested that the participative engagement of communities, with aid of the matrix, can collectively identify their contextual needs and propose satisfiers (Max-Neef. 1992, page 205, para 6). To anchor needs and satisfiers within a broader context, Max-Neef then proposes that needs can be satisfied at varying levels of intensity, within three contextual frames: Connection to oneself, regard for

social group, and with concern for the environment (Max-Neef. 1992, page 200, para 3). In addition, when assessing human need, a holistic understanding of the contextual environment is required to know what inhibits, permits, or stimulates occasions for needs to be met (Max-Neef. 1992, page 201, para 5). Max-Neef concludes his theory of human need integrating economic ideation, proposing that holistic economic structures may be established, in which goods allow satisfiers to meet fundamental human needs in total, consistently (Max-Neef. 1992, page 202, para 4).

To offer a contemporary and concluding theory of human need, psychology researchers Ryan and Deci, of New York, USA, presented a motivation-based theory of human needs in the year 2000, titled Self-Determination Theory (Ryan and Deci. 2000). Self-Determination Theory is a hierarchical model, acknowledging the goal of self-realisation, achieved through intrinsic motivation and interconnected with the fulfilment of three fundamental human needs: Competence, Relatedness and Autonomy (Ryan and Deci. 2000, page 68, para 6). Competence addresses one's confidence to achieve daily tasks, Relatedness addresses the need for secure relational connectivity (Ryan and Deci. 2000, page 71, para 2) and Autonomy addresses the need for self-activating personal action (Dover. 2016, page 9, para 3). As the core needs of competence, relatedness and autonomy are satisfied, motivation and engagement are interacted with, demonstrated through a continuum of motivation from extrinsic motivation toward intrinsic motivation (Ryan and Deci. 2000, page 72, figure 1). The flow of self-realisation continues as core needs engage with intrinsic motivation, self-determination, realisation and enhanced wellbeing are accessed (Dover. 2016, page 8 para 4).

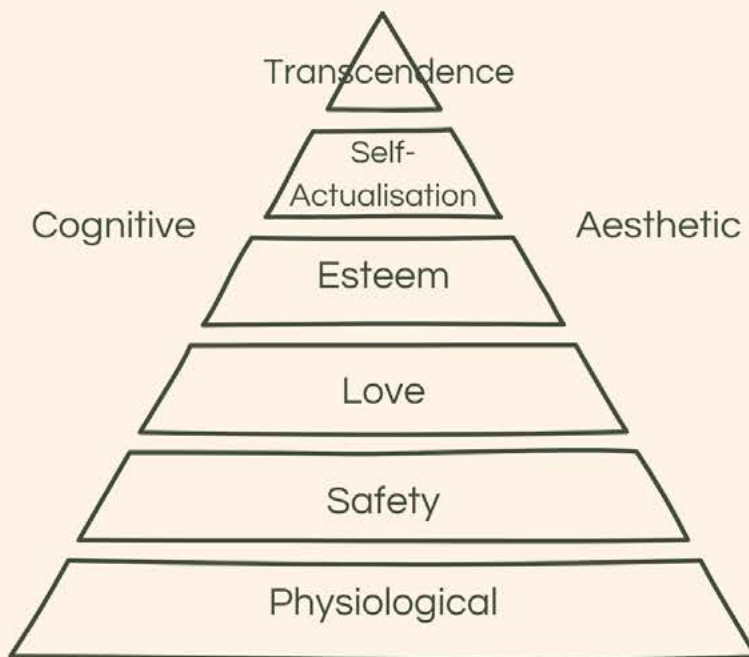
MASLOW



DOYAL & C

Hierarchy of Needs
1943-1970

Theory of Hum
1984



Universal C

- Avoid harm
- Be social participan

Basic Ne

- Physical H
- Autonom

Intermedi
Needs

- Nutritional fo
- Appropriate h
- Health care,
- Education
- Economic se

Theories of Human Need
Katie Day. MDes. 2024

FIG. 12. DAY. 2024.
Graphic depicting four Theories of Human Need, evolving from 1943-2000, including Maslow (1943), Doyal and Gough (1984), Max-Neef (1992) and Deci and Ryan (2000).

GOUGH



MAX-NEEF

an Needs

Matrix of Human Needs

1992

	Being	Having	Doing	Interacting
Subsistence				
Protection				
Affection				
Understanding				
Participation				
Creation				
Leisure				
Identity				
Freedom				

Goals

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Health

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housing,

curity

Enhanced Wellbeing
Realisation
Self-Determination



Intrinsic Motivation

RYAN & DECI

Self-Determination Theory

2000



2.1.1 INDIGENOUS CONCEPTIONS OF HUMAN NEED

While these four theories of human need have been well established in psychology theory, such concepts have been developed through a Eurocentric academic lens, a lens that does not appropriately acknowledge the culture and context of Aotearoa, New Zealand, in which this research is occurring. As the call of Earth Logic establishes, it is essential to recognise the culture and context within which holistic transformations are being developed (Fletcher and Tham. 2019, page 32). Furthermore, Whitty's critique of holistic fashion system design, gives essential volume toward elevating indigenous understandings of holistic and interconnected ways of being (Whitty. 2021, page 363, para 3). Guided by these understandings and in acknowledgement of the research being conducted in Aotearoa, New Zealand, essential attention is drawn to a Te Ao Maori (Maori worldview) perspective of wellbeing and the models that have been of influence, shaping the culture and context of Aotearoa, New Zealand. Holistic and interdependent interconnections underpin Maori conceptions of wellbeing as Cram, Smith and Johnstone, researchers of Maori health, describe, "Maori view of health are invariably holistic and centred on whanau health and wellbeing rather than the health of the individual." (Cram et al. 2003, page 1, para 6). From this understanding we observe numerous Te Ao Maori models of interdependent wellbeing, including, Te Whare Tapa Wha (Durie. 1994), Te Wheke (Pere. 1997), Te Whetu (Mark and Lyons. 2010) and He Ara Waiora (O'Connell et al. 2018).

Te Whare Tapa Wha, was developed through collective discussion, then articulated by Dr. Mason Durie in 1994, this model outlines four cornerstones of wellbeing: Taha Whanau (family and community), Taha Hinengaro (mental and emotional), Taha Tinana (physical) and Taha Wairua (spiritual) (Rochford. 2004, page 47, para 3). The four dimensions are considered interrelated aspects of a whole, working toward dynamic harmony (Mark and Lyons. 2010, page 1757, para 6). Pere's Te Wheke expands upon

Te Whare Tapa Wha's conceptions of wellbeing illustrating the connectedness of all, through an octopus illustration. Here, the head of the octopus signifies the child and family, while the body of tentacles signify differing aspects of interdependent wellbeing including the four dimensions seen in Te Whare Tapa Wha, while further including aspects such as: Whanaungatanga (extended family and kinship), Whatumanawa (emotional balance), Mauri (life principle and essence), Mana Ake (unique identity) and more (Mark and Lyons. 2010, page 1757, para 6). With careful consideration of Te Whare Tapa Wha and Te Wheke, Mark and Lyons drew from such models to develop Te Whetu, the star, in 2010. This model acknowledges the four cornerstones of health and wellbeing, recognised in the two prior models, however extends this view, to integrate relationship with Whenua (land) as an equal participant infused in wellbeing, drawing the four cornerstones outward, to include the fifth element of Whenua. Thus forming a star and progressing the conceptions of interconnected wellbeing, to bring awareness to our connection with the land (Mark and Lyons. 2010, page 1761, para 10). To conclude considerations of Indigenous conceptions of wellbeing, O'Connell and peers offer a contemporary framework that integrates economic wellbeing, He Ara Waiora / A Pathway Towards Wellbeing. This framework draws from an understanding of Waiora, that wellbeing is sourced from connection to water (wai), wai being the provenance of all life (O'Connell et al. 2018, page 7, para 2). He Ara Waiora offers an interdependent framework established upon four foundations of wellbeing: Kaitiakitanga (guardianship of natural resources), Manaakitanga (consideration and care for others), Ohanga (economic wellbeing) and Whanaungatanga (relational connection and kinship) (O'Connell et al. 2018, page 7, para 3). The principles of which maintain the development of four authorised capitals: Financial and Physical, Social, Human and Natural. Which, when sustainably developed and stewarded, contribute to the societal wellbeing and wealth of Aotearoa, New Zealand (O'Connell et al. 2018, page 7, para 4).

SUMMARY

From exploring these models, we observe that Maori conceptions of wellbeing are in essence deeply interconnected and interdependent, forming a picture of wholeness from the interwoven threads of being, including Whanau (family), Whanaungatanga (extended family and kinship), Tinana (physical), Whenua (land), Kaitiakitanga (guardianship of natural resources), Ohanga (economic wellbeing), Hinengaro (mental), Whatumanawa (emotional balance), Mana Ake (unique identity), Manaakitanga (consideration and care for others), Wairua (spirit) and Mauri (life principle and essence). It is with great reverence and acknowledgement for these Indigenous concepts of wellbeing shared, alongside thoughtful learning, that we can collectively envision holistic pathways forward. Within these pathways the wellbeing of people, planet and the systems within, specifically the systems which Aotearoa, New Zealand interact with, are founded in richly interconnected and independent understandings of being.

2.1.2 AN INTEGRATED MODEL OF NEEDS

In comprehending the elements of human need, developed is an understanding of the participants who engage with and are creating the web of systems (of which we are included), that we are suspended amidst. This deep understanding of the motivations and needs of humans, provides wisdom for the collective visioning of a holistic fashion system that naturally engages with and fulfils core aspects of the human experience. From observing Western and Indigenous developments of need and wellbeing, we witness the interplay of hierarchical models displayed predominantly by Western theories and interconnected models, displayed through Indigenous wisdom, alongside Max-Neef's Matrix of Needs (Max-Neef. 1992). Though all models provide insight toward understanding human need, there is much wisdom to be gained from a shift of perspective, elevating Indigenous knowledge, in order to envision a holistic fashion system that is developed with values of connection and care as opposed to exorbitance and unregulated growth. When viewing human experience, it is essential to consider this shift in perspective, from enhancing a westernised, reductionist, hierarchical view of the human experience, to illuminating and harkening an interconnected understanding of wellbeing and need, guided by Indigenous wisdom. This consideration also stands in alignment with Earth Logic's philosophy of Multiple Centres, previously mentioned, in which plural focus with a multiplicity of perspectives is elevated in considerations through specific engagement with non-western and non-human perspectives (Fletcher and Tham. 2019, page 32, para 1).

From this frame of interconnectedness and multiple centres, we can approach holistic fashion system development with recognition of the interwoven nature of human needs, to develop and design systems that culturally and contextually satisfy needs. In addition areas inspired by Indigenous knowledge and Max-Neef's Matrix of Needs may be integrated, specifically following a frame of Te Whare Tapa Wha (Durie. 1994), to then consider needs within a quadrant framework of Planes of Need (see fig. 13).

The four planes include:

THE PHYSICAL PLANE

Subsistence, Protection (Max-Neef. 1992) Tinana (physical) (Durie. 1994), Whenua (land) (Mark and Lyons. 2010), Kaitiakitanga (guardianship of natural resources) and Ohanga (economic wellbeing) (O'Connell et al. 2018).

THE RELATIONAL PLANE

Protection, Affection, Understanding, Participation (Max-Neef. 1992), Whanau (family) (Durie. 1994), Whanaungatanga (extended family and kinship), Whatumanawa (emotional balance) (Pere. 1997) and Manaakitanga (consideration and care for others) (O'Connell et al. 2018).

THE MENTAL PLANE

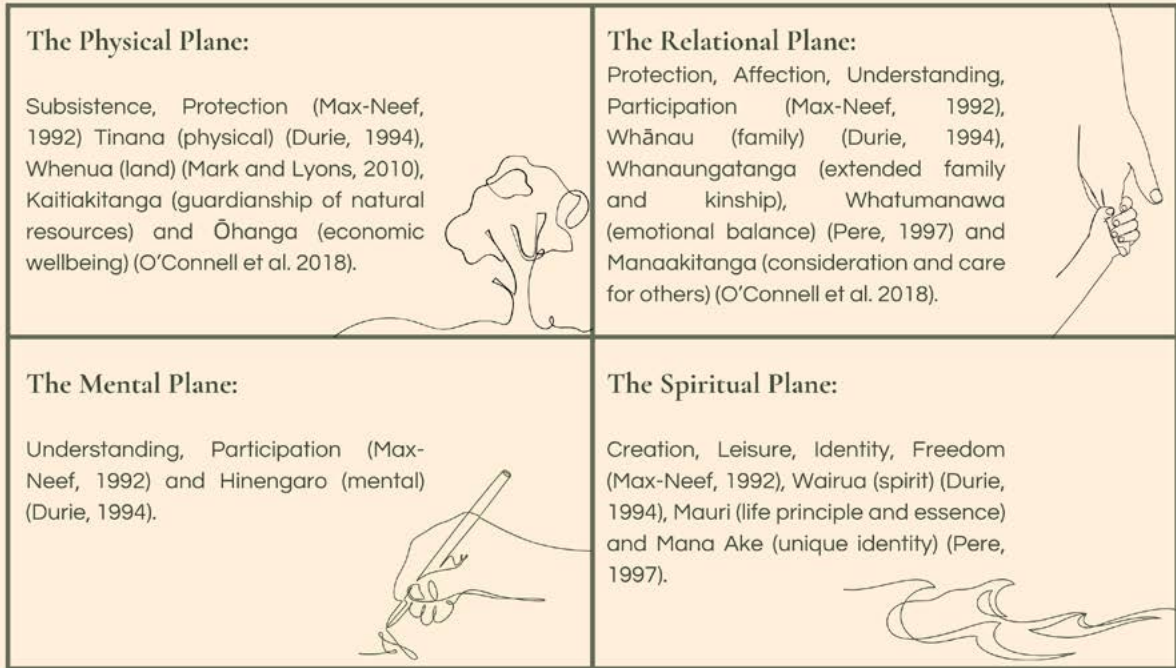
Understanding, Participation (Max-Neef. 1992) and Hinengaro (mental) (Durie. 1994).

THE SPIRITUAL PLANE

Creation, Leisure, Identity, Freedom (Max-Neef. 1992), Wairua (spirit) (Durie. 1994), Mauri (life principle and essence) and Mana Ake (unique identity) (Pere. 1997).

Of importance, when viewing these summarised interdependent areas of need, is the acknowledgement of the flexibility of needs in relation to their states of being, having, doing and interacting, as articulated by Max-Neef (Max-Neef. 1992, page 199, para 3). Furthermore, in the generation of holistic systems applicable to local communities, the cultural and contextual satisfaction of needs can be developed through discussion in local collectives (Max-Neef. 1992, page 205, para 6).

To apply additional insight on the application of human need and experience within design, the following chapters will discuss design and fashion design specific considerations of the human experience.



Planes of Need

Katie Day. MDes. 2024

FIG. 13. DAY. 2024.

A graphic display of The Four Planes of Human Need, as synthesised by the author. The four planes are comprised of: Physical, Relational, Mental and Spiritual aspects of human need.

2.2 HUMAN EXPERIENCE THROUGH DESIGN

As designers operate in a world saturated with material goods (Fletcher and Tham. 2019, page 17, para 2), questions of purpose (for the continued generation of product) increase in pertinence. Such questions may include: To what purpose are we designing? For whom are we designing? To whom is the benefit of our designs? What are the impacts of our designs? Here we reflect on the considerations of early designerly and design thinking theorists, Donald Schon and Richard Buchanan, who illustrate design's purpose; To solve a unique problem through a processes of thought, action and reflection, engaging with creative intelligence, skill and consciousness, to solve said problem, experienced by humans in everyday life (Johansson-Skoldberg et al. 2013, page 125). From these early articulations we see the power of design, to impact human experience, as design can be effectively engaged with to satisfy human need.

The chapter ahead takes a glance at differing design theories, developed to improve human experience and satisfy human need, observing the theories of Everyday Life and Need Satisfaction (Irwin et al. 2020) and Designer as Social Scientist (Faerm. 2021), alongside frameworks of Positive Design (Desmet and Pohlmeier. 2013) and Emotionally Durable Design (Chapman. 2015).

We find connection to the Transition Design framework once more, as the theory of Everyday Life and Need Satisfaction, developed within said framework, provides a clear link between design and human need, furthermore articulating design as an intervention to enable holistic need satisfaction (Irwin et al. 2020, page 87, para 1). Transition Design theorists Irwin, Tonkinwise and Kossoff offer an understanding of Everyday Life explaining, "Everyday life, the entangled and interconnected activities, mundane or otherwise, through which people sustain themselves and strive to satisfy their needs, is a fundamental level of human experience." (Irwin et al. 2020, page 78, para 1). To frame design's connection between everyday life and the satisfaction of need, the theorists draw consideration from Max-Neef's Matrix of Needs, highlighting Max-Neef's assessment that though core needs do not vary, their satisfiers are subject to culture and context, creating a link that as satisfiers differ contextually

and the forms of everyday life differ equally so, it can be conceived that everyday life's formation is specific to place and time (Irwin et al. 2020, page 83, para 3). The theorists expand, that cultural practices and everyday life are shaped considering the satisfaction of need, thus arguing that design's application to enable sustainable transition, could affect holistic change more effectively with design interventions applied to shaping the satisfiers of needs, and the practices surrounding such, in location specific and scale relevant ways (Irwin et al. 2020, page 85, para 3). Irwin and peers expound, "through focusing on satisfiers, practices could be steered in a way that begins to reconstitute everyday life into "a unified whole"" (Irwin et al. 2020, page 85, para 3).

Thus grounding the understanding that Everyday Life and the satisfaction of needs are culturally and contextually specific and design interventions focused on contextual satisfiers may be effective in holistic transitions. This invites designers to develop a deep understanding for the everyday life practices of the culture and context to which they contribute and collaboratively design holistic solutions to satisfy needs specific to their community, in turn contributing to the interconnected whole.

To expand the theory of design's consideration of human needs, Faerm's theory of Designer as Social Scientist (Faerm. 2021) offers a contemporary perspective, considering designers' understanding of the social sciences and human need of Western societies, while addressing the designer's mindset. Within this theory, fashion professor Steven Faerm acknowledges the prevalent state of over-production within our growth-driven society and engages with Maslow's Hierarchy of Needs, suggesting that basic needs are being met in an oversaturated state. Thus propelling society to seek experiences and value at higher levels of Maslow's Hierarchy of Needs, engaging with the intangible and emotional aspects of need such as, creativity, self esteem and self actualisation (Faerm. 2021, page 405, para 5). Further providing insight to support the necessity of designers' development in understanding human need, positing the evolving capacities of the designer's skillset to encompass capabilities of 'designer as social scientist' (Faerm. 2021, page 399, para 1).

Within this theory, the designer is encouraged to engage with the emotional landscape of a design throughout their design process, cultivating a deep ascertainment of the audiences' values and emotional needs and to consider the emotional impact of their designs (Faerm. 2021, page 413, para 2). Such questions to support this design mindset may be: What is the emotional value of this item? What response may this illicit in a consumer? To consider the emotional sustainability of the design, questions could include: How may my intended consumer wish to feel, six or twelve months from now? How can these designs provide contextually appropriate emotional fulfilment? and as Faerm articulates, "How can my emotionally-led design process contribute to sustainability?" (Faerm. 2021, page 413, para 2). Thus inspiring an informed and reflective link between the designer and the intangible needs of their community, past, present and future, within their design process.

With the understanding of needs satisfaction propelling a state of wellbeing in harmony, design transitions from theory to provide frameworks of implementation, in support of the designed satisfaction of needs. Positive Design (Desmet and Pohlmeier. 2013) offers a framework in which wellbeing is supported through design. In essence, Positive Design is "design for human flourishing" (Desmet and Pohlmeier. 2013, page 15, para 8), with foundations anchored in Positive Psychology, the study of conditions that lead to generative human and societal functioning (Desmet and Pohlmeier. 2013, page 7, para 2). Positive Design establishes a model in which design can support one's subjective wellbeing, through distinguishing key areas of subjective wellbeing and developing designs to enhance these aspects of wellbeing (Desmet and Pohlmeier. 2013, page 5, para 1).

The three components of subjective wellbeing are distinguished as: Pleasure, Personal Significance and Virtue. Design for Pleasure is extracted from a motivation to support happiness through enhanced presence and the evocation of positive feeling. In application to design, Design for Pleasure concerns increasing positive "physical, social, psychological, and ideological" (Desmet and Pohlmeier. 2013, page 8, para 4) interactions with the design, with intention to understand user-experience and enhance experiences of pleasure (Desmet and Pohlmeier. 2013, page 8, para 4). Design for Personal

Significance engages with one's development of personal meaning, goals and actualisation and connects with designs generated to support the realisation of these goals, such as capability development (Desmet and Pohlmeier. 2013, page 9, para 1). The third and final aspect of design for subjective wellbeing is Design for Virtue, this considers moral ideals and designs to appeal to the consciousness and consideration of the consumer, to inspire virtuous behaviour within the consumer and the positive impact the design, or engagement with the design, may have on their community (Desmet and Pohlmeier. 2013, page 9, para 3). The theorists propose that a design consisting of all or variations of each of the three elements, is one that supports human flourishing, once more anchoring design's relationship with the satisfaction of human need (Desmet and Pohlmeier. 2013, page 8, para 1).

In alignment, Emotionally Durable Design provides a design framework to enhance user and planetary wellbeing, with precise attention given to the intangible needs of the user. This framework was developed by product design researcher Jonathan Chapman (Chapman. 2015). Propelled by a deep awareness for environmental stewardship and concern for over-production's environmental impact (Chapman. 2015, page 2, para 2), Chapman offers a design framework that through exploring consumer behaviour motivation, including the insatiable state of human need (Chapman. 2015, page 41, para 1) proposes two questions of consideration: "Why do we throw away products that still work?" and "How can we design products that people want to keep for longer?" (Chapman. 2015, page xiii, para 1). The Emotionally Durable Design framework offers a model that, while developing designs to connect with human emotion and need, product longevity is increased, fostering relationship between user, product and planet, thus designing products with emotional durability (Chapman. 2015, page 21, para 3). Chapman describes the resulting relationship between people and product as "a deeper, more sustainable bond between people and their material things." (Chapman. 2015, page 21, para 3).

The EDD framework finds application through six aspects, considered to inspire emotionally durable engagement. The six aspects are, narrative, detachment, surface, attachment, fiction and consciousness (Chapman. 2015, page 175). Narrative addresses creating a unique understanding of,

and engagement with, the history of the product. Detachment is characterised by the quality of having minimal demand or expectations arising from the product, inspiring favourable perception from the user due to ease of use. Surface considers the aesthetic longevity of the design, inspiring a design to hold or increase in value through the development of character over time. Attachment inspires users to deepen emotional connection with the design through the service, content or meaning it provides. Fiction considers the aspect of novelty and mystery within a design, stimulating delight and enchantment, through the paced discovery or understanding of a design. The sixth and final aspect, Consciousness, illuminates an understanding of the autonomy and life energy of the design, through drawing attention to the quirks, disposition and interactive skill required to engage with the design (Chapman. 2015, page 175, para 2). This six-point framework offers designers effective strategies and points of intervention to increase emotional engagement between a design and user, strengthening the long term relationship developed with a design and therefore the design's longevity, contributing to a holistic system of increased engagement and minimised waste.

With contemporary consideration, the Emotionally Durable Design concept has been iterated and expanded into The Emotional Durability Design Nine framework (Haines-Gadd et al. 2018), consisting of nine themes to increase a user's emotional connection with a design. These include: "relationships, narratives, identity, imagination, conversations, consciousness, integrity, materiality, and evolvability." (Haines-Gadd et al. 2018, page 1, para 1).

In reflection of the original EDD framework, multiple of the six-point aspects are found, these include: narrative, consciousness, materiality relating to surface, relationships reflective of attachment and imagination in alignment with fiction. However expansion of the framework is found in aspects of identity, conversations, integrity and evolvability. Identity offers considerations of the interacting and autonomous identities of the user and product in their relationship, Conversations inspires interaction points or 'conversations' between product and user, Integrity regards the physical and emotional trust developed between the product and user and

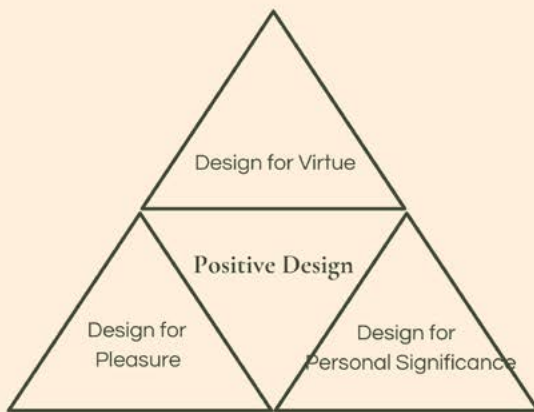
Evolvability considers the growth potential of the product, alongside the users evolution (Haines-Gadd et al. 2018, page 14, table 3). These inclusions create further intervention points for designers to infuse emotional connection within a design, in turn increasing support for the interconnected multitude of human needs and satisfiers, with specific attention given to the intangible aspects of human need, such as the relational, emotional, mental and spiritual planes of human need.

SUMMARY

In recognition of the interconnected essence of human needs and the cultural and contextual nature of need satisfiers, with consideration given to increasing emphasis being placed on the intangible aspects of human need in contemporary westernised cultures (Faerm. 2021, page 405, para 5), there is an invitation for designers to deepen their community relationships. Depth may be added to these connections through empathic comprehension of the needs and satisfiers of their cultures and contexts, with sensitivity given to an expanse of community perspectives, specifically the voices that have historically been excluded or minimised. With such understanding, design interventions may then be applied, drawn from frameworks such as Positive Design, Emotionally Durable Design and The Emotionally Durable Design Nine Frameworks (see fig. 14), to develop meaningful designs that satisfy the contextual needs of the physical, relational, mental and spiritual planes, while also developing products with longevity to minimise waste and support conscious interactions with tangible goods. Thus increasing conscious and connective interactions whilst minimising environmental harm through excessive waste and considered designs, to further align with core aspects of a care-centric, Earth Logic propelled holistic fashion system reformation.

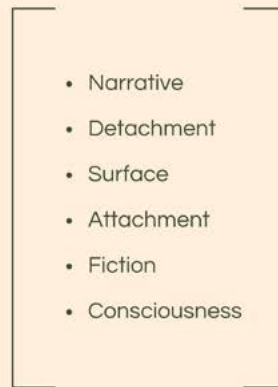
POSITIVE DESIGN

Desmet and Pohlmeier.
2013.



EMOTIONALLY DURABLE DESIGN

Chapman. 2015.



ED DESIGN NINE

Haines-Gadd et al. 2018.



Frameworks of Human Experience Design
Katie Day. MDes. 2024

FIG. 14. DAY. 2024.

Visualisation of Human Experience Design Frameworks, displaying Positive Design (Desmet and Pohlmeier. 2013), Emotionally Durable Design (Chapman. 2015) and Emotional Durability Design Nine (Haines-Gadd et al. 2018).

2.3 HUMAN EXPERIENCE WITHIN FASHION DESIGN

Clothing and fashion hold a unique position within society, to offer satisfaction across multiple planes of need. Once more, this gives light to the interconnected essence of our reality, from the interlaced nature of needs, to the echoing, connective threads of the fashion system. Within this section, we will observe the ways in which fashion considers human need across each of the aforementioned Plane's of Need. This section will extend to consider, through a lens that elevates intangible needs within Western contexts (Faerm. 2021, page 405, para 5), the ways fashion endeavours to meet such needs through frameworks grounded in emotional and enduring connections made between a garment and their wearer. The frameworks examined are Emotionally Durable Fashion (Burcikova. 2019), The Wardrobe Hack (McQuillan and Whitty. 2013) and Craft of Use (Fletcher. 2016). Meanwhile, also observed are such strategies in the practice of two Aotearoa, New Zealand fashion design brands, Luc and Mina.

2.3.1 PLANES OF NEED WITHIN FASHION

At a foundational level, considering the Physical plane of need, clothing exists to provide the body with warmth and protection from the elements. Thus meeting the need of subsistence (Max-Neef. 1992, page 181, para 3) and considering the encompassing needs of Tinana (physical) (Durie. 1994). Within this Physical plane, clothing also considers the needs of Whenua (land) (Mark and Lyons. 2010) and Kaitiakitanga (guardianship of natural resources) (O'Connell et al. 2018), when developed in a restorative relationship with the land, as observed through the previously mentioned regenerative practices of Christy Dawn in Collaboration with the Oshadi collective (Christy Dawn. 2023, para 8). While also being observed in a local capacity, through the practices of Otepoti-based Maori (Ngai Tahu, Kati Mamoe, Waitaha, Rabuvai and aboriginal descent) designer Amber Bridgman of Kahuwai, an indigenous fashion design label in which materials are sourced from natural local resource overflow or through second-hand pathways (Day. 2022, para 22). Furthermore, the need of Ohanga (economic wellbeing) (O'Connell et al. 2018), is offered provision through the expanse of employment and economic opportunity found within the fashion industry, in areas such as clothing production and fashion communication (Fletcher and Tham. 2019, page 18, para 2).

Clothing and fashion extend beyond physical provisions to offer connection through the communication of meaning and belonging amidst various societies (Barnard. 1996, page 45, para 3), contributing to the satisfaction of needs found within Relational and Mental planes. As fashion is inherently visual, communication is propelled through its semiotic visual nature, offering the correspondence of values through the interplay of witnessing and being witnessed, further inviting an exchanged understanding of messages between people (Barnard. 1996, page 56, para 1). With fashion as the carrier of messages and meanings, the needs of understanding and when cultivated, affection (Max-Neef. 1992), can find satisfaction. Meanwhile the communicative aspects of fashion also invite creation of social subgroups through aligned semiotic, value or ideological exchange (Barnard. 1996, page 56, para 1). As these social collectives form, engagement and participation naturally occur, facilitating opportunities to meet the need of participation (Max-Neef. 1992).

While visual communication considerations offer avenues to various Relational need's fulfilment, the practices through which we engage with fashion, may extend fulfilment to the wider community needs of the Relational plane, including: Whanau (family) (Durie. 1994), Whanaungatanga (extended family and kinship), Whatumanawa (emotional balance) (Pere. 1997) and Manaakitanga (consideration and care for others) (O'Connell et al. 2018).

The previously explored model of Slow Fashion demonstrates practices that encourage mindful engagement with fashion as a community through values of awareness, responsibility and local resources (Clark. 2019, page 311, para 3), whilst elevating qualities of empathy and gentleness, in their approach to crafting and caring for garments as a collective (Clark. 2019, page 314, para 1). In research of Slow Fashion as a mindfulness practice (Thompson. 2019), academic Hayley Thompson discusses how Slow Fashion practices demonstrate a commitment to nurturing relationships through examples of designers consistently fostering connections touched by the presence of their business, from engagement with local or Fairtrade producers, aligned businesses, and the cultivation of local or online communities (Thompson. 2019, page 76, para 2). As an array of committed connection points, drawn from combined values

such as local responsibility and empathy, is offered through Slow Fashion practices, a deep sense of connection can be fostered. Further creating a culture of fashion engagement, in which family and community connections are a natural part of interacting with fashion, allowing satisfaction opportunities for the needs of Whanau (family) (Durie. 1994), Whanaungatanga (extended family and kinship) (Pere. 1997) and Manaakitanga (consideration and care for others) (O'Connell et al. 2018). Moreover, an additional Slow Fashion practice of craft, "producing beautiful and conscientious garments at a lower speed" (Thompson. 2019, page 23, para 2), allows for the need of Whatumanawa (emotional balance) (Pere. 1997) to be nurtured. Rhythmic, repetitive and mindful actions of meticulous craft work can become a meditative practice (Valentine and Follett. 2010, page 12, para 3), providing benefits as meditative practices can enhance emotional regulation capacities (Basso et al. 2019, page 216, para 5).

Aspects of the Relational plane of needs organically overlap with the mental plane in this interconnected model, with needs such as understanding and participation (Max-Neef. 1992) occupying both planes. As such aspects have previously been discussed, we can consider how the encompassing needs of Hinengaro (mental) (Durie. 1994), alongside understanding and participation (Max-Neef. 1992), can be engaged through fashion. Open source, participatory models such as Make/Use (McQuillan. 2018), offer satisfaction to such needs, as this model engages the mind by facilitating deeper knowledge of a garments pattern and construction (McQuillan et al. 2018, page 1, para 1). Further inviting opportunity for ideation and innovation, as with an understanding of the garment developed alongside directions for future modifications, any number of ideated transformations may occur. Thus providing satisfaction to the needs of Hinengaro (mental) (Durie. 1994), understanding and participation (Max-Neef. 1992), through mind stimulation, understanding developed and participative engagement required, in a garment's use, creation or transformation.

As the expressive medium of fashion engages the mind through creation and fosters relational connection through communicated meanings, fashion's ability to carry expression may also further invite satisfaction of the needs found within the Spiritual plane. Fashion naturally meets the spiritual need of creation (Max-Neef. 1992) through its

inherent creative nature where creativity is found from beginning to end within the fashion industry (Ruppert-Stroescu and Hawley. 2014, page 19, para 1). Creation occurs from design ideation where clothing and fashion are envisioned and communicated, to production processes where designs are formed into garments, to creatively translate a meaning, message or visual expression and to the interplay of fashion items through acts such as styling or costuming. Creativity saturates the world of fashion and hosts the potential for need satisfaction, when engaged in its uniquely personal way for the fashion participant.

The Spiritual need of Leisure is considered "The state of having time at one's own disposal; time which one can spend as one pleases; free or unoccupied time." (OED. 2023, 3.a.). This need is a state of being and can alternatively be viewed as a mindset, of which to engage any chosen activity or non-activity with. With a mindset of freedom and choice to occupy the spaciousness of time, any engagement with fashion in this state may satisfy the need of Leisure. Fashion engagement from a position of leisure may include designing, making, styling, sorting, mending, shopping (Twigger Holroyd. 2016, page 22, para 3) visual or in-person engagement with fashion magazines, shows, exhibitions, websites, advertising and extensively more (Mouratidou. 2023, page 284, para 1). Fashion engagements are as broad as the mind can conceive, and when engaged through this mindset of choice and time-spaciousness, Leisure's need can be met.

Spiritual needs of Identity (Max-Neef. 1992) and Mana Ake (unique identity) (Pere. 1997) may find satisfaction through the earlier discussed, communicative nature of fashion. In extension from the idea that fashion is a medium of expression and creation (Barnard. 1996, page 45, para 3), fashion invites identity needs to be met through its ability to facilitate the uniquely configured and curated expressions of personal values, aesthetic preferences, cultural expressions, felt desires, sub-group alignments and more (Barnard. 1996, page 45, para 3). Thus, fashion allows for one's unique identity, formed of many aspects, to be expressed and witnessed, as this circuit of expression and witnessing hosts the essence of shared perception and understanding, reinforcing formations and expressions of identity in service of the need's satisfaction.

To conclude, considerations of Spiritual needs are the extensive philosophical and ontological considerations of Spirit and Life Essence, Wairua (spirit) (Durie. 1994) and Mauri (life principle and essence)(Pere. 1997). However when situated within fashion's scope, this could be refined to consider the connection between Spirit and cloth. Frederick S. Roden, literature scholar investigates "Dress and the Sacred" (Roden. 2020) to observe through varying spiritual texts that clothing may act as a medium between spirit and body. As the (Spirit-inspired) created object of cloth, acts as a medium to host the liminal space and connection point where spirit can meet body (Roden. 2020, page 485, para 1) and offers the canvas for spiritual imagination or understanding to find expression (Roden. 2020, page 487, para 1) (see fig. 15).

Roden also discusses the importance of rite, ritual and acknowledgement of Spirit in our relational interaction with clothing, bringing recognition to various cultural and faith engagements with ritual to traverse the liminal space between Spirit and world (Roden. 2020, page 486, para 2). As cloth is the host of this liminal space, sanctity is found in the ritual act of clothing the body, Roden observes, "God is present in every human act of wrapping, holding, and enclosing." (Roden. 2020, page 485, para 1). Ritual is also acknowledged through the ritual act of giving thanks, for the offering of the land that forms the fabric of the cloth itself (Kimmerer. 2013, page 38).

Furthermore, considering spiritual practice in fashion, the practice of Mindfulness founded in ancient Bhuddist tradition (Thompson. 2019, page 34, para 2), can bring conscious awareness to our fashion engagements. Mindfulness, defined as "keeping one's consciousness alive to the present reality" (Hanh in Thompson. 2019, page 38, para 2), when interacted with fashion offers a deep awareness of the present moment including the awareness of one's choices and actions. Spiritual wellbeing may then be enhanced through thoughtful consideration during fashion interactions, in addition to wider concepts of spiritual connectedness to the planet and people, awakening mindful awareness of fashion choices and interactions with such, to facilitate fashion system evolution.

"Embracing mindfulness consciously and holistically has great potential to enrich the slow fashion approach in its ability to address social and environmental issues resulting from fashion production and consumption." (Thompson. 2019, page 169, para 2).

Spirit is encloded in form as we bring our conscious awareness to this relationship with cloth and the liminal space between cloth and the body. As we then walk through this liminal space, engaging with rite or ritual, the process of creation occurs and the designer or wearer may imbue spiritual meanings in their creations or may engage with spiritual beliefs through their process of interaction with the cloth. Thus infusing spirituality within their fashion relationship, allowing for spiritual needs to be expressed and fulfilled.

SUMMARY

Through observing the planes of need, we gain understanding of fashion and clothing's vast connection to the human experience and essential position in meeting this wide collective of needs, spanning Physical, Relational, Mental and Spiritual experiences. As we move forward to establish regenerative fashion structures, it is essential for designers to cultivate a dialogue with their local communities that are anchored in listening to understand. As the designer listens and empathises with these local lived experiences, they can ascertain needs of concern within their community and apply their design capabilities in collaborative effort with the collective's skills, to satisfy the necessary needs, contributing to a conscious, holistic, dynamic, and interconnected fashion landscape throughout society.

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Embracing mindfulness consciously and holistically has great potential to enrich the slow fashion approach in its ability to address social and environmental issues resulting from fashion production and consumption.

(THOMPSON. 2019, PAGE 169, PARA 2).

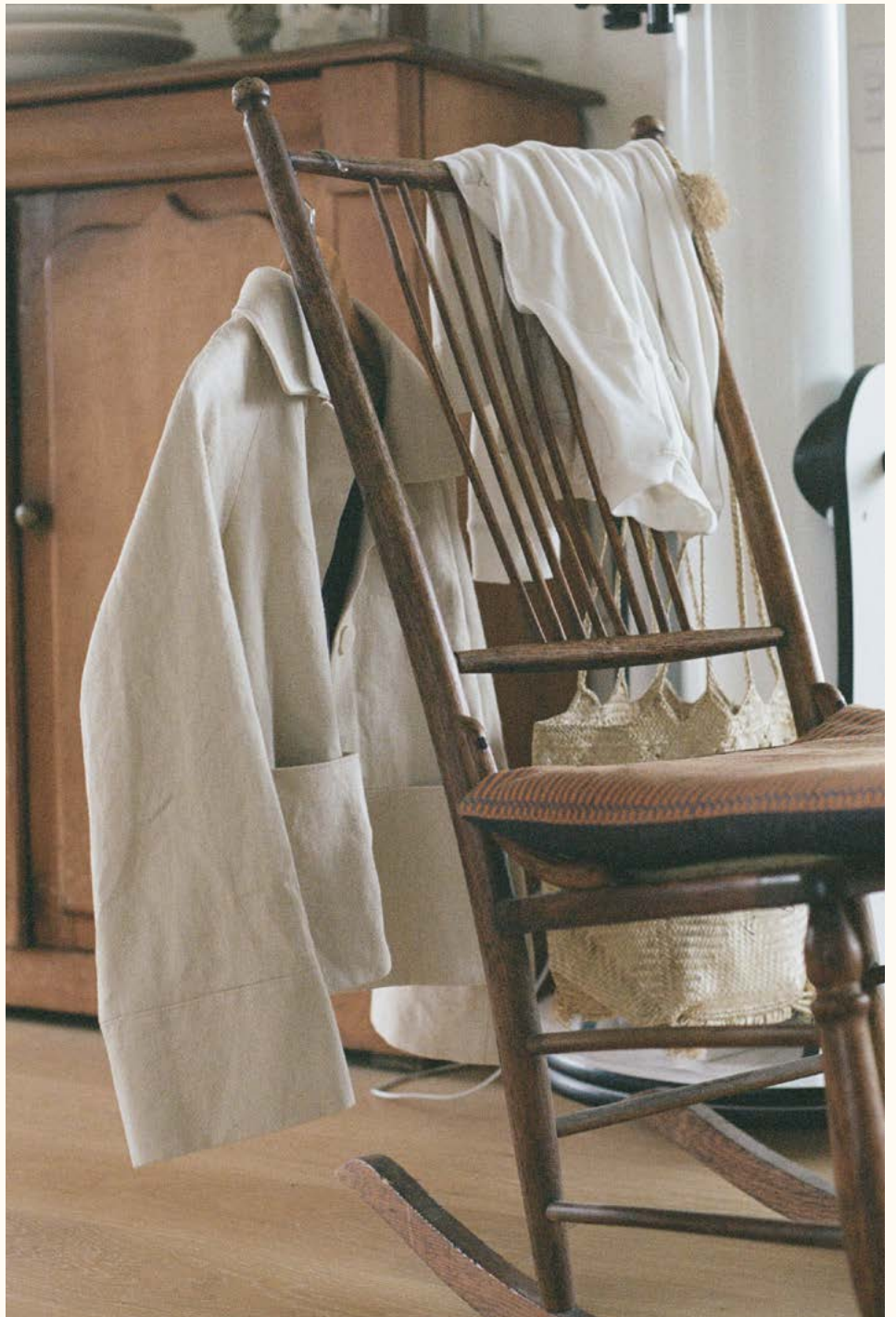


FIG. 15. DAY. 2024.

Clothing is draped upon a chair in the living room of a local maker, the fabric is waiting to clothe the body offering the connection point between spirit and form.

2.3.2 FASHION DESIGN FRAMEWORKS

As we have concluded observation of how fashion regards the human experience through planes of need, we can look onward to examine fashion frameworks through which the human experience is of utmost consideration, with emphasis given to the intangible aspects of human need fulfilled by fashion, as elevated by Faerm (Faerm. 2021, page 405, para 5). These frameworks include, Emotionally Durable Design (Burcikova. 2019) (Niinimaki and Hassi. 2011), Wardrobe Hack (McQuillan and Whitty. 2013) and Craft of Use (Fletcher. 2016), also action precedents through two small-scale Aotearoa, New Zealand fashion design brands, Luc (Luc. 2023) and Mina (Mina. 2020).

EMOTIONALLY DURABLE DESIGN

Within fashion, Emotionally Durable Design (EDD), founded from Chapman's framework (Chapman, 2015) facilitates an emotional bond between wearer and garment, to extend the longevity of the garment through care and investment (Burcikova, 2019, page 65, para 1). Thus offering a framework that explores the role of emotion in relation to clothing, in a holistic approach to environmental care through reduced waste, supporting subsequent system transformation. With extensive doctoral research considering the subject of Emotionally Durable Design within the fashion design process, Mila Burcikova proposes a five-point framework informed by the design strategies of fashion sustainability researchers Kirsi Niinimäki and Lotta Hassi (Niinimäki and Hassi, 2011) to apply EDD within fashion design (Burcikova, 2019, pages 73-78). The five aspects of the frame are:

Reliability/Physical Durability

To increase the physical durability of clothing through fabric quality, consistent fabric components and considered drape or design (Burcikova, 2019, page 73, para 2).

Versatility/Adaptability

To host flexibility in size and fit, in support of body and preference fluctuations over time. While also offering timelessness and trans-seasonality in colour and print (Burcikova, 2019, page 74, para 2).

Alterability/Repairability

To support the wearers "re-skilling in repair" through offering education, in addition to increasing seam allowances and providing swatches of materials necessary (Burcikova, 2019, page 75, para 2).

Laundering and Care

To provide appropriate advice, guidance and requirements for garment care (Burcikova, 2019, page 76, para 1).

Emotional Durability

To create connection and a personalised garment 'by engaging the wearer during the garment's design process through methods such as co-design or participatory design. In addition, engagement may be increased with attention given to the wearer's connection with the maker, through strong narrative and storytelling of craftsmanship alongside experiences over time (Burcikova, 2019, page 78, para 2).

WARDROBE HACK

Wardrobe Hack is a tool designed to encourage engagement and consideration of one's wardrobe, while challenging the current flows of power within the fashion system, to re-establish power into the wearers hands (McQuillan and Whitty, 2013, a). This offers a manifesto that recognises fashion's inherent power, everyone's access to such power and the belief that power is available through knowledge and choice. They propose that through the sharing of knowledge partnered with critical awareness, change may occur within the fashion system to establish holistic distributions of power centred on personal responsibility. With the aim to restore holistic balance within the fashion system both in power distribution and in environmental impact. Wardrobe Hack hosts a collective digital space to share knowledge of personal experience with clothing while also supporting wearer-experience through a six stage framework (McQuillan and Whitty, 2013, b):

Stage One, Interview

To query participants to consider how fashion interacts within their lives.

Stage Two, Sorting

To gain understanding of one's wardrobe and clothing relationships by sorting what they already possess, in preparation of stage three.

Stage Three, Wardrobe Visit

The Wardrobe Hackers and participants meet to consider the participants wardrobe selections during stage two, while also providing an opportunity to discuss and sign the Wardrobe Hack Manifesto.

Stage Four, Independent Task/Delivered Service

Informed by the relationship between the participant and their wardrobe, the Wardrobe Hackers deliver a personalised task or service to the participant.

Stage Five, Feedback

The participant is invited to give feedback on their wardrobe with the wider group, while also reflecting on how the Wardrobe Hack has informed their thinking, feeling and actions thus far, to inform new fashion behaviour patterns.

Stage Six, Workshop

A workshop is hosted to support capability and confidence, preparing the participant to engage with their clothing over extended durations. Here, community is cultivated as participants have the opportunity to exchange insights and developments generated throughout the Wardrobe Hack process.

CRAFT OF USE

Drawn from decades of research, investigating practices of sustainable fashion and regenerative fashion futures, Kate Fletcher presents *Craft of Use* (Fletcher. 2016). A collection of wearer stories framed through the lens of post-growth fashion engagement strategies, documents wearers narratives of relationship and resourceful engagement with their clothing in the expanded field of fashion, “recognising that garments, while sold as a product, are lived as a process.” (Fletcher. 2023, para 3). These post-growth fashion strategies provide an in-depth resource for considered fashion engagement:

Use and Using: The Stories of Ethics of Use, Material Resourcefulness and Transfer of Ownership.

Ethics of Use discusses how the actions of the user may amplify the values of the maker or be subversive, posing a necessary challenge to the ethics of the maker, when regarding unethical fashion producers (Fletcher. 2016, page 10). While *Material Resourcefulness* addresses the current fashion system’s narrow inflow of material choices, offering broadened pathways of fabric choices and uses (Fletcher. 2016, page 24). As *Transfer of Ownership* observes the interactions of a garment between owners throughout a lifetime and how such interactions may deepen garment connection through association and memory (Fletcher. 2016, page 36).

Consumerism, Sustainability and Fashion: The Stories of Alternative Dress Codes, Mixed Use and Skills of Resourcefulness.

Alternative Dress Codes observe the influence of numerous factors that inform our dress choices such as heritage, values and physical traits and hold awareness and respect for this confluence as we engage with clothing choices to express this array of influences (Fletcher. 2016, page 64). While *Mixed Use* considers the possibility of a garment to meet numerous needs through its lifetime, when engaged with open-minded, possibility-driven thinking (Fletcher. 2016, page 80). *Skills of Resourcefulness* addresses the pioneering and experimental thinking of creative reformers to develop alternative practices or processes while engaging traditional skills to broaden perspective of engagement (Fletcher. 2016, page 89).

Matter in Motion: The Stories of Open and Adjust, Garment Co-operation and Easy Repair.

Open and Adjust observes the skills and ingenuity of wearers as they ‘open and adjust’ their garments for wearer-specific needs (Fletcher. 2016, page 105). While *Garment Co-operation* discusses the interactive dynamic between a garment and wearer throughout the processes of life, acknowledging that the garment and wearer co-operate in how circumstances are navigated (Fletcher. 2016, page 124). *Easy Repair* acknowledges garments that are in a state of process, proving ease in the wearers ability to repair or build upon (Fletcher. 2016, page 132).

Attentiveness, Materials, and Their Use: The Stories of Never Washed, Perfect Piece and My Community.

Materiality is observed within the worn experience and initiates ideation, addressing Never Washed. Considered here are the qualities of a garment that require it to never be laundered, acknowledging the delicate balance between the environmental impact of laundering with the social impact of not laundering, further highlighting the emotional connection of a choice not to launder (Fletcher. 2016, page 147). Meanwhile Perfect Piece identifies the individuality, diversity and confidence of cultivating garment choices that feel entirely 'right' for the wearer and propel continued wear over time (Fletcher. 2016, page 162). My Community shares stories of the connective qualities of fashion, transitioning from a system of separation to one of "interdependence based on connection to people and place." (Fletcher. 2016, page 173).

Durability, Design and Enduring Use: The Stories of Super Long Life, Patina of Use and Flexible Thinking.

Durability is considered of a garment, through the nurture the garment is given. Super Long life describes that the enduring nature of a garment is often dictated by the wearer's emotional engagement with the garment through mindset, encounters and memories (Fletcher. 2016, page 186). While Patina of Use acknowledges the marks a garment accumulates over time and recognises the agency available in deliberate mark-making or preserving to acknowledge the passage of time (Fletcher. 2016, page 198). To conclude Flexible Thinking considers the novelty and creativity of wear discovered in engaging with the same garment time and time again. Further displaying the power of a flexible mindset in fashion engagement (Fletcher. 2016, page 213).

Capabilities and Agency: The Stories of Shared Use, Mending and Action Tools.

Shared Use offers multiple wearers the novelty of an expanded wardrobe, material resourcefulness and connection (Fletcher. 2016, page 227). Meanwhile Mending recognises the emotional connection to garment alongside diagnostic abilities and skill necessary to repair a garment for sustained wear (Fletcher. 2016, page 244). In addition, Action Tools shares stories of the tools we use to creatively engage with clothing (Fletcher. 2016, page 259).

Farewell, Good Travels: The Stories of Intensive Use.

This discussion connects threads of the previous pathways mentioned, offering these considerations as a generative pathway forward of the "Craft of Use", a platform to creatively, innovatively and carefully engage with the clothing we currently possess (Fletcher. 2016, page 271). These post-growth fashion strategies highlight stories of Intensive Use, which consider those garments that are worn intensively and consistently and the perspectives governing such enduring use (Fletcher. 2016, page 277).

EMOTIONALLY DURABLE DESIGN

Burcikova. 2019.

- Reliability/Physical Durability.
- Versatility/Adaptability.
- Alterability/Repairability.
- Laundering and Care.
- Emotional Durability.



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McQuillan and

1. Interv
2. Sortin
3. Ward
4. Indep
- Task/I
- Service
5. Feed
6. Work

Frameworks of Human Experience within Fashion Design
Katie Day. MDes. 2024

FIG. 16. DAY. 2024.

Graphic detailing frameworks that apply considerations of human experience within a fashion context. Such models include Emotionally Durable Design (Burcikova. 2019), The Wardrobe Hack (McQuillan and Whitty. 2013) and Craft of Use (Fletcher. 2016).

WARDROBE

BACK

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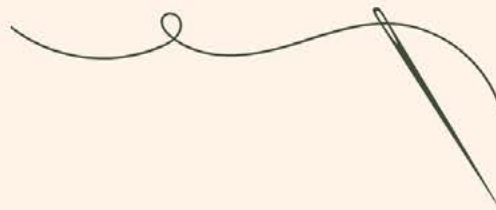
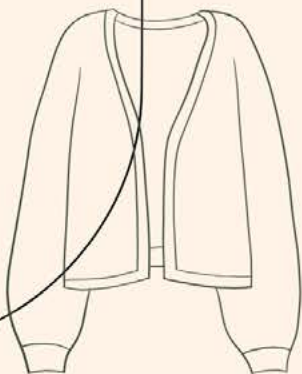
back.

shop.

CRAFT OF USE

Fletcher. 2016.

- Use and Using.
- Consumerism, Sustainability and Fashion.
- Matter in Motion.
- Durability, Design and Enduring Use.
- Capabilities and Agency.
- Intensive Use.



DESIGN PRECEDENTS

Within local communities of Aotearoa, New Zealand fashion designers are exhibiting practices that consider the lived experience and emotional needs of the wearer, to cultivate garment relationships and increase longevity. Two designers of example, at differing scale are: small-scale Te Whanganui-a-Tara, Wellington based design label, Luc and small to mid-scale Tamaki Makaurau, Auckland design label, Mina.

Luc offers conscious design to the community of Te Whanganui-a-Tara, Wellington. Within their practice, consideration of the wearer's experience alongside environmental awareness is displayed through aspects of EDD as articulated by Burcikova (2019). Such aspects observed are Reliability/Physical Durability (Burcikova. 2019, page 73, para 2) and Versatility/Adaptability (Burcikova. 2019, page 74, para 2), exhibiting quality through tailoring alongside versatility through consistent lines and colour ways to offer timelessness and trans-seasonality (Luc. 2023, a). While Emotional Durability (Burcikova. 2019, page 78, para 2) is cultivated throughout Luc, as the label shares the narrative of the consciously made in-house garments in addition to hosting a collective of garments sourced from global designers that share the common thread of conscious values (Luc. 2023, a). Luc also features alignment with aspects of the Craft of Use's Framework such as Flexible Thinking (Fletcher. 2016, page 213), Mending (Fletcher. 2016, page 244) and Transfer of Ownership (Fletcher. 2016, page 36) through their closed-loop garment lifecycle design. Luc invites the wearer to participate in a buy-back initiative where garments returned flow onto material recycling or pre-loved sales (Luc. 2023, b). Here, the garments once worn are shared with the community or responsibly recycled, displaying designers responsibility in the garment life cycle.

Mina, design label of Tamaki Makaurau, Auckland, echo conscious design values with considerations given for the lived experience of the wearer and maker, alongside the ability to nurture a wider community through the brand (Mina. 2020, a). While Emotionally Durable Design strategies such as longevity and durability (Burcikova. 2019, page 73, para 2) are embedded within Mina designs through quality fabric, tailoring and spaciouly draped design, offering timeless silhouettes and easeful alterations. The Emotional Durability of the brand fostered through wearer narrative, is of note. Mina cultivates a strong sense of narrative by offering transparent and respectful acknowledgement of the participants within their production process, in addition to disclosing their inspired company journey (Mina. 2020, a). Thus supporting the wearer's understanding and connection to the origins of their clothing. While also cultivating connection between wearers, through sharing the personal narratives of wearers and their experiences within the brand community (Mina. 2020, b). In consequence, further tending to the emotional durability of the garments by conveying various aspirational wearer experiences over time (Burcikova. 2019, page 78, para 2).

The two brands exhibit different ways in which small-scale Aotearoa, New Zealand designers are operating to support human experience and environmental impact, through engaging design strategies of longevity and emotional durability. What is also observed, is the opportunity for designers to expand wearer engagement throughout the design process and during garment ownership. Here, businesses may draw upon strategies of EDD encouraging co-design processes, alongside strategies of garment engagement exhibited by Wardrobe Hack and creative wear strategies demonstrated within Craft of Use. On appearance, these businesses are engaging the human well within their scope and could be invited to offer increased wearer support strategies through listening to the needs of the wearer in a collaborative design process and throughout their wear journey.

SUMMARY

Through considering the human experience within fashion, applied within the frameworks of Emotionally Durable Design (Burcikova. 2019) (Niinimaki and Hassi. 2011), Wardrobe Hack (McQuillan and Whitty. 2013) and Craft of Use (Fletcher. 2016), we can observe a dynamic array of strategies available for designers to engage with. These are strategies that offer application throughout the entire lifecycle of the garment. From Emotionally Durable Design strategies developed for the design process, through to Wardrobe Hack and Craft of Use strategies, curiosity, consciousness and engagement is cultivated during and after use. In addition, of the design business examples considered, engagement with such frameworks emphasised design strategies being applied within the early phases of the garment life cycle, during the design process and early wearer experience. However, design intervention is lacking throughout the mid-latter stages of the garment life cycle, with strong opportunity for growth in applying design strategies for enduring garment engagement. This may occur through the designer providing services to cultivate garment engagement and educating on the creative capabilities of repair.

What is also apparent throughout this chapter is the reflective interconnection between cultivating wearer/garment relationship and capabilities that enhance the human experience, in parallel to environmental cultivation through care for garment impact and management of natural resources. As consciousness is offered to the garment life cycle, human and environmental experience is nurtured and cultivated in concordance.





PART ONE

Contextual Review A Consideration of Holistic Fashion Systems

CHAPTER THREE

Existing Fashion Design Approaches

3.1 Existing Fashion Design Approaches

Throughout this context review we have traversed many scenes and scales of fashion, beginning with a macro view of the fashion system, to then refine the radius of scope in chapter two, as we considered how society, fashion and the human experience interplay. Within this final chapter of contextual review, this is refined one step further, to consider the micro elements of fashion in regard to fashion design processes, in order to conceive a holistic, engaged and actionable pathway forward for fashion practitioners and participants alike. This chapter will observe existing fashion design approaches (Gwilt. 2012) (Sinha. 2002), emergent fashion design processes including a Life-Cycle approach (Gwilt. 2012) Co-design (Niinimaki and Hassi. 2011) (Burcikova. 2019), Participatory Design (Williams. 2019) and Open Source Design (McQuillan et al. 2018) (Burcikova. 2019) to then conclude this micro lens with considerations of sustainable garment design elements (Gwilt. 2012).

When considering fashion design processes, the way in which fashion is generated from idea to form (Gwilt. 2012, page 38, para 2), let us first observe the predominant fashion design process model, within fashion's current operating system. In the early 2000's this traditional fashion design process was outlined by fashion design researcher, Pammi Sinha, establishing a process of five phases: 1. Research and Analysis, 2. Synthesis, 3. Selection, 4. Manufacturing, 5. Distribution (Sinha. 2002, page 7) (see fig. 17). A process of which fashion design process researcher Alison Gwilt also examines and elaborates upon (Gwilt. 2012, page 38).

The Research and Analysis phase begins with the generation of an idea or brief to give the designs direction and a frame of parameters. From this concept, initial ideas are sketched and iterated, a practice considered 'thinking with a pencil' (Cross in Gwilt. 2012, page 38, para 2). Visual thinking and problem solving continues, as the designs flow through a process of iteration and refinement, held by the considerations of the design brief, parameters and the designer's aesthetic (Gwilt. 2012, page 38, para 2). For established fashion companies within the traditional fashion system, such parameters include designing for the seasons, needs and preferences of the businesses target audience, identified through market research (Gwilt. 2012, page 39, para 2).

This process of iteration and refinement carries through the Synthesis and Selection phases of the process. As in the second phase of Synthesis, designs are pattern-made and sampled, undergoing a process of problem solving and refinement, while in the third phase of Synthesis, select designs are chosen and potentially modified, informed by the feedback of buyers (Sinha. 2002, page 7).

Once viable designs are generated in alignment with the design concept and audience, the complex process of production ensues, initiating phase four of Manufacturing and phase five of Distribution (Sinha. 2002, page 7). Within Manufacturing, the designer engages with an array of stakeholders, on or off-shore, to bring the designed garment into material production. Due to the scale and position of the design business within the fashion industry, a designer's responsibilities and number of stakeholders may vary here. For example, a large-scale company may engage with many stakeholders, including pattern cutters, machinists, specialty machinists and more, with the designer acting as manager. However within a small-scale company the designer may act as the pattern cutter, machinist and packer (Gwilt. 2012, page 40, para 2). Once the garments are produced and quality assessed, the final phase of the design process occurs, as the garments flow through channels of Distribution. Here, garments are shipped to retailers or direct to consumers and sales feedback is returned to the designer (Sinha. 2002, page 7, para 6).

In observing this traditional fashion design process we can ascertain that this is a model, linear in nature and driven by economic growth logic, much like the fashion consumption model of take-make-dispose (Ellen MacArthur Foundation. 2017, p19). Here, relationships are transactional, to provide services and economic insight, not obviously considering the emotional fulfilment of the wearer, nor ensuring environment consideration or enrichment at all. Both models, the linear fashion design and consumption processes, are reflective of fashion's necessity to renegotiate its guiding value system, to ensure environmental, social and economic flourishing. In addition, when observing the traditionally mapped design process, Gwilt calls to attention the systematically embedded lack of environmental consideration, suggesting the need to re-establish contemporary design processes to encompass sustainable design practices and criteria (Gwilt. 2012, page 42). Such emergent fashion design processes will be expounded upon in the following section.

RESEARCH & ANALYSIS

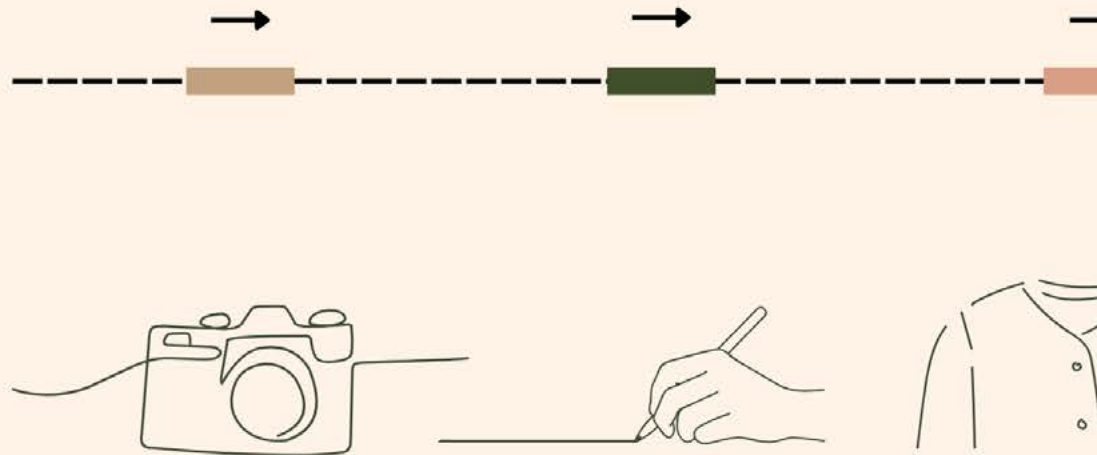
Initial brief, market research, idea development, moodboard, sketching and designing.

SYNTHESIS

Pattern making, fabric selection, sampling, design refinements.

SELECTION

Buyer feedback, selection and modification.



Traditional Fashion Design Process

Katie Day. MDes. 2024

FIG. 17. DAY. 2024.

Graphic image of the five-phase traditional fashion design process model, following the phases of: 1. Research and Analysis. 2. Synthesis. 3. Selection. 4. Manufacturing. 5. Distribution (Sinha. 2002).

DESIGN

MANUFACTURING

DISTRIBUTION

Concept, range
and sample
developments.

Stakeholder engagement,
on or off-shore garment
construction.

Garments packaged and
shipped to retailers or
consumers and sales data
is shared with company.



In challenge of the archetypal fashion design process, Gwilt (2012) proposes that an alternative fashion design process can occur when the full life-cycle of the garment is considered (Gwilt. 2012, page 98, para 2). This is considered Life-Cycle Thinking and encourages the designer to develop a design brief that encompasses the full life-cycle of the garment, while utilising sustainable strategies throughout the design and production process (Gwilt. 2012, page 86, para 3). Here, Gwilt conceptualises an alternative fashion design process, that originates with a circular map of the garment life-cycle while hosting the fashion designer at the centre (Gwilt. 2012, page 89). This diagram integrates aspects of the traditional fashion design process while expanding to include post-distribution phases. The garment phases are observed in a circular, clockwise fashion beginning with: Research and Analysis Phase, including actions of garment design and selecting fabrics, materials and techniques. Then follows Selection and Synthesis Phase, including actions of pattern making and toiling. To follow is the Manufacturing Phase, including garment construction. Distribution Phase, to distribute the garments. Use Phase, including garment use, laundering and care and to close the cycle is End-of-Life Phase, to include end-of-life garment disposal. This map encourages the designer to re-conceptualise their responsibility to the garment in full, from creation to decay, introducing sustainable considerations in the fashion design process. Gwilt then develops the map as a tool, as the map is extended to include sustainable strategies at each phase of the garment life-cycle (Gwilt. 2012, page 90). Further encouraging the designer to map out select sustainable strategies to employ at each phase of their garment's life-cycle. Thus ideating a fashion design process that expands upon the traditional model to consider a garments full lifespan in the design phase (see fig. 18), while offering points of sustainable development within each aspect of this process, to increase sustainable considerations while staying close to a familiar model.

CO-DESIGN & PARTICIPATORY DESIGN

To further re-conceptualise the traditional fashion design process in which the designer holds the central role of exclusive decision-making for the intended wearer, Co-design offers the re-positioning of this relationship, inviting participation and mutual agreements between the wearer and designer (Niinimäki and Hassi. 2011, page 1880, para 5). This method introduces a collaborative approach to garment design, as the wearer or stakeholders and designer work together to co-create the garment through discussion and mutually agreed upon decision making, spanning the breadth of the design process (Burcikova. 2019, page 77, para 2). Participatory design is similar to Co-design, in its collaborative nature throughout the design process. Founded in Scandinavian technology development, Participatory design invites the participation of the user in the development of a product, acknowledging the various skills and knowledge available within the community to benefit the viable development and engagement with a product (Foth and Axup. 2006, page 94, para 3). Within emergent fashion processes, this once more positions the designer in a co-creative or hosting role, to redistribute power structures while curating meaningful engagement with their community (Williams. 2019, page 79). Participatory design aims to host a participatory environment for the wearer and stakeholders within the design process, where their concepts, knowledge, skills and needs are recognised, appreciated and integrated (Williams. 2019, page 90, para 3). By the nature of these emergent design processes, engagement between the wearer, stakeholders and designer is increased, further supporting the wearer's emotional fulfilment and sustained emotional connection with the garment (Niinimäki and Hassi. 2011, page 1880, para 5). Thus increasing garment life-cycle consideration and care, which may ignite the flow on effects of delayed garment disposal, reducing waste and enhancing environmental care. In addition, while environmental care is supported, social care and development is enhanced through the emotionally fulfilling connective and collaborative practices.

OPEN SOURCE DESIGN

Through observing Co-design and participatory design practices, we can ascertain that wearer engagement is a core principle of emergent fashion design processes. However within these previously described practices, wearer engagement is primarily positioned throughout the Research and Analysis and Synthesis phases. Whereas, Open Source Design invites wearer engagement at a level beyond that of both Co-Design and Participatory design, to engage the wearer in the development and production phases of the garment life-cycle and beyond (Burcikova. 2019, page 77, para 4). Open Source design offers a process in which patterns, instructions and licences are freely accessible to the wearer, who is invited to, through their personal preferences and creative process, co-create, develop and produce their garments (Burcikova. 2019, page 77, para 4). Thus enhancing emotional connection and fulfilment through highly active participation, while reducing environmental impact through, the process-specific nature of, locality of production (Mustonen. 2013, page 122, para 3).

In response to the fashion industry's waste crisis, Make/Use (McQuillan et al. 2018), an Open Source fashion design resource was developed. While previously mentioned in this thesis for its Zero-Waste qualities, Make/Use is also notable for the innovative practice of Open Source design. Make/Use offers freely accessible, digitally downloadable patterns with embedded guidance systems, to support a working understanding of the garment through a zero-waste garment making process (McQuillan et al. 2018, page 1, para 1). Thus endeavouring to democratise the fashion system through wearer/maker accessibility and empowerment. While also addressing the waste crisis, as enduring garment lifespan is supported through the emotional connection enhanced through active participation with guides for making, modification and repair (McQuillan et al. 2018, page 2).

Open Source design offers a process of high-level engagement, however with such involvement required, skill support is necessary to make this process accessible to wearers/makers who host a wide range of skill and knowledge (McQuillan et al. 2018, page 24, para 1). This highlights the value of democratic knowledge sharing in the Open Source model and the opportunity for increased local connection and collaboration through the sharing of knowledge and skills, to enable desired garment development and outcomes. Once more highlighting social development benefits of a democratised fashion system.

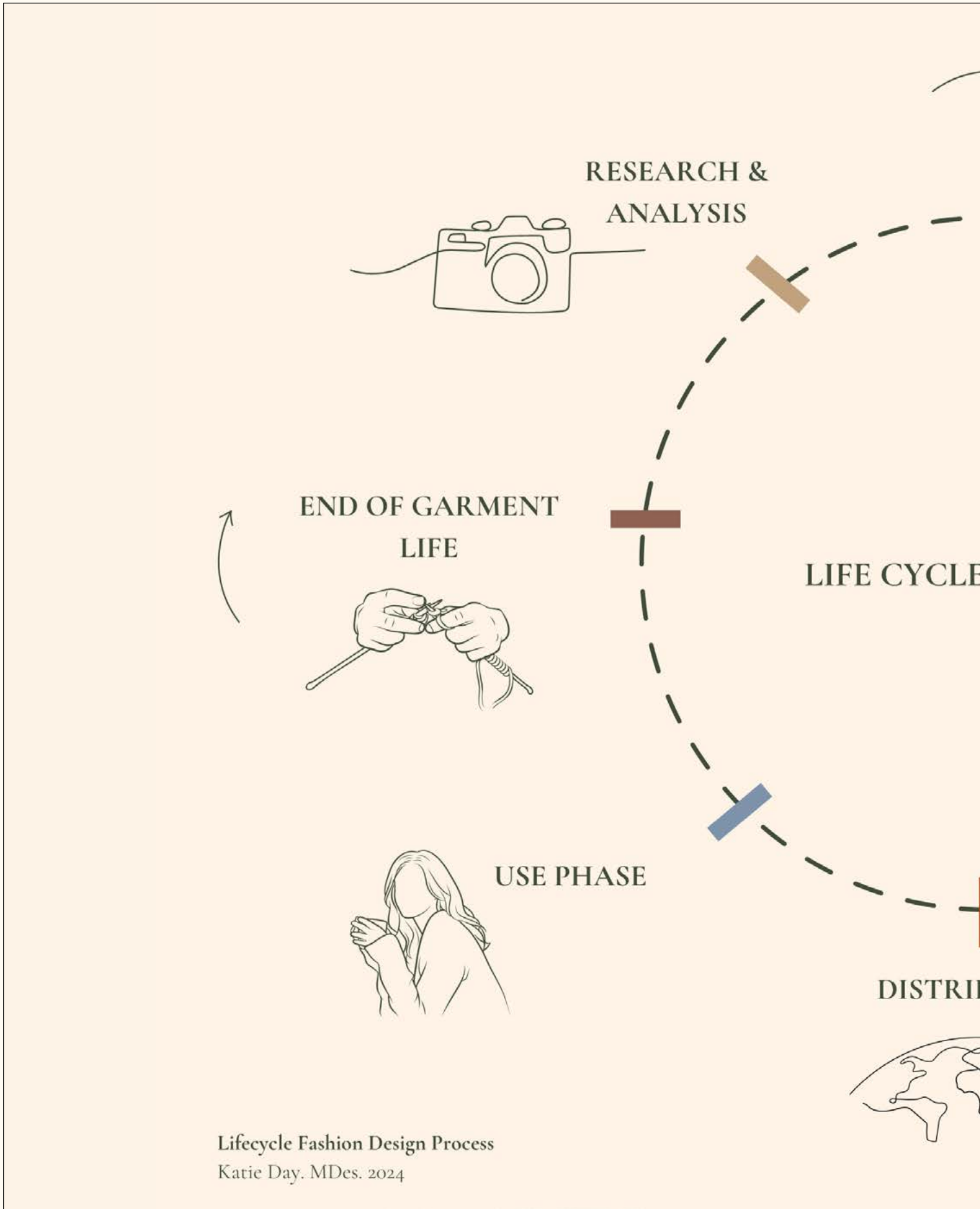
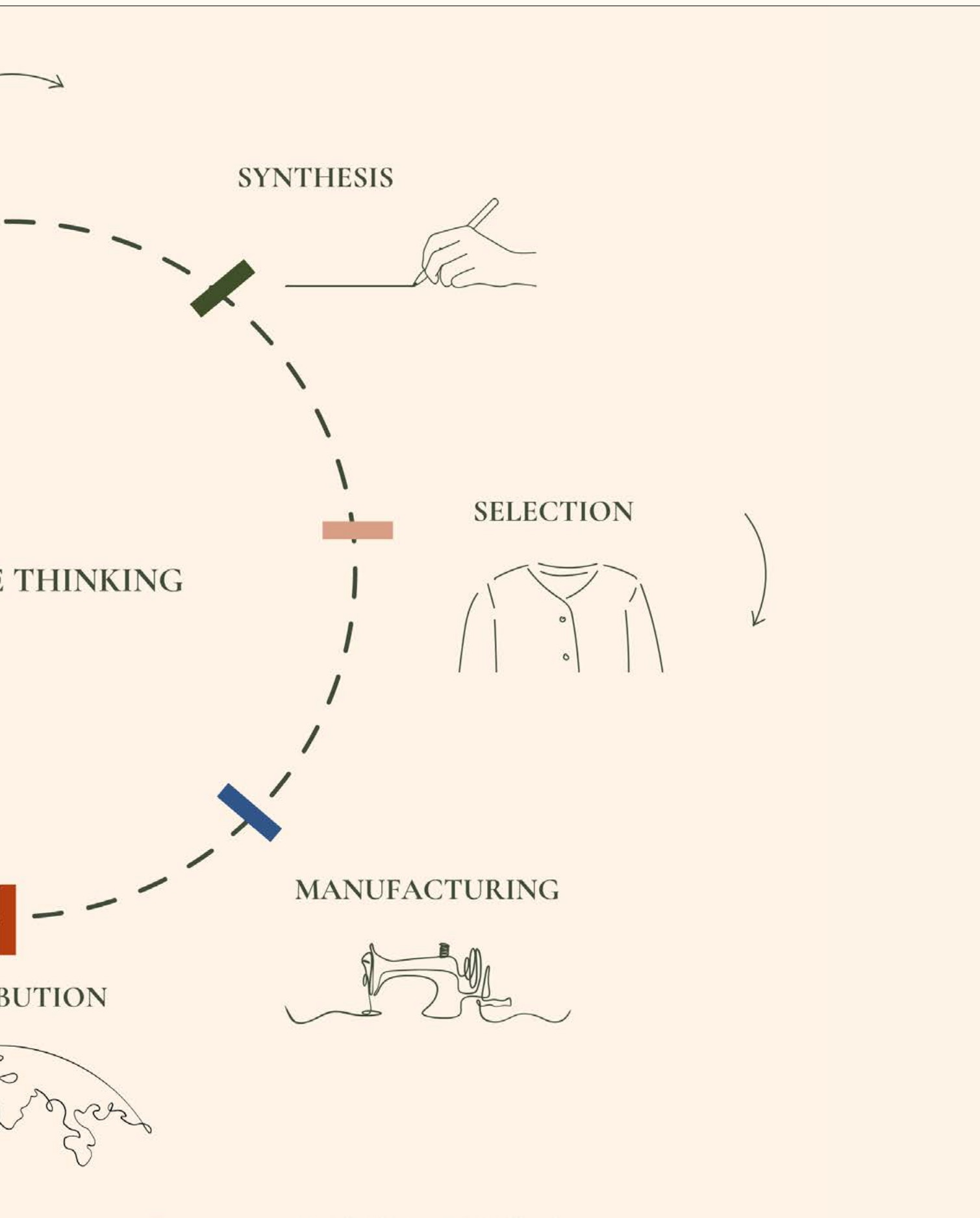


FIG. 18. DAY. 2024.
A visualisation of Gwilt's model of life-cycle thinking in the fashion design process (Gwilt, 2012).



3.3 SUSTAINABLE GARMENT DESIGN ELEMENTS

The progression of the fashion design process has been observed, from the fashion designer-centric traditional framework, towards varying de-centralised emergent design process models that feature active wearer engagement, while addressing aspects of social and environmental sustainability development. In extension of these emergent processes that generate sustainable development, we will now consider specific sustainable garment design strategies within the garment development process, that are necessary to apply, in efforts to mitigate the alarming global environmental care crisis (United Nations. 2015, page 3, para 3). It is through the lens of Life-Cycle thinking (Gwilt. 2012, page 86) that we can consider where these specific sustainable garment design elements can be applied throughout the emergent fashion design process. This guides us to regard the necessity of applying sustainable garment design strategies at each phase of the garments life-cycle, from genesis to decomposition.

In observance of Gwilt's 'Fashion Design for Sustainability' model detailing the extended phases of the garment life-cycle (Gwilt. 2012, page 90), we will examine what sustainable design strategies may be employed at each phase (see fig. 19).

RESEARCH AND ANALYSIS PHASE

This involves actions of garment design and fabric, technique and material selection. Sustainable design elements of application appropriate here include,

- Design for enduring use and recycling, through quality and timelessness in silhouette, materials and fixtures (Niinimaki and Hassi. 2011, page 1879, para 5) (Gwilt. 2012, page 90).
 - Design for sustained wearer/garment relationship, through Emotionally Durable Design techniques such as facilitating wearer engagement, empathy and narrative through processes of co-design, participatory design, open source design or made to order models. In addition to cultivating identity, imagination and attachment through customisation or personalisation features (Niinimaki and Hassi. 2011, page 1880, para 1) (Gwilt. 2012, page 90) (Haines-Gadd et al. 2018, page 12) (Burcikova. 2019, page 77).
 - Design for modification, through developing designs that may be adapted, disassembled or are modular in nature (Niinimaki and Hassi. 2011, page 1880, para 2) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1).
 - Design for low-impact circularity, through designing with closed-loop system understanding while engaging with low-impact, sustainable, recycled or recyclable and biodegradable materials (Jin Gam et al. 2009, page 169, figure 1) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1).
-

SYNTHESIS AND SELECTION PHASE

This includes actions of pattern making, toiling, refining and selecting. Due to the pre-production nature of the first and second phases of design, multiple sustainable strategies are shared, while featuring emphasis on differing actions.

- Design for modification, through developing designs that may be disassembled and user modified, featuring appropriate fabric quality, quantity and widened seam allowances (Gwilt and Rissanen. 2011, page 129, para 2) (Niinimaki and Hassi. 2011, page 1880, para 2) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1).
 - Design for low-impact, through designing with zero-waste techniques, while employing efficient, responsible and recyclable processes during pattern-making and toiling (Gwilt. 2012, page 90) (Rissanen. 2013, page 148, para 1) (Claxton and Kent. 2020, page 5, table 1).
-

MANUFACTURING PHASE

This phase is composed of the actions of garment construction. The processes, stakeholder involvement and location of such, will differ in reference to business scale.

- Design for responsible production, engaging with energy efficient, clean, local and responsible manufacturing processes, that emphasise a reduction of waste and waste management strategies (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 2) (Khairul Akter et al. 2022, page 10, figure 8).
- Design for ethical supply, through partnering with Fairtrade, ethical, organic or regenerative suppliers and producers (Jin Gam et al. 2009, page 169, figure 1) (Gwilt. 2012, page 90).
- Design for durability, though quality construction, in addition to emotional durability through services such as customisation (Jin Gam et al. 2009, page 169, figure 1) (Gwilt and Rissanen. 2011, page 69, para 3) (Niinimaki and Hassi. 2011, page 1880, para 10) (Gwilt. 2012, page 90).

DISTRIBUTION PHASE

This phase follows the processes of garment distribution.

- Design for responsible distribution, through incorporating recyclable, low-impact and ethical packaging and transport services (Jin Gam et al. 2009, page 169, figure 1) (Gwilt. 2012, page 90).
- Design for locality, working in alignment with suppliers and producers and the natural resources of the production's local environment (Gwilt. 2012, page 90) (Fletcher and Tham. 2019, page 48) (Claxton and Kent. 2020, page 5, table 1).

USE PHASE

This phase considers the garment in the hands of the wearer, thus including actions of garment care, laundering and repair.

- Design for user participation, through supporting co-creation through personalisation, repair, in addition to participation through experiential learning and feedback opportunities (Gwilt and Rissanen. 2011, page 68, figure 2.1.3) (Elf et al. 2022, page 2692, para 4).
- Design for transformation, through designing for and educating on garment multi-functionality, modification & modularity (Gwilt and Rissanen. 2011, page 87, para 5) (Niinimaki and Hassi. 2011, page 1880, para 4) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1).
- Design for sustainable garment care, through selecting water and energy efficient fabric choices, in addition to providing garment care education and support (Jin Gam et al. 2009, page 169, figure 1) (Gwilt and Rissanen. 2011, page 108, para 1) (Gwilt. 2012, page 90).
- Design for sustainability and product understanding, through communication of narrative, relationship with customer, transparency of development, garment care education and pathways for garment lifecycle (Gwilt and Rissanen. 2011, page 108) (Burcikova. 2019, page 78, para 1) (Claxton and Kent. 2020, page 5, table 1) (Elf et al. 2022, page 2694, para 6)
- Design for maintenance, through guided repair and up-cycling methods (Gwilt and Rissanen. 2011, page 130, para 1) (Gwilt. 2012, page 90) (Niinimaki and Durrani. 2020, page 161).

END-OF-LIFE PHASE

This phase observes the journey of the garment beyond the care of the wearer, after disposal.

- Design for return, through offering take-back programmes within the business (Gwilt and Rissanen. 2011, page 75, para 3) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1).
- Design for reuse, through operations of re-manufacture, up-cycling and added value (Jin Gam et al. 2009, page 169, figure 1) (Niinimaki and Hassi. 2011, page 1880, para 12) (Gwilt. 2012, page 90) (Fletcher and Tham. 2019, page 56, para 2).
- Design for recycling, through developing processes of material reuse or recycling, both within business practice or collectively with industry (Jin Gam et al. 2009, page 169, figure 1) (Gwilt. 2012, page 90) (Claxton and Kent. 2020, page 5, table 1)

SUMMARY

Within this chapter, the structural elements of the fashion design process were canvassed. From the traditional fashion design process exalting a linear pathway, toward emergent design processes that emphasise the circular, democratised and sustainable development of fashion through life-cycle thinking, enhanced wearer engagement and waste reduction. Further examined was the application of these emergent processes through specific sustainable garment design strategies within the garment development process, the application of which would vastly contribute to the sustainable transformation of the fashion industry. Through observing past, present and emergent fashion design processes, it can be postulated that a pathway forward for a sustainable fashion system is supported by a renegotiated fashion design process that encompasses life-cycle, circular and collaborative thinking, enhanced community engagement and locality, in addition to the practical application of sustainable garment design strategies at each phase of the garment life-cycle.

Although the steps of applying a renegotiated fashion design process in addition to sustainable garment design strategies, may offer practical movements to implement sustainable fashion system transformation, integration is necessary to drive sustained change. This includes the integration of awareness of the devastating impact of the current fashion system's operating model partnered with a value for relational Earth care and regeneration, through a desire and motivation to see rapid transformation in support of healing the Earth and its inhabitants (Fletcher and Tham. 2019, page 64, para 3). Awareness in partnership with a renegotiated value system for a successful fashion industry, in addition to sustainable design processes and strategies, in which the holistic success of society, economy and the environment flourishes through conscious and harmonious understanding, care and integration, may hold the keys to this transformation.

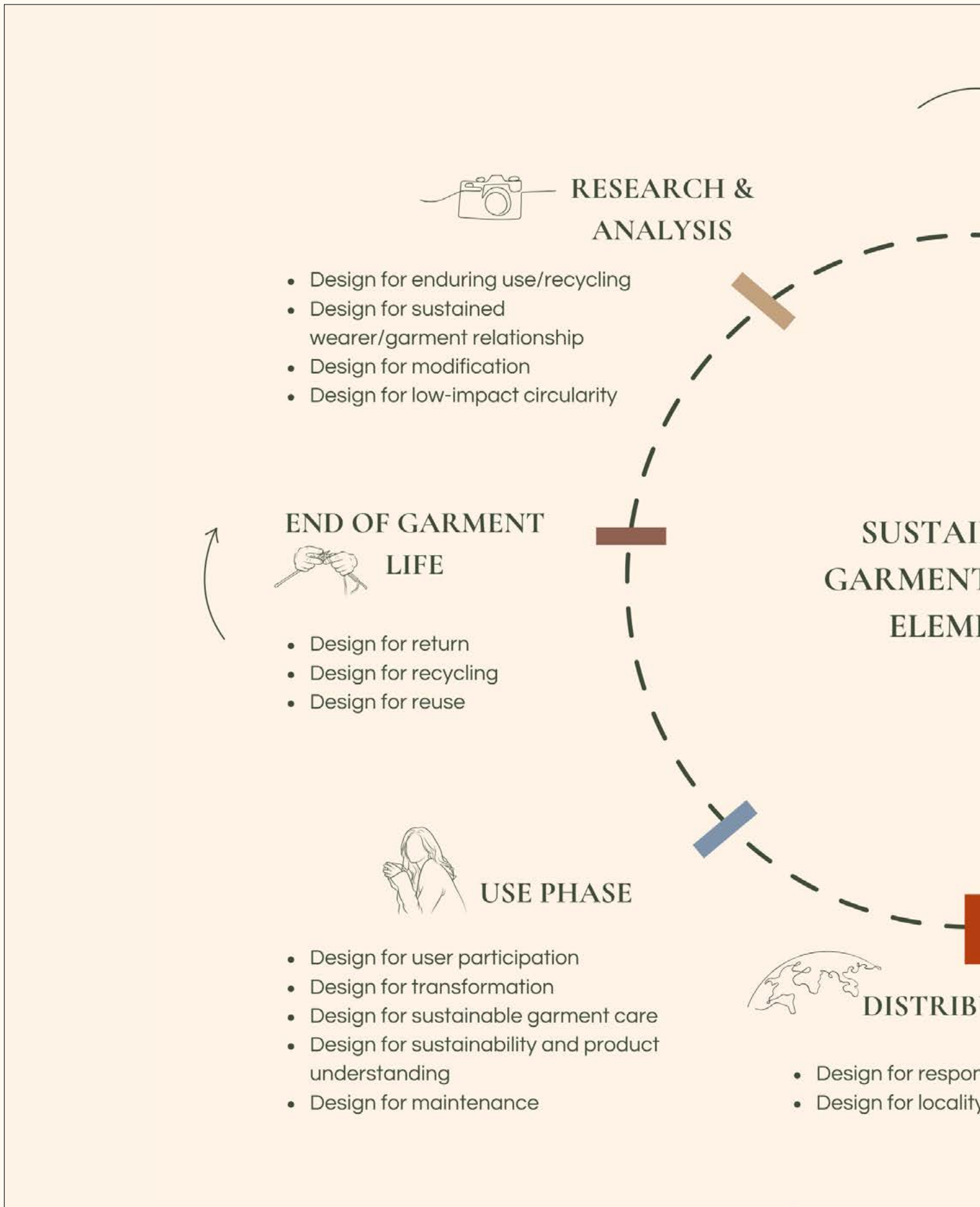


FIG. 19. DAY. 2024.
 A graphic observing the application of sustainable design strategies at each phase of the garment life cycle.



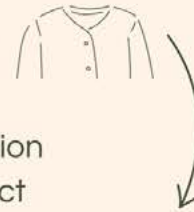
SYNTHESIS



- Design for modification
- Design for low-impact

NABLE
T DESIGN
ENTS

SELECTION



- Design for modification
- Design for low-impact

UTION

MANUFACTURING



- Design for responsible production
- Design for ethical supply
- Design for durability

sible distribution

Sustainable Garment Design Elements
Katie Day, MDes. 2024

Methods and Processes A Holistic Fashion System, in engagement and experience.

Methods and Processes



4.1 Design Methodology

This chapter will detail the multifaceted methodologies enacted throughout this research. From acknowledging the Secondary Research (Clarke and Cossette. 2000) that has guided Part One: The Contextual Review, to inform a Transition-Design led Emergent Fashion Design Process Model and Sustainable Design Criteria. That in tandem, investigate the research question, How can transition design-led conceptions of holistic future fashion systems be applied through a fashion design process, to facilitate engagement between wearer and garment? Through the first aim of:

1 Systems Thinking

To evaluate transition design-led conceptions of sustainable future fashion systems, addressing the western fashion system at its core, to consider holistic and actionable pathways forward.

This chapter then extends to discuss methodologies that have guided Part Two: Methods and Processes. Which follows the integration of Practice-Led (Rust et al. 2007), Reflective Practice (Schon. 1983) and Primary research (Gray and Malins. 2004,) to specifically examine the second research aim:

2 Application

To research the relationship between designer, wearer and garment through an informed fashion design process, facilitating increased engagement, by carrying out two interconnected case studies that explore a circular and participatory design process of creation, experience and reflection.

FIG. 20. DAY. 2020.

A wearer at home, resting and experiencing everyday life in their garment.

PART ONE: RESEARCH METHODS

Through the contextual review, Part One laid an extensive foundation examining the interconnected lattice of fashion, social and earth systems, that sought to consider the first aim of this design research, systems thinking for sustainable fashion futures. The collection and understanding of this background theory follows the method of Secondary Research, which is to analyse secondary published sources or “existing data sets to answer new questions” (Clarke and Cossette. 2000, page 109, para 3). This secondary research offers the conceptual underpinnings that guide the emergent fashion design process model and sustainable design criteria to be discussed in subsequent sections.

To further situate this methodology in the context of design, we may consider Frankel and Racine’s triangular model of design research, drawn from Herbert Read’s model of Education through Art (Frankel and Racine. 2010, page 10, figure 1), in which three prongs of the triangular diagram reflect three differing design research approaches: Research about Design, Research through Design and Research for Design. The collection and analysis of secondary published data to define and address a ‘Wicked Problem’ (Rittel et al. 1973) concerning design, is considered under the umbrella of ‘Research about Design’ as this follows the designers practice of defining a problem to solve (Frankel and Racine. 2010, page 8, para 5) while analysing secondary data sources to address this problem. Meanwhile, the development of an Emergent Fashion Design Process Model and Sustainable Design Criteria, in response to this design problem, to be detailed in subsequent sections, may be considered ‘Research for Design’. Research for design is offered as The Emergent Model and Sustainable Design Criteria provide designers with tools or theory, to contribute perspective to or apply within their design practices (Frankel and Racine. 2010, page 6, para 1). In the following section, Part Two will consider the third prong of this model, ‘Research through Design’.

PART TWO: RESEARCH METHODS

Within this following section of Part Two, we will observe ‘Research through Design’, a method of action-reflection research practice that aims to consider theory within an extended context, to provide insight or knowledge for future design (Frankel and Racine. 2010, page 7). This research through design follows the theory-supported Emergent Fashion Design Process Model and Sustainable Design Criteria to be investigated within the extended context of two interconnected case-studies. In which they provide reflection, evaluation and contribution to the growing body of design knowledge considering sustainable fashion futures and emergent fashion design processes.

In addition, the investigation of these aforementioned design tools, through two interconnected case-studies, follows a Practice-Led design methodology. Practice-Led Design found its origin definition in 2007, the mode being described as, “Research in which the professional and/or creative practices of art, design or architecture play an instrumental part in an inquiry.” (Rust et al. 2007, page 11, para 2). The definition expanded to include an understanding that practice is always inextricably linked, in contribution to the research inquiry (Rust et al. 2007, page 11, para 2). Within this research, the Practice-Led design methodology follows the author’s contribution to the inquiry of holistic future fashion systems applied through a wearer-engaging fashion design process, through the enactment of their designer/maker practice. The designer/ maker’s practice is utilised to develop a capsule collection of life-cycle thinking inspired, wearer-engaged garments, that have been developed within an Emergent Fashion Design Process Model and evaluated through the two interconnected case-studies, in addition to a Sustainable Design Criteria.

The two interconnected case studies, to be discussed in the succeeding sections, introduce the use of an additional research method, Primary Research. Primary research is that which generates

new data or information, ascertained from the administration of research methods (Gray and Malins. 2004, page 98, para 3). Throughout the case-studies methods drawn from the social sciences, including questionnaires, interviews and workshops (Gray and Malins. 2004, page 30, para 3), are applied to enquire into the wearer's experience, to offer data for analysis, evaluation and implementation within the research of The Emergent Fashion Design Process Model.

As this Practice-Led design inquiry of a holistic fashion design process model incorporates the findings of Primary Research, a third research methodology of Reflective Practice is also woven into place. Reflective Practice, a concept presented by philosopher Donald Schon in 1983 is considered as the knowing that occurs or the knowledge generated by the practitioner as they are carrying out their practice, in contribution toward the research (Schon. 1983, page 308). This framework seeks to collapse the gap between research and practice, drawing upon the often intuitive and unarticulated knowledge and findings of the practitioner within their practice (Gray and Malins. 2004, page 22). As this offers a highly reflective method or research, the framework presents differing actions of reflection to acquire the contributing knowledge, 'reflection-in-action' and 'reflection-on-action'. Reflection-in-action requires an awareness and recorded critical enquiry of the practice while partaking in the activity, likened to a conversation with the practice while practising, while reflection-on-action requires the analysis and evaluation of the practice after the activity has concluded, likened to a conversation about the practice after the practice's end, to discuss research findings and contributions (Gray and Malins. 2004, page 22, para 3).

Within the context of *Clothed Connections*, reflective practice occurs across all manner

of design practice enacted, from the design of processes to the garment design, with specific attention given to the fashion design development that took place during the interconnected case-studies. As the two interconnected case studies involve the authors fashion design practice to develop a capsule collection of life-cycle thinking inspired, wearer-engaged garments, that test The Emergent Fashion Design Process, the reflections of the designer/maker within this development process offer valuable contributions to the evaluation of The Emergent Model in addition to this wider body of research.

In review, the holistic nature of this research requires a holistic collective of research methodologies to address the research question considerations of holistic fashion futures in wearer-engaged practice (see fig. 20). This includes secondary research which guides Part One: Contextual Review and primary research which is gathered in Part Two, The Design Process. Throughout examining the design process in Part Two, we observe methodologies of Practice-Led, Reflective Practice, while integrated across The Contextual Review and Methods and Processes, we observe the occurrence of three aspects of design research: Research about Design, Research through Design and Research for Design. The following section will present The Emergent Fashion Design Process Model and the Sustainable Design Criteria, as mentioned within these design methodological approaches.

4.2 EMERGENT FASHION FRAMEWORKS

With these methodologies in minds, a connective pathway forward was developed through the concepts examined in the theoretical scaffolding of the contextual review. This pathway offering is of an actionable renegotiated Emergent Fashion Design Process, in partnership with the evaluative tool of a Sustainable Design Criteria, both held within a Transition Design-led Holistic Future Fashion Framework. With the trio contributing to investigations of transition design-led conceptions of holistic future fashion systems applied through a fashion design process, to facilitate engagement between wearer and garment.

This section will introduce these three models, following their development, to then observe their implementation and evaluation within two interconnected case studies, to be discussed in subsequent sections.





4.2.1 TRANSITION DESIGN-LED HOLISTIC FUTURE FASHION FRAMEWORK

Amidst this research, we have developed an understanding of the systems change required throughout fashion, while also identifying a core systems change theory proposed to address long-term sustainable transformation, the theory of Transition Design. Four co-evolving areas of Transition Design have been discussed, Vision, Theories of Change, Mindset and Posture, and New Ways of Designing, to provide an actionable framework for transition (Irwin. 2015, page 232, figure 2). As we envision a collective pathway forward for the regeneration of fashion, these four interconnected pillars may guide systems change when applied specifically to the fashion system. This cognisance has inspired the Transition Design-led Holistic Future Fashion Framework (see fig. 21), a model of the Transition Design Framework applied to fashion system transformation. The four interconnected pillars of Transition Design in application to fashion regeneration are discussed in the following paragraphs.

Vision

Vision, is described within the contextual review as the ability to envision evolving regenerative futures where lifestyle is renegotiated to support the meeting of human needs in alignment with the flows of natural systems, in holistic, local, place-based ways (Irwin. 2015, page 233). Within a Holistic Future Fashion framework, this may be outworked through a process through collectively visioning a holistic, conscious and regenerative fashion system that develops lifestyles to meet human needs in a local nature, while supporting the sustainable development of environment, society and economy (Purvis et al. 2019, p686, para 4).

Theories of Change

Theories of Change, considered as recognising the consistent nature of change, present in complex and powerful natural systems while noting the flexibility required within design, to learn from and evolve with change throughout transition (Irwin. 2015, page 234). It may be applied through advocating for and offering alternative pathways for designers and wearers alike, to engage with fashion at various levels of implementation. This may be actioned

specifically at Niche level through innovation and entrepreneurship, to challenge the current system through embodying holistic systems transformation. This may further occur at Meso level through participation of governance to regulate fashion industry sustainable practices or through providing vision and education for sustainable development in local, place-based ways (Geels. 2002.) (Geels and Schot. 2010.) (Kohler et al. 2019, page 4, para 4).

Mindset and Posture

Mindset and Posture, described as the awareness of the influence of a designers' values and beliefs upon design positions and approaches that are required to be critically reflected upon through self-inquiry during transitional times (Irwin. 2015, page 235). It may find expression through cultivating the conscious awareness, reflection, engagement, evaluation and education to support the mindset transformation of both the designer and fashion system participant, as they collaboratively establish a critically aware, regenerative fashion future.

New Ways of Designing

New Ways of Designing, considered as the synthesis of the three aforementioned aspects of Transition Design while also including a long-term or alternative perspective of time and a commitment to designing with patience and flexibility, in regard to these considerations (Irwin. 2015, page 237). It may outwork through a long-term commitment to the holistic application and critical evaluation of researched sustainable design models, techniques, mindsets and lifestyles offered through sustainable development-minded and mindfully aware fashion researchers, designers, collectives or individuals. This is once more situated in local, place-based ways.

Together these four co-evolving areas of transition inspire a pathway forward for sustainable fashion. Due to the scope of this research it is important to note, this framework lays a brief foundation for sustainable fashion transformation, offering broad suggestions of application, of which researchers or fashion practitioners are invited to expand upon and evaluate. Meanwhile, this framework also offers a foundation upon which The Emergent Fashion Design Process, to be discussed in the ensuing section, may be built upon.

Vision

Holistically envisioned fashion system

New Ways of Designing

Holistic application to
fashion system and
process design

Theories of Change

Offering alternative fashion
pathways
at niche level & beyond

Mindset and Posture

Cultivating conscious awareness,
reflection, engagement and education



FIG. 21. DAY. 2023.

The Transition Design framework of the four co-evolving pillars, applied to an emergent future fashion system.

4.2.2 EMERGENT FASHION DESIGN PROCESS MODEL

As the intricate lacework of contextual review found development and a transition design fashion framework was understood, furthermore ideated. The next actionable pathway forward in considering, **How transition design-led conceptions of holistic future fashion systems may be applied through a fashion design process**, to facilitate engagement between wearer and garment, was to build upon the emergent fashion design processes established in the contextual review, to present an investigated iteration of an informed fashion design process, aimed to to facilitate engagement between wearer and garment. To then be evaluated through two interconnected case studies that explore a circular and participatory design process of creation, reflection, experience and connection.

EARLY DEVELOPMENT AND CORE PRINCIPALS

As early ideation of this emergent design process model ensued (see fig. 22-27), a collection of principals gathered from the contextual review, guided these initial iterations. These founding principles were, Circular Thinking, A Participatory Approach and The Creation/Reflection Cycle.

Circular Thinking

Circular Thinking was guided by Life-Cycle Thinking (Gwilt. 2012) and Cradle to Cradle (McDonough and Braungart. 2002) approaches that offer a circular mindset-informed closed-loop waste-mitigating system. This thinking guides system transition, moving from the linear and wasteful take-make-dispose model (Ellen MacArthur Foundation. 2017), towards a circular model of fashion design that aims to bring forward awareness and responsibility in the fashion system participant. This promotes consideration of a garment throughout its lifetime, while holding in mind its relationship to environmental systems.

A Participatory Approach

A Participatory Approach, also considered as a Relational Approach in the author's early model maps, was informed by Participatory Design (Burcikova. 2019) and Co-Design (Niinimaki and Hassi. 2011) approaches discussed in the 3.2 Emergent Fashion Processes section, in which interactive modes of fashion creation are offered. Thus promoting strengthened connection between wearer, garment, designer and other stakeholders in the fashion design process, with aim to facilitate increased wearer engagement that in turn, supports the sustainability strategy of delayed garment disposal though increased emotional connection

with garment. Furthermore, through strengthened human connections across the fashion design process, this Relational Approach intends to consider and contribute to human needs identified amidst The Relational Plane of need discussed in section 2.1 (Max-Neef. 1992) (Ryan and Deci. 2000) (Mark and Lyons. 2010).

The Creation/Reflection Cycle

The Creation/Reflection Cycle was developed by considering the phases of the fashion design process through a circular lens (Gwilt. 2012), in collaboration with critically aware reflective thinking of Mindset and Posture, denoted in the Transition Design Framework (Irwin. 2015). These considerations offer two anchor points within The Emergent Model of Creation and Reflection. These two modes of creation and reflection are both critical to fashion and regenerative change. Creation is composed of actions held within the early phases of fashion creation including Research and Analysis, Synthesis, Manufacturing and Distribution (Sinha. 2002), all enacted to facilitate wearer-engagement. Meanwhile Reflection spans these phases, to further include the Use and End-Of-Life phases (Gwilt. 2012), where emphasis is given to the wearers experience of wear, offering a deepened emotional connection that may propel life-extension, in addition to the creative re-use of the garment. Once more Reflection flows into a process of Creation, thus generating a circular, closed-loop fashion design process. This circular Creation/Reflection Cycle draws further inspiration from the natural environment, being reflective of the life/death/life cycles held within nature (Estes. 1992). When applied in harmony with the rhythms and cycles of its local application, this may further align fashion in relationship to nature, through reverence of the natural environment's flows.

“

How transition design-led conceptions of holistic future fashion systems may be applied through a fashion design process, to facilitate engagement between wearer and garment.

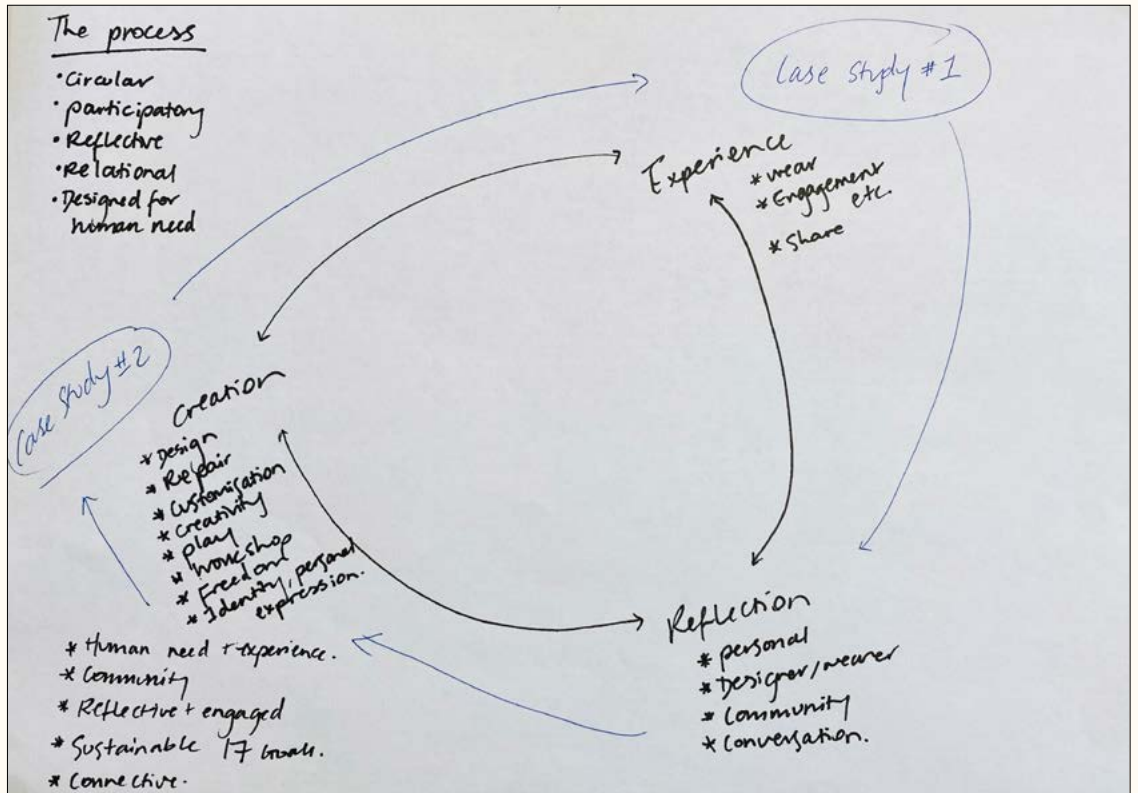


FIG. 22. DAY. 2022.
Hand-sketched visualisations of early design process workings highlighting initial themes of circular thinking, a relational approach and creation/reflection moments.

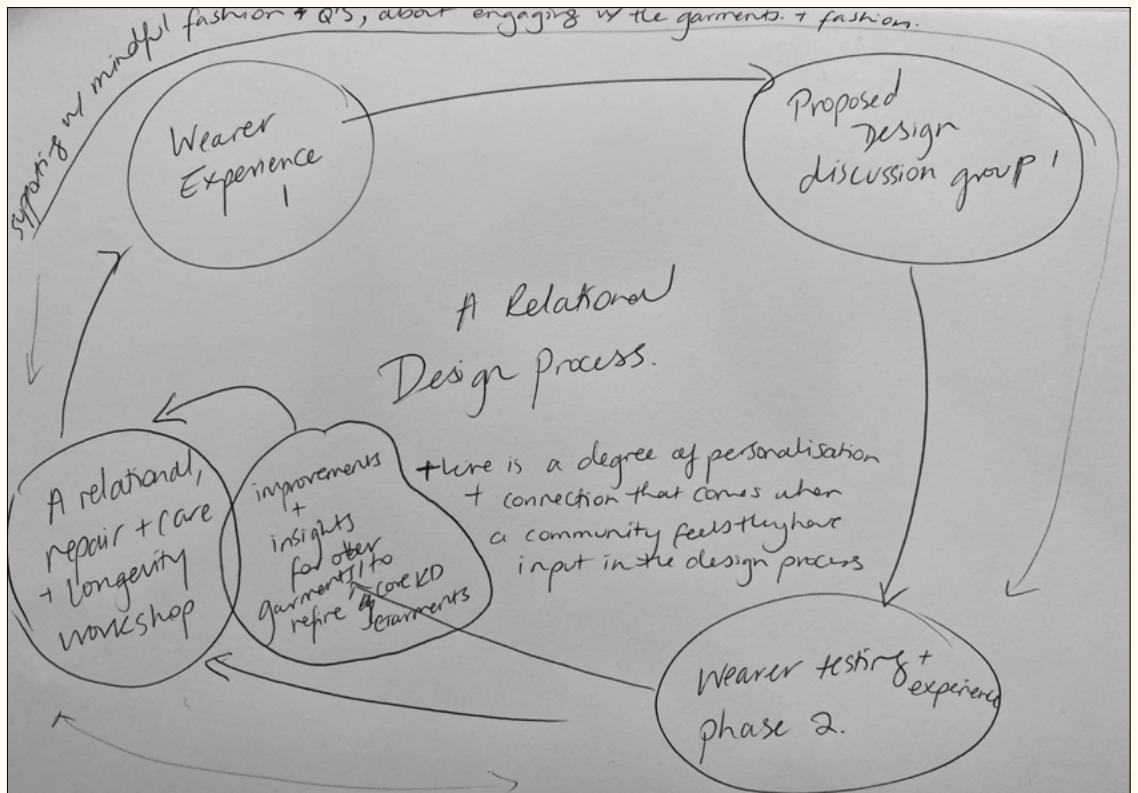


FIG. 23. DAY. 2022.
Developed sketches of early design process thinking, considering points of connection and reflection with the wearer.

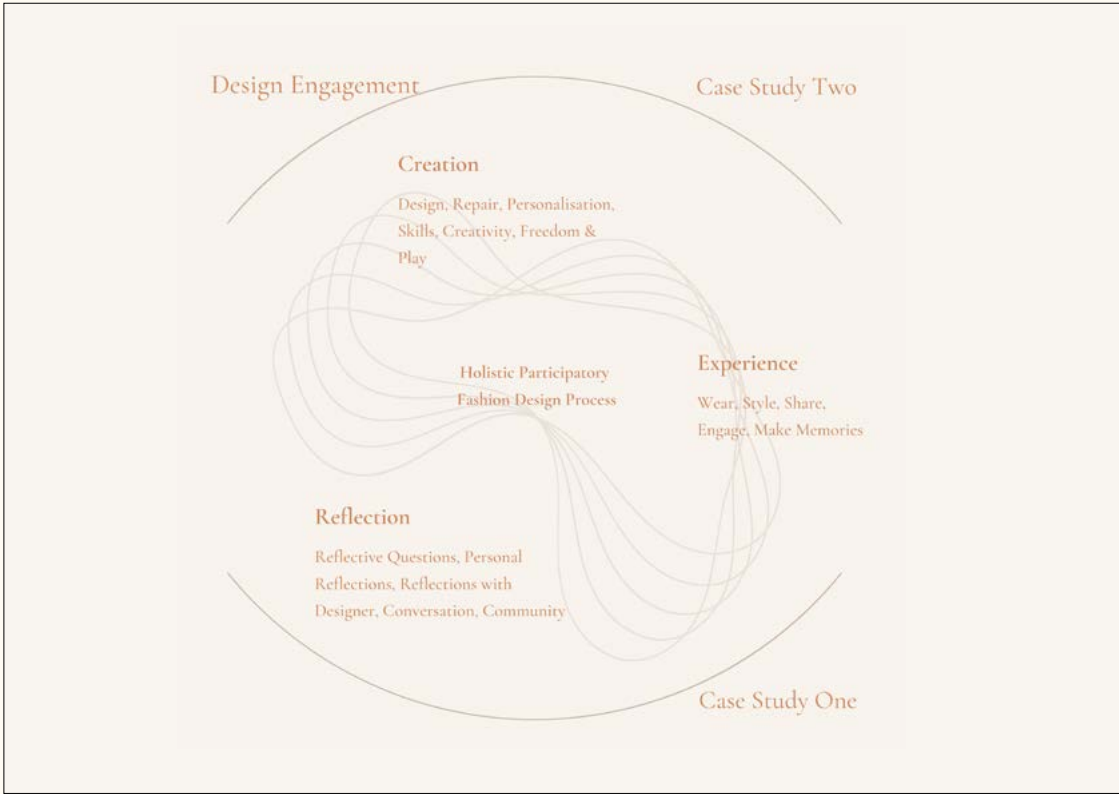


FIG. 24. DAY. 2022.
Early graphic visualisation of the developing design process.

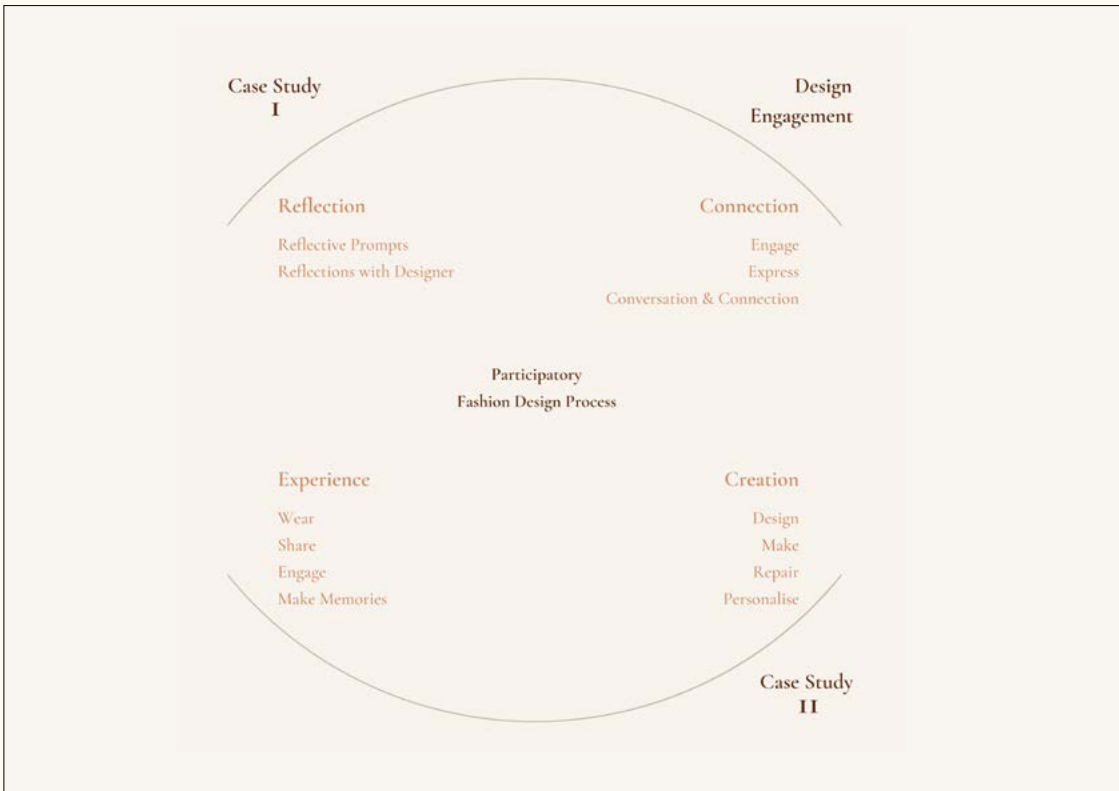


FIG. 25. DAY. 2022.
Graphic visualisation of the emergent fashion design process, developing with increasing clarity of the case studies investigation of the Creation/Reflection cycle.

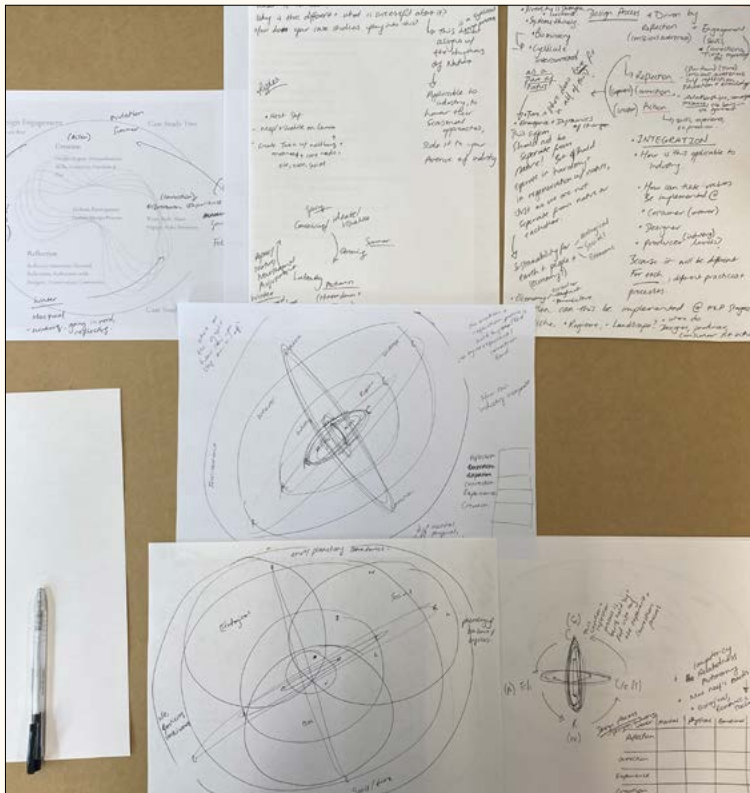


FIG. 26. DAY. 2023.
Hand-sketched ideations of the emergent fashion design process, incorporating increasing elements of consideration.

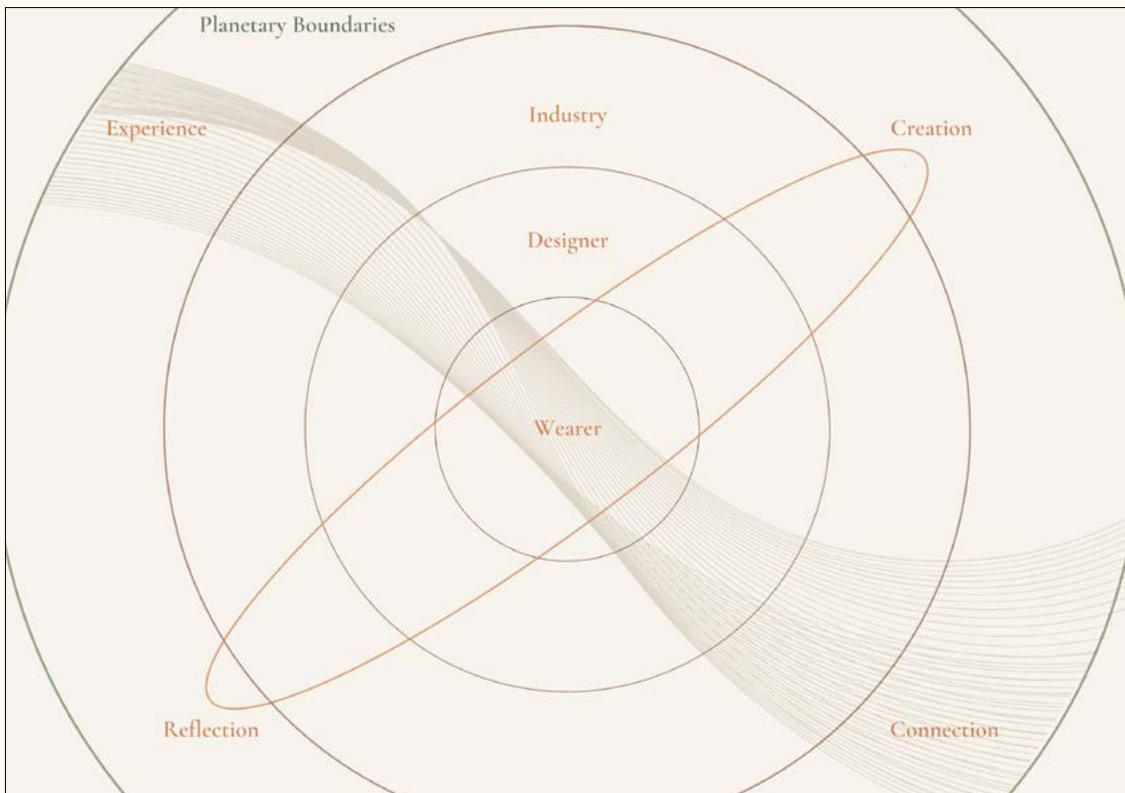


FIG. 27. DAY. 2022.
Graphic depiction of the emergent fashion design process, hosting core principles such as circular thinking, broad fashion system participation and a cycle of creation and reflection.

THE EMERGENT FASHION DESIGN PROCESS MODEL

Together the informed early iterations, composed of core principals or Circular Thinking, a Participatory Approach and The Creation/Reflection cycle developed to produce The Emergent Fashion Design Process Model. A model composed of the core circular process of Creation and Reflection, held within an Experience and Connection band, together engaged across interconnected layers of fashion system participation, to evolve in alignment with sustainable development considerations (Purvis et al. 2019) (see fig. 28).

SUSTAINABLE DEVELOPMENT AND FASHION SYSTEM PARTICIPATION

This Emergent Fashion Design Process Model is composed of numerous elements, however as the model is generated through the lens of sustainable transition, areas of sustainable development are necessary to be recognised and visually represented. Such areas include the three pillars of sustainable development, informed by the 1987 UN commissioned Brundtland Report (Purvis et al. 2019, p686, para 4), Environmental, Social and Economic development and are depicted as three overlapping spheres, observed in figure 29. Thus representing the interconnected and evolving sustainable development framework this model is accountable to and held within, that in extension operates in respect of planetary boundaries.

Alongside the areas of sustainable development, an additional constituent element of this design process model was offered, spheres of fashion system participation. In which three collective realms of fashion engagers were defined; The Wearer, Designer and Industry (see fig. 30). With the wearer held at the centre of this model to represent transitions of power from the designer-centric traditional fashion system (Faerm. 2021). Once more democratising and decentralising fashion as within this model, power flows in and through the consciously engaged individual, co-creating a generative system. Also of note, the spheres signifying fashion system participants host distinguishable gaps, intended to represent the flow of connection and interconnectedness between the participants, further advocating for a highly connective fashion practice to once more provide opportunity to meet connective human needs, as discussed in 2.1. These porous concentric spheres of participation provide the visual articulation of human engagers, through which the central design process of Creation, Reflection, Experience and Connection, may occur.

CREATION/REFLECTION, EXPERIENCE AND CONNECTION

Upon the constituent elements of sustainable development and fashion system participants, the central, cyclical design process of Creation and Reflection orbits, occurring at all levels of participation (see fig. 28). This circular process of Creation and Reflection continually flows into itself, transforming and extending the life-cycle of the garment through its lifetime. As referred to in the founding principles, Creation hosts the initial phases of the design process, including Research and Analysis, Synthesis, Manufacturing and Distribution (Sinha. 2002). While Reflection, though utilised in earlier phases, places emphasis on the Use and End-Of-Life phases (Gwilt. 2012), where awareness is heightened toward the wearer's experience. The responses from which flow back into the Creation phases, to offer a highly engaged process of garment creation and use, that may propel life-extension through strengthened emotional connection, developed from active participation. Furthermore, at the End-of-Life phase, the reflective engagement required within this design process may inspire the creative re-use of the garment, material or fibres. Once more guiding the garment into a process of Creation, contributing to a circular, closed-loop fashion design process.

With an understanding of the Creation/Reflection cycle, we now direct our attention to the wave of lines holding this Creation/Reflection process, called the Experience-Connection band (see fig. 31). This band of open, interlaced lines represents that the Creation/Reflection cycle is held within the interconnected engagement of the fashion participant's experience and connection, with both the fashion system and this design process (see fig. 32). Their Experience may include reflecting upon the experience of garments in everyday life or observing the experience of participating within this process or the wider system. Meanwhile, Connection considers the quality of their interactions with all members of the fashion process and system, with emphasis given to the local community, partnered with technologically enabled global networks. Both realms of Experience and Connection then offer feedback to inform the sustainable evolution of the Creation/Reflection cycle. Thus representing once more an emergent design process that promotes sustainable development through an approach established upon regeneratively informed Circular Thinking (McDonough and Braungart. 2002) (Gwilt. 2012), spirited Creation (Gwilt. 2012) (Fletcher. 2016), critically aware Reflection (Schon. 1983)

(Irwin. 2015) and relationally nurturing Experience and Connection (Max-Neef. 1992) (Niinimaki and Hassi. 2011) (Burcikova. 2019). To address the research question, **How can transition design-led conceptions of holistic future fashion systems be applied through a fashion design process, to facilitate engagement between wearer and garment?**

In order to evaluate the effectiveness of the sustainable development contributions of this Emergent Fashion Design Process Model, a Sustainable Design Criteria was developed, to be discussed in the following section. Once we have gained understanding of the design process model and its mode of evaluation, we can look ahead to the application and evaluation of this design process in a local community through two interconnected case studies, to be detailed in the subsequent sections.

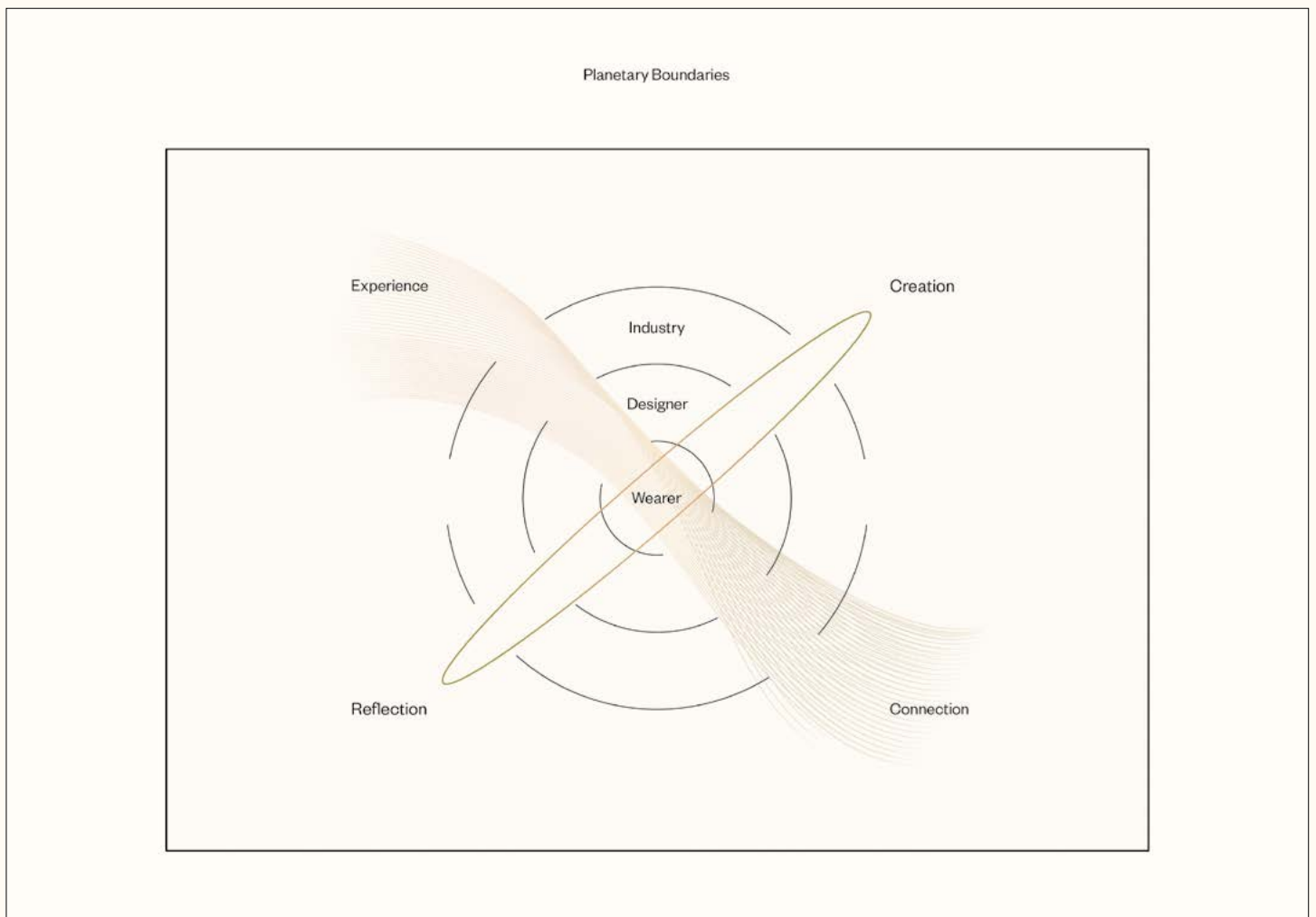


FIG. 28. DAY. 2023.
Graphic designed by Kimberley Zhou,
displays the complete Emergent Fashion
Design Process Model.

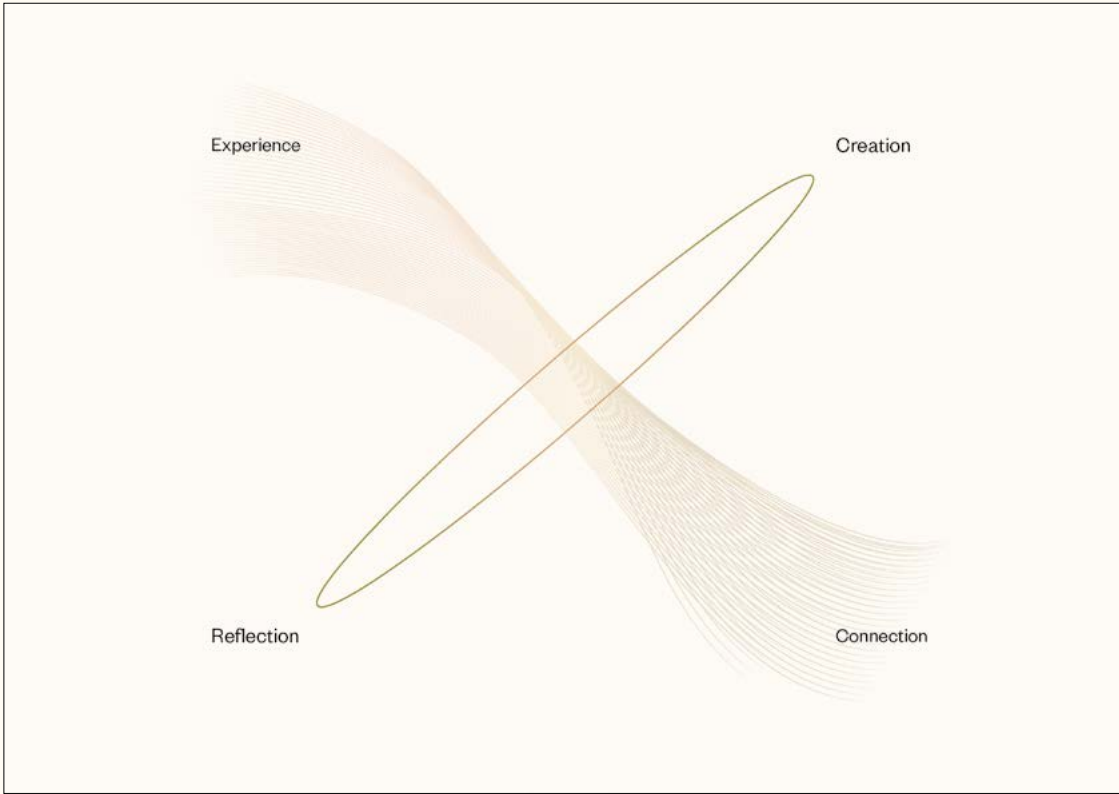


FIG. 29. DAY. 2022.
 Graphic designed by Kimberley Zhou, visualises the three areas of sustainable development, Economic, Social and Ecological.

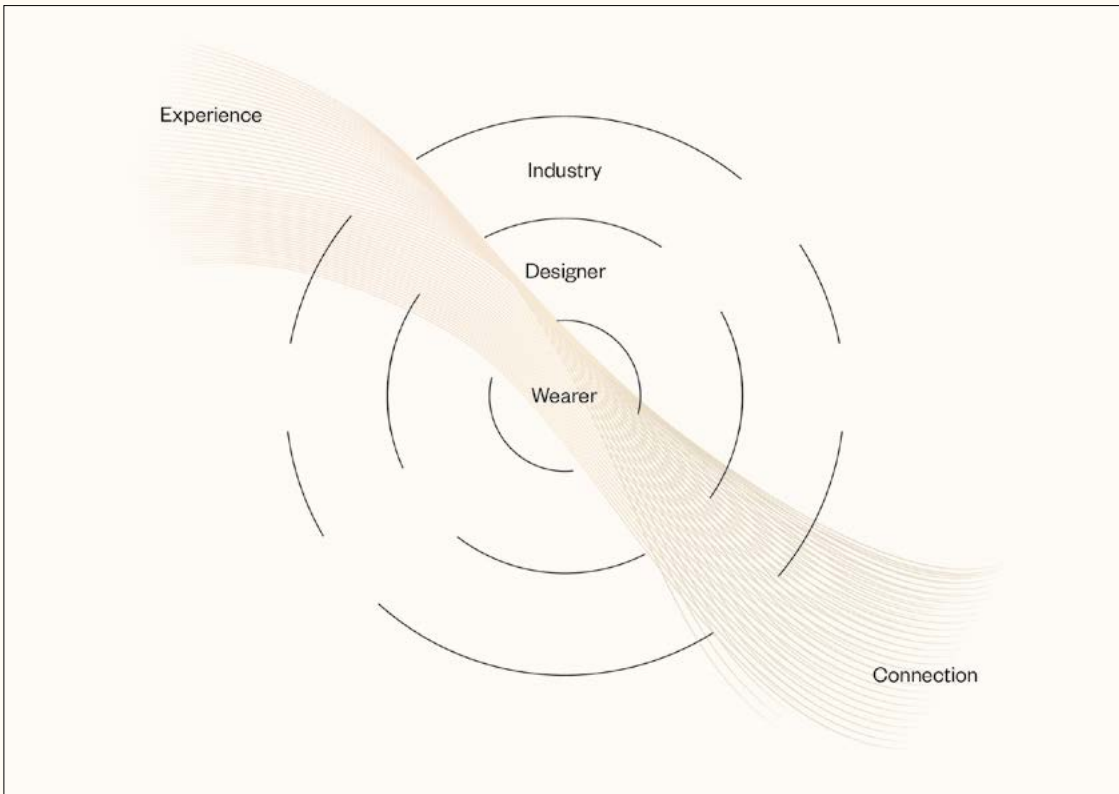


FIG. 25. DAY. 2022.
 Graphic designed by Kimberley Zhou, maps the three encompassing participant areas of the fashion system that are considered in this research: Wearer, Designer and Industry.

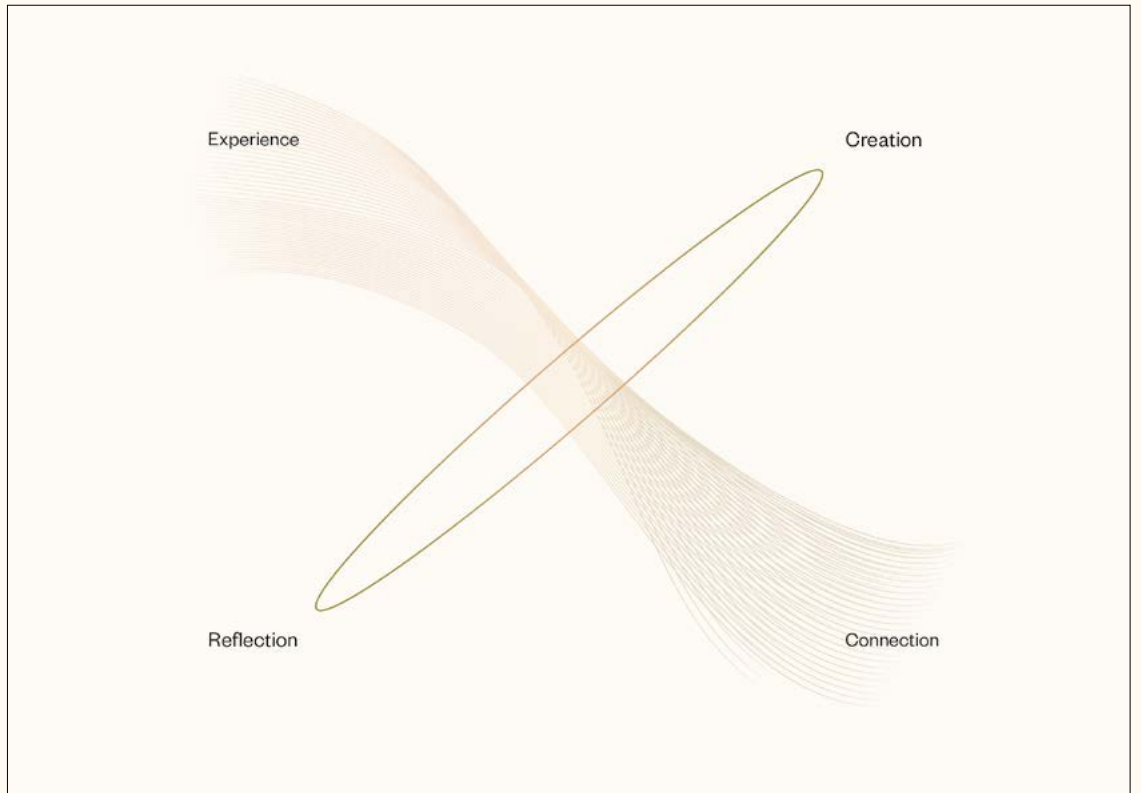


FIG. 31. DAY. 2023.
 Graphic designed by Kimberley Zhou, observes the Emergent Fashion Design Process components of the Creation/Reflection cycle in relation to the Experience/Connection band.

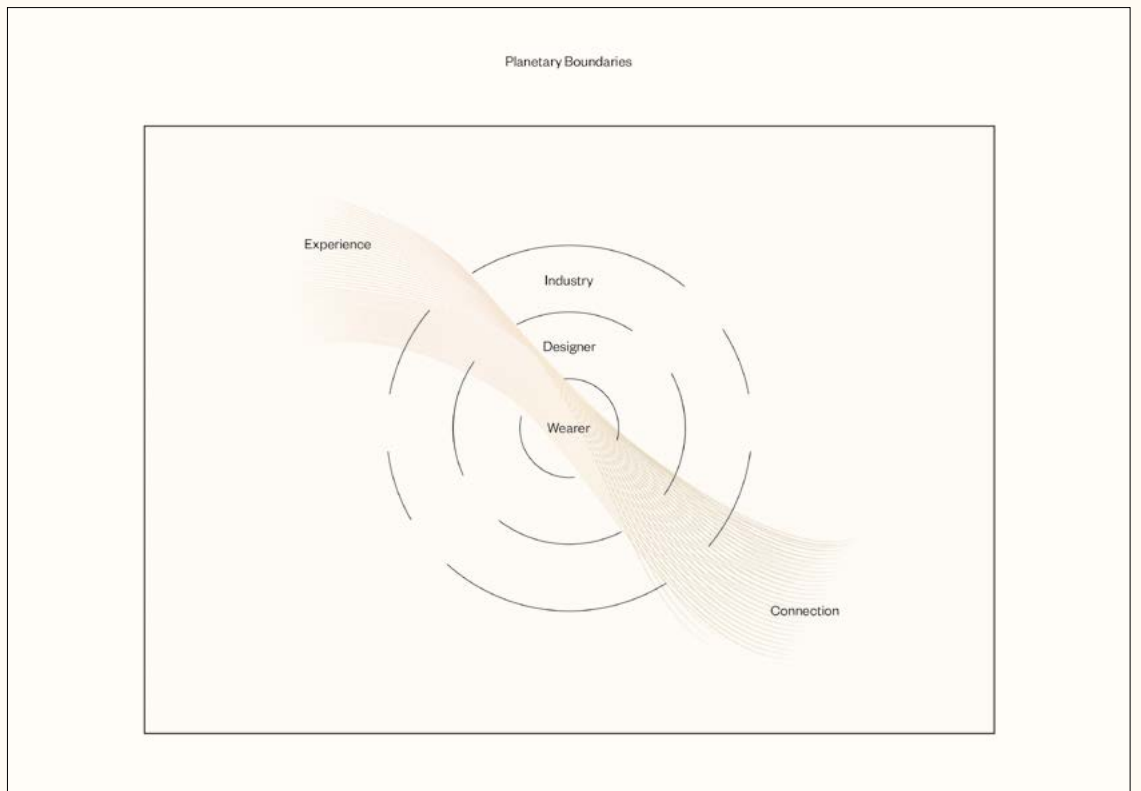


FIG. 32. DAY. 2023.
 Graphic designed by Kimberley Zhou, displays the interconnected relationship between the fashion system participants and the Experience/Connection band.

4.2.3 SUSTAINABLE DESIGN CRITERIA

As a tool to measure the holistic sustainability reach of this Emergent Fashion Design Process, a Sustainable Design Criteria was developed. Established in sustainable development theory that was also woven into the formation of the design process model, the criteria endeavours to examine the three areas of sustainable development, first articulated in the 1987 UN Brundtland Report (Purvis et al. 2019, p686, para 4), social, environmental and economic development.

Under each area of sustainable development, five areas of consideration were then generated through summarised contextual research, with corresponding questions to articulate how the criteria had been met and to identify where there was opportunity for growth and what adaptations could be made to align with sustainable development (see fig. 33).

Under Social Development, the five areas of consideration were: Facilitated Engagement (Niinimaki and Hassi. 2011) (Chapman. 2015) (Burcikova. 2019), Needs (Max-Neef. 1992) (Ryan and Deci. 2000) (Mark and Lyons. 2010), Community and Diversity (Fletcher and Tham. 2019) (Whitty. 2021), Time (Fletcher and Tham. 2019) (Whitty. 2021) and Education (McQuillan et al. 2018). With corresponding questions as seen in figure 34.

Environmental Development considered: Material Integrity (Gwilt. 2012), Design, Quality (Gwilt and Rissanen. 2011) (Niinimaki and Hassi. 2011) (Rissanen. 2013), Production (Gwilt. 2012) (Khairul Akter et al. 2022) and Life-Cycle (McDonough and Braungart. 2002) (Jin Gam et al. 2009) (Gwilt. 2012). With corresponding questions as seen in figure 35.

While Economic Development examined areas of: Value (Robbins. 1935) (Everett. 2022), Cost (Chan and Wong. 2012) (Niinimaki. 2015), Circularity (Everett. 2022), Accessibility (Chan and Wong. 2012) (Mukendi, A., et al. 2020), and Responsible Growth (Niinimaki. 2015) (Everett. 2022). With corresponding questions as seen in figure 36.

This tool was developed to be flexible and adaptive, offering engagement throughout all areas of fashion system participation. Inclusive of the Wearer, Designer, and Industry alike, the tool can be altered to differing levels of scale and engagement, through the tailoring of questions offered and format given, under each of the five areas of consideration. This tool invites a form of personal accountability and responsibility toward sustainable development, however is highly encouraged to be used in a locally connective manner, inviting a diverse array of perspectives in support of collective sustainable evaluation and growth.

With the collection of sustainable fashion future ideations and tools of Transition Design-led Holistic Future Fashion Framework, The Emergent Fashion Design Process Model and the Sustainable Design Criteria detailed, we may now observe these developments in action. Such developments are observed through the application of these models, investigated through two interconnected case studies, held within a local community, to be described in the following section.

SUSTAINABLE DESIGN CRITERIA

CRITERIA:	MET:	HOW DOES THIS MEET THE CRITERIA?	WHAT ADAPTATIONS COULD BE MADE?
<u>SOCIAL</u>			
Engagement:	<input type="checkbox"/>		
Needs:	<input type="checkbox"/>		
Community & Diversity:	<input type="checkbox"/>		
Time:	<input type="checkbox"/>		
Education:	<input type="checkbox"/>		
<u>ENVT</u>			
Materiality:	<input type="checkbox"/>		
Design:	<input type="checkbox"/>		
Quality:	<input type="checkbox"/>		
Production:	<input type="checkbox"/>		
Life Cycle:	<input type="checkbox"/>		
<u>ECON</u>			
Value:	<input type="checkbox"/>		
Cost:	<input type="checkbox"/>		
Circularity:	<input type="checkbox"/>		
Accessibility:	<input type="checkbox"/>		
Responsible Growth:	<input type="checkbox"/>		
<u>NOTES:</u>			

FIG. 33. DAY. 2023
The Sustainable Design Criteria, displaying three areas of sustainable development consideration: Social, Environmental and Economic

SUSTAINABLE DESIGN CRITERIA

SOCIAL

Facilitated Engagement

- How is emotional attachment being supported? Eg. Through emotional attachment needs such as quality, place, narrative, memory, relationships, personal expression, exchange.
- How is the wearer's engagement being facilitated? Eg. through repair, scarring, modification, integration or personalisation.

Needs

- How does this garment support physical, relational, mental and spiritual needs?
- Alongside Everyday life needs of subsistence, protection, affection, understanding, participation, recreation (idleness), creation, identity, freedom and transcendence?

Community & Diversity

- Have the garments interacted with three or more people at each stage of their life cycle, including design, production, wear and post-wear?
- Who has this garment interacted with in its process of creation?
- What have the quality of the connections been like?
- How has the engagement transformed the garments?
- Have a diverse set of perspectives and/or skills interacted with the garments?

Time²

- Has the garment been made or interacted with, within a sustainable, appropriate and mutually paced time frame?

Education

- How can awareness and engagement be supported?
- What skills can be supported, throughout the garment life-cycle/in relation to the garment?
- What can be open-sourced?

KATIE DAY

MDES '23

FIG. 34. DAY. 2023.

The five considerations of Social development in regard to a fashion design process, expanded to display subject-specific questions.

SUSTAINABLE DESIGN CRITERIA

ENVIRONMENT

Material Integrity

- Are the materials traceable, locally sourced, biodegradable, non-toxic, regenerative and from renewable energy sources?

Design

- Have the garments been designed utilising zero or minimal-waste techniques?
- Have the designs been generated, with the inclusion of a diverse set of perspectives?
- How is technology being engaged with, to minimise waste?

Quality

- How has quality and longevity been designed into the garment? eg. seam width, strengthening high-wear areas, repair, modification, re-use, emotional attachment through personalisation, narrative & connection.

Production

- Have the designs been manufactured locally?
- Have the designs been compensated fairly, at a living wage or above?
- What has the environmental impact of the production been eg. carbon emissions, water use and quality? How can this be renewable, sustainable or regenerative?

Life Cycle

- Can the garment life-cycle be mapped from seed to seed?
- How has post-life use been designed into the garment?
- How has post-life awareness and action been supported?

KATIE DAY

MDES '23

FIG. 35. DAY. 2023.

The five considerations of Environmental development in regard to a fashion design process, expanded to display subject-specific questions.

SUSTAINABLE DESIGN CRITERIA

ECONOMIC

Value

- What value and abundance is the garment generating, in relation to resource scarcity?

Cost

- What are the financial costs of this garment? Materials, design, production, time, cost per wear etc.
- Do the benefits exceed the costs?
- How is waste being minimised?

Circularity

- In what ways are raw material demand reduced - Is this process maintaining, re-using or refurbishing (CE, Everett, 2022, p2) materials that exist?
- How is renewable energy integrated in garment lifecycle?

Accessibility

- Is this accessible and affordable?
- In what ways can accessibility be increased?

Responsible Growth

- Where are the cascades and momentum?
- Is this scalable in ways that are environmentally responsible?
- What non-material aspects of this are scalable?

KATIE DAY

MDES '23

FIG. 36. DAY. 2023.

The five considerations of Economic development in regard to a fashion design process, expanded to display subject-specific questions.



4.3 TWO INTERCONNECTED CASE STUDIES

To evaluate the Holistic Fashion System Framework, the Emergent Design Process Model and the Sustainable Design Criteria in action, two interconnected case studies were developed. With emphasis given to exploring the circular Creation/Reflection cycle of the design process, through flows of Experience and Connection.

To provide a brief overview, together the two case studies offered a capsule collection of considered garments, designed with a focus of sustainable garment design and emotional attachment, to support long-term engagement between a wearer and their garment (Niinimaki and Hassi. 2011) (Chapman. 2015) (Burcikova. 2019), alongside the intentional reduction of environmental impact through mitigating garment waste (Gwilt. 2012) (Rissanen. 2015) (McQuillan. 2018). A mindset shift, an articulated pillar of Transition Design (Irwin. 2015), was actioned through a relational design process, to reawaken roles of participation in fashion through reflection and collaborative creation, between the Wearer, Designer and Industry. A visual map of the two interconnected case studies is offered in figure 37. To identify where Case Study One and Case Study Two sat in relation to the Creation/Reflection cycle and Experience/Connection band, while also displaying actions engaged under each value.

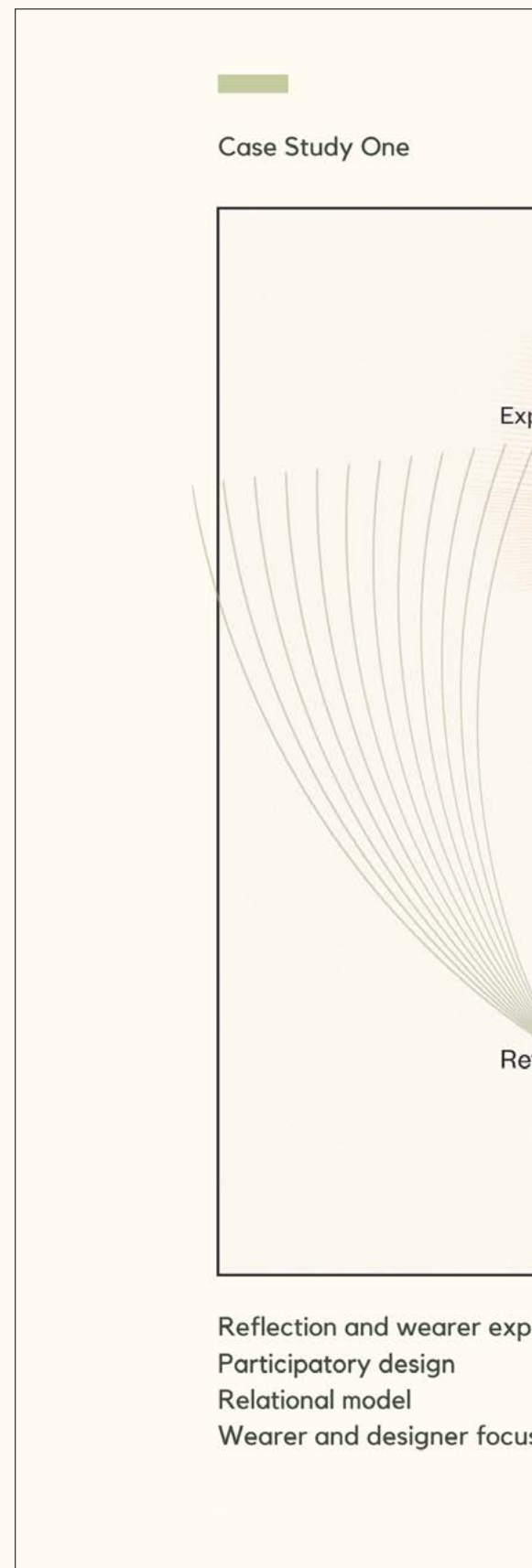
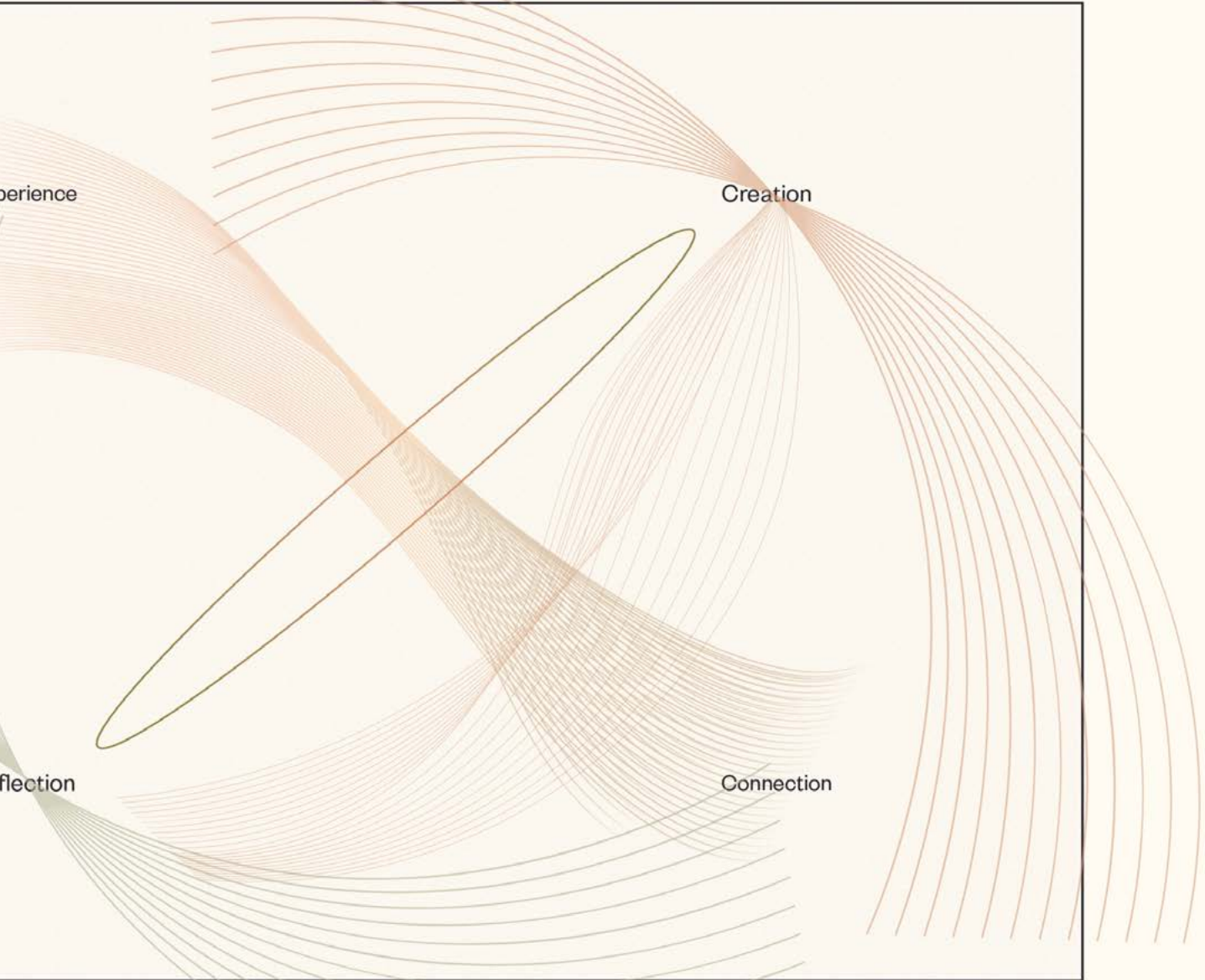


FIG. 37. DAY. 2023.
A visual map of the two interconnected case studies, displaying the case studies interactions between Creation, Reflection, Experience and Connection.



Case Study Two



Experience

s

Creation
Participatory and co-design
Wider connections - Designer, Industry and Wearer
Reflection flows into creation
Ripples outward



The Reflection Phase

FIG. 38. DAY. 2020.

Two hand-knit garments, a jumper and cardigan designed with emotionally durable properties, rest serenely upon dining room chairs in the home.

Case Study One

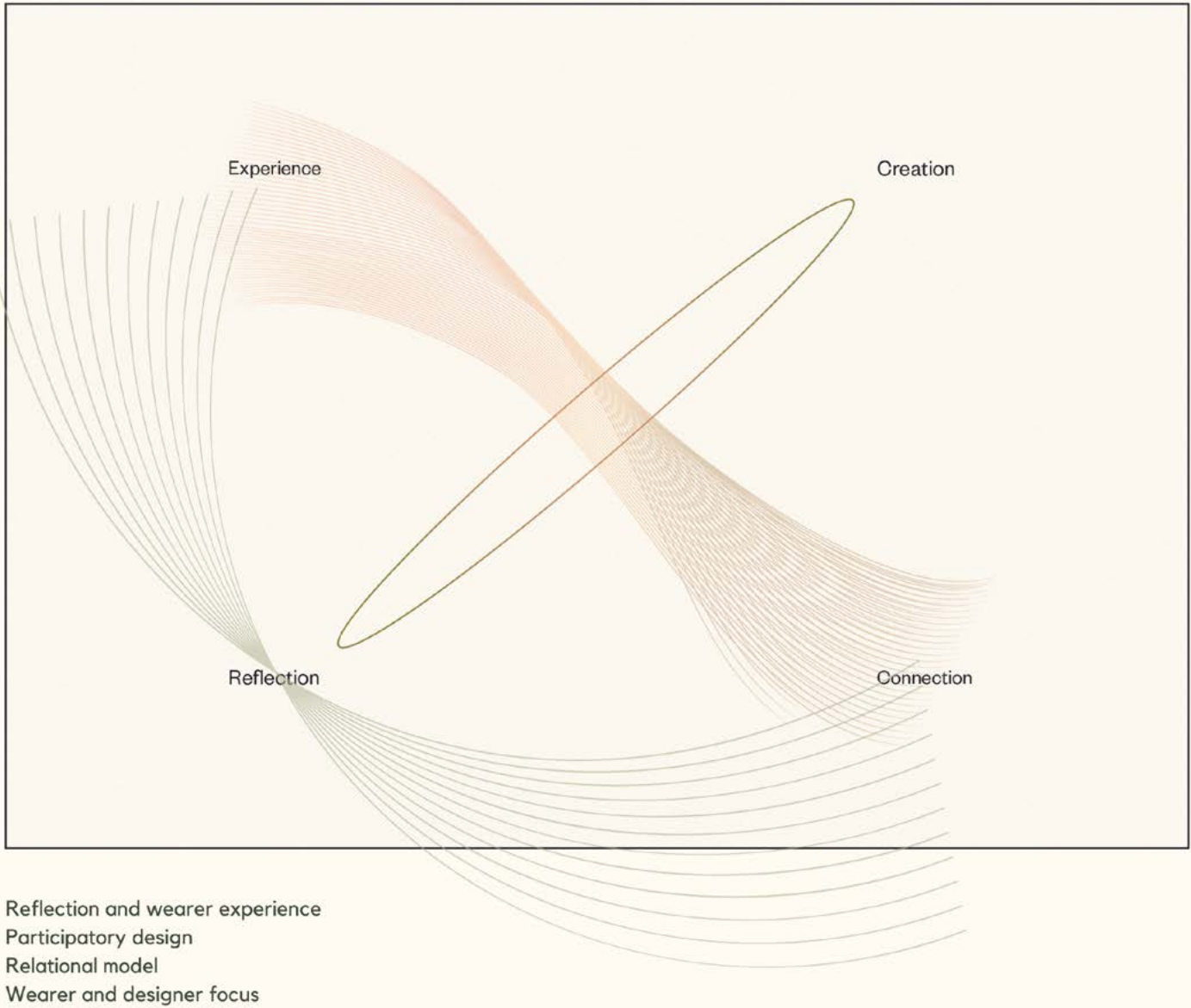


FIG. 39. DAY. 2023.
A visual map of Case Study One's placement in the Emergent Fashion Design Process model, indicating an emphasis on Reflection, Experience and Connection.

4.4.1 THE REFLECTIVE PROCESS

As the first case study is expounded upon, the genesis point of Case Study one is observed to be anchored in the action of Reflection, while also magnifying Experience then Connection (see fig. 39). To begin at the anchor point of Reflection, Case Study One was initiated, offering garments that had been designed with qualities of emotional attachment (Chapman. 2015) (Burcikova. 2019) and sustainability strategies (Gwilt. 2012) to two participants, to wear over a course of two weeks.

The two participants*, Maya and Sophie were selected through the criteria of being local community members of Te Whanganui-a-Tara, Wellington, who hosted an interest in sustainable fashion, while offering a diversity of ages (the two women spanning age ranges of 30's-50's) and lifestyle perspectives. Due to the scope of the research and the researchers specialty in womenswear development, women were selected, however the designs generated in Case Study Two offer adaptability to be modified towards gender fluidity. This set of criteria was developed in alignment with the research interests of locality, sustainable fashion and diverse local perspectives.

The two garments offered by the author/designer were a cream coloured woollen jumper and cardigan (see fig. 38), designed with emotionally durable design strategies, by the author in a previous study examining emotional durability in garment design (Day. 2021). The garments were infused with researched EDD themes of relationship, personal expression, quality, place, exchange, narrative and memory (Day. 2021, page 33, figure 17), while also being developed with sustainability strategies. Strategies included Design for Sustained Wear, through timeless or adaptable silhouette, material and colour choice. Design for Low-Impact, through biodegradability, choosing a minimally dyed, natural fibre of 10 ply baby alpaca yarn and zero-waste make and Design for Responsible Production through locality in local sourcing of yarn and production, collaborating with hand-knitter Gale to create the final pieces (Day. 2021, page 39, para 2).

Once these garments were delivered to the participants to wear (see fig. 40), they were invited to wear one garment per week, exchanging garments at the midpoint of the study. After each experience of wear, they were then invited to respond to three reflective prompts, for example Participant A wears Garment A for an evening at home, at the end of the evening Participant A briefly responds to the three reflective prompts in a journal set aside for the reflections of their experiences. These reflective prompts were designed to engage a holistic experience of wear, considering the context of past, present and future, surrounding the garment. Meanwhile response examples were also provided, to offer the participants a guide through the reflections. The prompts offered to the participants, as seen in figure 41. are:

1 What experiences did you have and how did you feel while wearing the garment today?

Take time to reflect on the moments of this day. How did you experience those moments while wearing this garment? How did you feel in the garment? Consider aspects of physical, mental, emotional, spiritual and social well-being.

2 Reflect on your previous experience of wear, how did you feel while wearing the garment last?

Record any recollections of your prior experience of wear. What stands out to you the most in your memory of wear? How did you feel in the garment and what comes to mind when you think of this garment. There is no need to answer this question upon first wear.

3 How do you want to feel in your garments tomorrow?

Reflect on what aspects of physical, mental, emotional, spiritual and social well-being you wish to experience or express in or through your garments tomorrow.

The participants were invited to share their reflections in any format suitable to them, for example audio recording, word document, pen and paper notebook, visual diary and so forth. Both participants chose to record their responses in a word document format.

To conclude the study, spanning two weeks of wear, a one hour workshop was conducted over zoom, given consideration of pandemic conditions. This workshop was supported by language and visual prompts, following the understanding that visual prompts encourage engaged and increasingly complex insights from participants in qualitative interview settings (Gauntlett and Holzwarth. 2006, page 82, para 2) (Page et al. 2022, page 1, para 1). The language and visual prompts were intended to support the participants' articulation of emotions felt in connection to their wear experiences, while also generating colour preferences in guidance of future design developments. These visual prompts included Robert Plutchik's psychoevolutionary Wheel of Emotions (Plutchik. 1980), designed to visualise articulation, configuration and varying intensity of emotion. In addition to the 1905 Thought-Form's textured colour and meaning chart, Meaning of the Colours (Besant and Leadbeater. 1905), generated thought-connected, material-like colour ways for future design preferences. The workshop was intended to host an opportunity for further engagement and reflective depth through holistic hindsight reflections on the experiences of wear. While also generating a connective participatory space to facilitate the participatory design process, through collectively generating aspirations for future wear, to inform the researcher/designer on the desired clothing needs and aesthetic preferences of local community participants. The workshop was audio recorded for textual analysis purposes, granted by the permission of the participants. The full scope of each case study received low-ethics risk identification and approval by the research supervisors.



FIG. 40. DAY. 2022.
The knit garments packaged in hand-made tote bags, prepared for participant delivery.





Response

I wore the jumper over one of my favourite silk dresses. I felt safe and comforted in the jersey heading to a social event. I received how many comments I received on how soft the jumper felt. People said it felt so soft to touch and I felt like it was hugging me. The jumper kept slipping off my shoulder, leaving me feeling insecure. I tightened the straps at the back and carried on, feeling more confident and at ease in the jumper and I could tell the softness of the garment softened out interactions.

Reflect on your previous experience of wear, how did you feel while wearing the garment last?

Record any recollections of your prior experience of wear. What stands out to you the most in your memory of wear? How did you feel in the garment and what comes to mind when you think of this garment.

There is no need to answer this question upon first wear.

FIG. 41. DAY. 2022.

The reflective prompts with response examples, delivered through a website designed for the case study participants.

What experiences did you have and how did you feel while wearing the garment today?

Take time to reflect on the moments of this day. How did you experience those moments while wearing this garment? How did you feel in the garment? Consider aspects of physical, mental, emotional, spiritual and social well-being.

Example

*...esses, to a barbecue with friends tonight. I felt
...cial event where I didn't know everyone. I noticed
... wool was, which was a great conversation starter.
... was a soft buffer protecting me. Though the
... feeling exposed in moments. Naturally I
... feeling more comfortable. Overall I felt beautiful
...ness of the jumper put others at ease too, the
...s.*



4.4.1 FINDINGS

Upon the conclusion of the wearer participation in the first case study, the findings were synthesised and analysed. This occurred through the collation of their wear-experience journal reflections, offered in word document form, in addition to the transcribed audio recording of the conclusive workshop. Once these texts were collated, a process of thematic analysis was carried out in the sociological tradition (Bernard and Ryan. 1998, page 612, para 3), to provide a summary of key themes found throughout the text, while offering insight into the human experience. Thus developing understanding on the participants experiences of wear, needs for wear and aspirations for future wear (see fig. 42).



FIG. 42. DAY. 2022.

Case Study One findings visualised to display three areas of consideration: Experiences of Wear, Needs for Wear and Aspirations for Future Wear.



EXPERIENCES OF WEAR

Key themes of the participants' experience of wear emerged through the thematic analysis, illuminating eight core experiences. These core experiences were, Comfort, Nostalgia, Support, Serenity, Value, Gratitude, Self-Reflection and Discomfort.

Comfort

Comfort synthesises themes including: softness, warmth, emotional comfort, home, being cosy, comfortable and cocooned (see fig. 44 and 45). With participants sharing expressions of comfort such as,

“

The wool was so soft, it felt like a cocoon wrapped around me.

Maya in CS1, 2022.

“

I had an easy, slow morning and the jumper felt so soft and squishy to wear when I was lying on the sofa drinking my coffee.

Sophie in CS1, 2022

Nostalgia

Nostalgia was reflected through themes of: memory, family, friendship, home, recollections of childhood and memories of warmth and nurture. Maya reflected on the knit qualities of the garments inspiring memories of her mother knitting by the fire,

“

Very instantly I thought about how she used to knit, just as a recreation you know.

She used to knit jumpers for us and sometimes she would crochet as well. I have these sort of enduring memories of her, especially in the Winter, we were sitting by the fire and just knitting away. So, you know, that was quite nice.

Maya in CS1, 2022

Support

Support was collated through themes of: trust, safety, emotional comfort, support in uncertainty and being cocooned. Participant Sophie articulated the emotional 'buffer' the cardigan provided,

“

It was such an easy warm layer to put on, and the subtle wool smell made me feel at home and at peace.

I answered a hard email I'd been putting off all week, supported by the chunkiness of the cardigan somehow. Perhaps because it felt like a protective layer between me and the thing I didn't want to do, a bit of a buffer.”

Sophie in CS1, 2022

Serenity

Serenity synthesises themes of: relaxation, calm and serenity (see fig. 46). With both participants identifying 'serenity' as a core felt aspect of wear, when viewing Plutchik's Wheel of Emotions (Plutchik, 1980). Sophie further expressed in a journal reflection,

“

The jumper almost made me feel like it's the weekend as it's very casual and slouchy; the natural white colour is very calming.

Sophie in CS1, 2022.

Gratitude

Gratitude was reflected through themes of: happiness, appreciation of quality, texture, weight and local production of garment. Maya shared how the softness of the jumper and the opportunity to reflect facilitated gratitude for the day, while Sophie shared appreciation for the texture and weight of the garment,

“

When I got home I slipped on the jumper and thought about how nice it was to talk to my colleague.

Maya in CS1, 2022.

“

I felt more attached to the garment than the last time I wore it, as I started to appreciate just how warm and soft it was compared to some of my thinner jumpers.

The shoulder slipping off didn't bother me the last time, I was in a warm house and unmoved by the jumper settling on my body. It felt like a fuzzy balloon on my torso.

Sophie in CS1, 2022.

Value

Value was observed through themes of: trust, value for quality, natural fibres, local production and appreciation of texture and weight of the garments. In Sophie's prior quote we can also ascertain value perceived in the garment through appreciation, Sophie continued to further expresses an overall feeling of trust in the garments,

“

I felt more attached to the garment than the last time I wore it, as I started to appreciate just how warm and soft it was compared to some of my thinner jumpers.

Sophie in CS1, 2022.

“

I probably felt trust actually, because those garments are so dependable. You knew they were gonna be great. The first time you saw them, it was great and you knew, this is gonna be good.

Sophie in CS1, 2022.

Self-reflection

Self-reflection was concluded through themes of: discovery, awareness and emotional attachment. Maya discussed the awareness that emerged through the process toward self-inquiry and consideration of the industry,

“

There's been more of an awareness as to why I have what I have and why I love it. I don't think I've really thought about that and now I am much more aware. In future, I will think about it more when I buy anything, or won't buy anything new.

Maya in CS1, 2022.

“

I feel connected with pieces now that I know more, and when I look at things in my wardrobe, most of the newer things that I've bought are because I love it and because it's local. I know about the company, the people that have produced it and the ethical ethos of how they work, and that makes me feel happier.

Maya in CS1, 2022.

Discomfort

Discomfort was noted through elements of: discomfort and distraction due to ill fit of jumper, shoulders too wide, sleeves too short. minimal instructions of how to wear, associated childhood memory of discomfort in garments. Maya explained how the irritation of the jumper's slipping shoulders aggravated her aches and pains. While Sophie detailed the discomfort of the fit in relation to weather needs,

“

I thought about how the jumper slipped softly down over my shoulders. I was slightly uncomfortable working at the table, and my shoulders ached after a long day.

Maya in CS1, 2022.

“

I had the 'V' at the front, and no ties attached because they felt too restricting. The jumper felt instantly soft and warm, however the sleeves were too short for me so it felt a bit too small, especially as it's winter and I want to be wrapped up.

Sophie in CS1, 2022.

NEEDS FOR WEAR

Needs for wear emerged among the findings, illuminating how the participants wanted to feel in their garments. Through thematic analysis, five areas became apparent, with the participants sharing that when considering how they wanted to feel in their garments, they were influenced by: What they would have to accomplish, the weather conditions, a desire to feel dressed for society and social belonging and a desire to balance an expression of quality. In addition, they shared a common specific theme of constantly wanting to feel warm and at ease. The following quotes display both participants' desire to dress for what they wish to accomplish, the weather, society, quality, warmth and ease. With Maya emphasising social belonging and quality, meanwhile Sophie places weight upon weather practicality and occasion suitability.

“

I like to be relaxed, warm and comfortable in my clothes. I like casual wear, which won't make me stand out in the crowd too much, but which fits me well and I hope I look nice in. As it is the weekend I think I will wear my light jeans and my brown boots.

Maya in CS1, 2022.

“

Tomorrow I am going for a big walk in the bush with my friend. My clothes tomorrow need to feel comfortable, breathable and warm.

Sophie in CS1, 2022.

“

It's my birthday tomorrow, so I want to feel cheerful and a bit fancy when we go out for dinner, but as always I want to feel warm.

Sophie in CS1, 2022.

ASPIRATIONS FOR FUTURE WEAR

To build upon the participants experiences of wear and needs for wear, in inextricable connection, are their aspirations for future wear. Aspirations for future wear directly incorporates their five areas of needs for wear, while including further key words of: versatility, practicality, breathability, comfort, serenity, trust, safety, relaxation, flattering silhouette, material and tone. To reveal, the participants aspirations for future wear was influenced by: The practicality and versatility required for what they have to accomplish in their day. The breathability and warmth required for weather conditions. The desire to feel dressed for society and social belonging, in regards to appropriateness, quality and acceptance through taking care not to stand out, while balancing expression of individual preferences. A desire to feel a sense of value for self through quality, texture, tone, fit and aesthetic appearance. A wish to feel warm, comfortable, at ease and in trust with their garments.

These reflections were essential contributions held within the participatory aspect of the design process. As the participants' reflections and aspirations generated a map of values, upon which the author/designer could apply further design skills to continue the development of the capsule collection of garments.

Here, Participatory design was further engaged, as in addition to the felt qualities of future wear offered by the participants, colour palette preferences were contributed to facilitate the future aesthetic design development of the capsule collection. The participants chose a palette that promoted the values of serenity and trust, choosing gentle earthy tones that enhance yet ease-fully blend into the wardrobe. Both participants gravitated towards the colour palette on line four of Thought-Form's Meaning of the Colours chart (Besant and Leadbeater. 1905) (see fig. 43), a palette of varying sage greens, textured browns, oranges and neutral cloud and bone tones.

“

I was comfortable with wearing pastels and things like that, I think I am definitely drawn to the paler greens and the yellows and I could wear anything on line four.

Maya in CS1, 2022.

“

I'm very drawn to greens, and yellows, browns, greens. I wear pretty much those colours for a lot of my clothes.

Sophie in CS1, 2022.

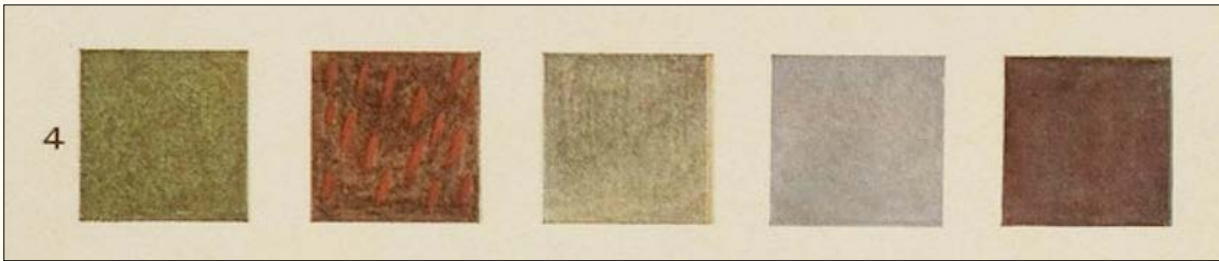


FIG. 43. BESANT AND LEADBEATER. 1905
'Meaning of the Colours' from Thought-Forms.
The line-four colour palette that attracted both participants,
to be considered as a wearable colourway.

SUMMARY

Together with the empathic understanding of the wearer's experiences, the felt qualities of need and aspiration for wear and the aesthetic preferences of the local community participants, the author/designer had a clear set of researched and analysed values and aesthetic preferences, upon which to continue design developments. Thus Case Study One, anchored in Reflection, hosted a participatory approach to the Research and Analysis phase (Sinha, 2002) of the design process, to lead into the expanded field of participatory Synthesis, Manufacture, Distribution and Use (Gwilt, 2012), to be explored in Case Study Two. As we anticipate this flow from Reflection into Creation, in this transition from Case Study One to Case Study Two, we can conclusively consider Case Study One's observation of The Emergent Fashion Design Process in action. Here, we have witnessed the process of Reflection occurring while being enhanced by the Experience and Connection band, to facilitate increased engagement between wearer and garment, in turn increasing mindful awareness of the fashion experience while strengthening the emotional bonds between the wearer and garment. In addition, increased engagement between the wearer and designer has also occurred, due to the participatory nature of this process. This has deepened the designers engagement with community, alongside a developed empathy and understanding of local community members needs, through the shared process of creation. A process that will continue to unfold throughout the second case study and be detailed in the section to follow.

* Names and any identifying details have been changed in respect of the participants privacy.





FIG. 44 & 45 .DAY. 2020.
The hand-knit garments resting in everyday life, where features of softness and comfort are observed.



FIG. 46. DAY. 2020.

The hand-knit cardigan draped across a dining room chair, offering serenity to the living space through the neutral cream colourway





The Creation Phase

FIG. 47. SZETO. 2023.

The designer/maker rests close to nature in the Rust Jumper, experiencing the warmth and ease of a Case Study Two-designed garment.

Case Study Two was carried out in a similar format to Case Study One, in an expanded capacity, with emphasis given to Creation and Connection, while also encompassing Reflective and Experiential flows to continually provide input (see fig. 48).

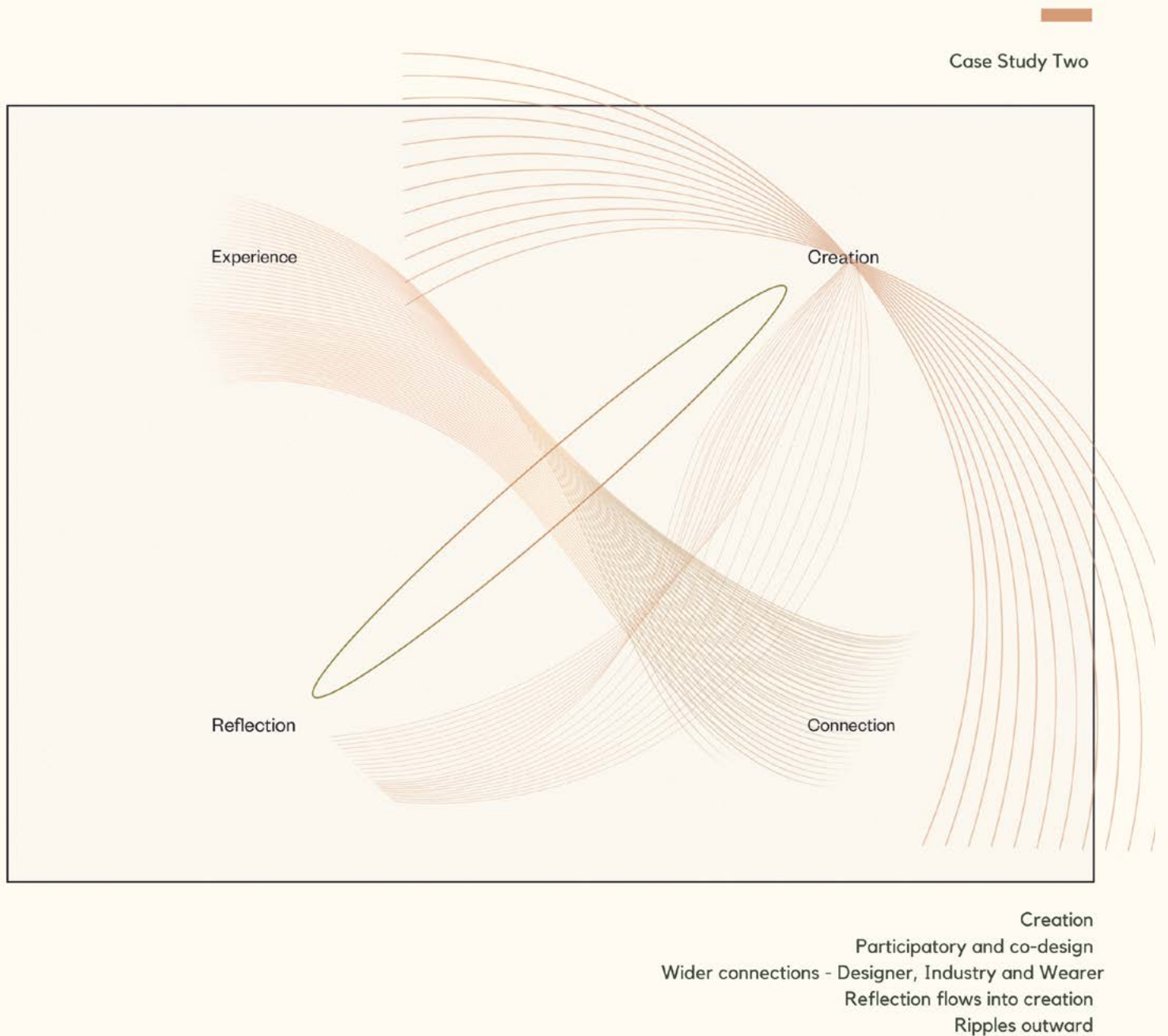


FIG. 48. DAY. 2023.
Visual guide of Case Study Two's placement in the Emergent Fashion Design Process model, indicating an emphasis on Creation and Connection, then Experience and Reflection.

4.5.1 THE DESIGN PROCESS

To launch Case Study Two, an initial design and Creation process of Research and Analysis (Sinha. 2002) ensued, guided by the needs, aspirations and colour-way findings of Case Study One. Also guiding initial design developments were the research considerations of emotional attachment and sustainability strategies, as Niinimaki's research (Niinimaki and Hassi. 2011), among others, alongside Gwilt's understanding of fashion sustainability strategies (Gwilt. 2012), highlights that emotional attachment deepens the relationship with a garment and delay's garment disposal, one design strategy to mitigate garment waste. Propelled by such findings, the designer/author was able to apply their fashion design skillset to generate a design concept and evolving mood boards (see fig. 49-50) to provide a design direction and set appropriate parameters. The design concept echoed themes of regeneration, emphasising the life/death/life cycle, considered the "fluttering, then faltering, then fluttering again." (Estes. 1992), found in the contextual review and held within the essence of the emergent fashion design process. The designer/author shares ideations of their chosen design concept,

“

As I consider this design concept of engaging with our garments throughout their life/death/life cycles, I ponder, can we hold space for the transformations of our treasured garments, as we too evolve throughout this life and as members of nature, life evolves around and with us? Can we draw from wisdom of nature's dancing cycles and, like midwives, hold strength and vision for the transformation and rebirth of our garments, throughout our life-cycles?

Katie in CS2, 2022.

The designer/author continues on to infuse elements of their personal experience in the design concept development, sharing a personal reflection,

“

I am challenged to infuse aspects of my personal life into the design process but through design practice, I have found it so, so essential and rewarding, to create from experience. So I will speak of death and rebirth in the love and loss of my Father, the fragility and the rebuilding. Establishing new bonds, finding him in new places, new knowledge and new experiences.

I draw inspiration from the strength to lean into vitality over fear. The warmth and comfort of my mother growing up, of mothers, my best friends mothers, all the mothers in my life. I draw inspiration from the beautiful warmth, strength, vitality, protection and creativity of my inner circle, as I have transformed. The interconnections of hearts, family beyond blood.

Katie in CS2, 2022.

Concept formation developed in synthesis of case study one reflections, cyclical and personal reflections, to offer the key design phrase of “The fluttering, then faltering, then fluttering again.” (Estes. 1992), in addition to key words and phrases of: serenity, trust, ease, versatility, warmth, quality, fluidity and structure, fragility and strength, decomposition and creation, curved and softened lines with raw elements, to represent cyclical nature of organic forms.

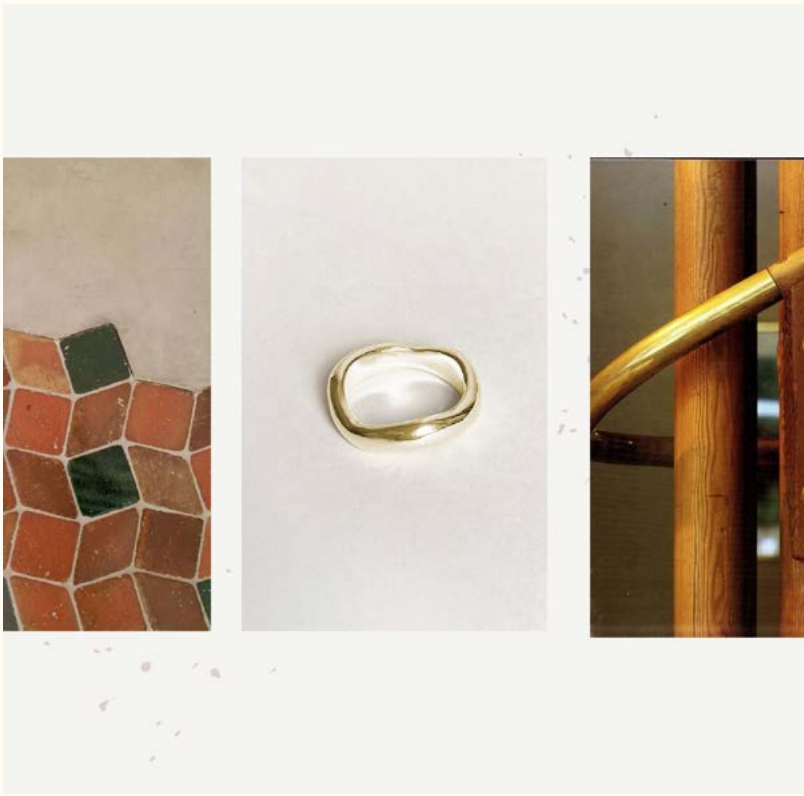


FIG. 49 & 50. DAY. 2022.

Early mood board iterations, displaying themes of warmth, ease, everyday life and cyclical forms, within the chosen colour palette.

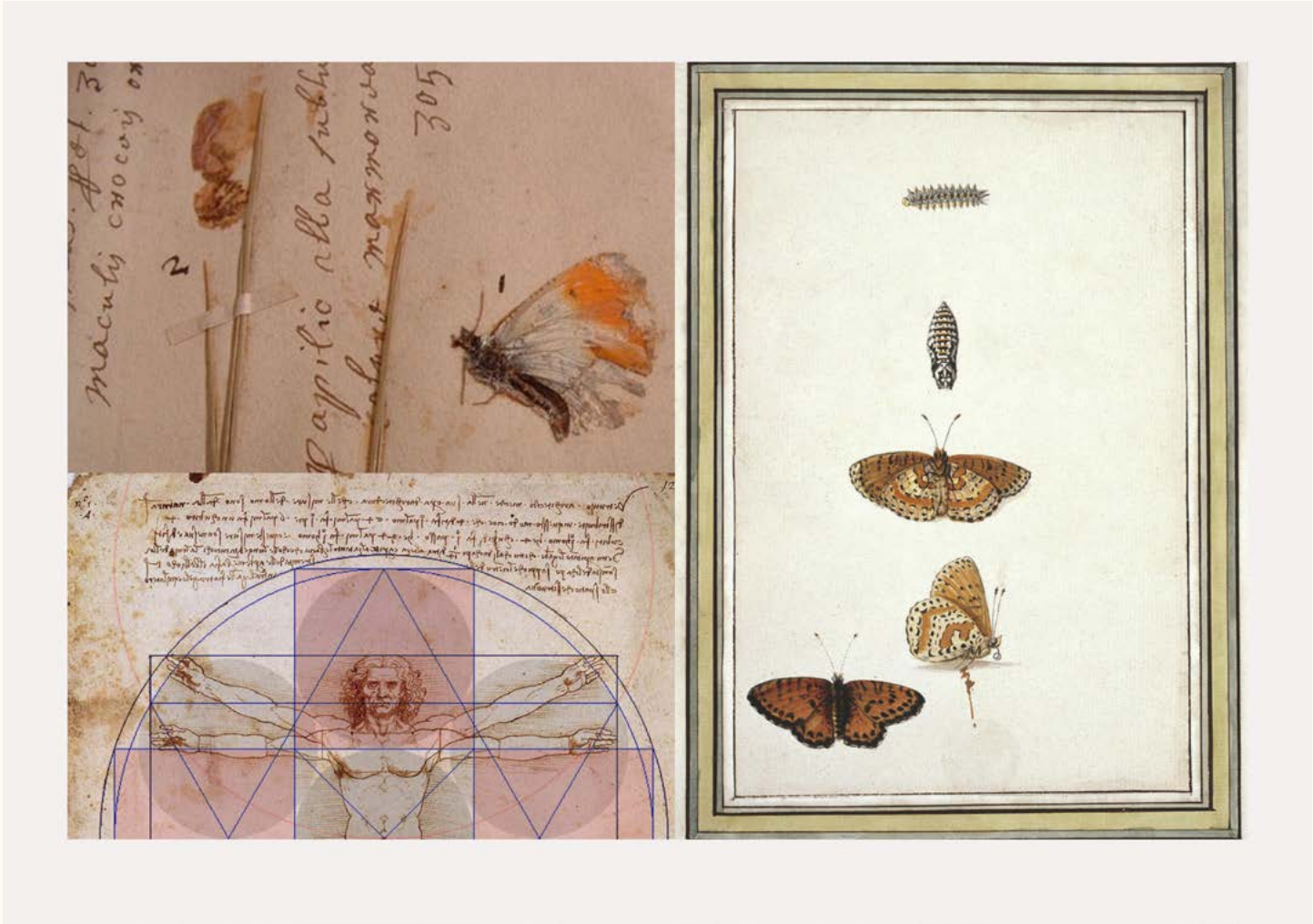


FIG. 51. DAY. 2022.
The finalised mood board visualising the core design
concept of the reflective and circular life/death/life cycle.

DESIGN DEVELOPMENT WITH SUSTAINABLE DESIGN STRATEGIES

Upon this design concept of cyclical transformations, while integrating the two knit pieces already in the capsule collection, initial designs were developed (see fig. 52, 53 & 54). These designs followed an iterative sketch methodology for development (Gray and Malins. 2004, page 30) (see fig. 55, 56 & 57). While designs were in development, the sustainable design strategies of Chapter 3.3 were employed, including Design for Enduring Use through adaptable, longline and spacious silhouettes in addition to natural fibres chosen in a neutral colour way. Design for Sustained Wearer/Garment Relationship, was developed through familiarity, attachment and empathy cultivated with the garment through the reflective and participatory design process, in addition to the designed opportunity for personalisation. Design for Modification occurred through developing designs with wide fabric portions and seam allowances, that could be modified or adapted throughout the garment lifespan. While Design for Low-Impact Circularity, found application through minimal-waste techniques and biodegradable and local fabric choices.

FIG. 52, 53 & 54. DAY. 2022.

Initial design sketches iterating CS1's collection of hand-knit jumpers, while infusing themes circularity, life movement and decay.

FIG. 55, 56 & 57. DAY. 2023.

The iterative design process continued to incorporate sustainable design strategies such as Design for Enduring Use through adaptable, longline and spacious silhouettes.

FABRIC SELECTION

As the iterative sketches developed, fabric was sourced for the capsule collection from local community sources. Woven fabric was collated of deadstock fabric (see fig. 58) purchased from The Fabric Store, fabric donations from community members, recycled fabric from the designer/author's possession, in addition to the generous donation of secondary fabric from a local Tamaki Makaurau, Auckland, based designer, Ellis (Ellis. 2023), contributing to connection and circularity between designers, within the fashion industry. Wool was sourced from a local Te Awakairangi, Lower Hutt, hand-wool dyer, Heather Weir (Weir. 2023), who hand dyed multiple skeins of 12 ply ethically sourced, 100 percent, baby alpaca wool (see fig. 59). All fabrics were selected due to their locality, biodegradable quality and alignment with the design brief. Meanwhile fabrics were further chosen in adherence to the colour-way preferences of the participants, including sage green sand-washed silk crepe de chine and cotton poplin, sand coloured linen/silk blend, cream coloured cashmere wool coating, natural cotton denim and rust coloured baby alpaca wool yarn (see fig. 60).

FIG. 58. DAY. 2023.

A collection of woven fabrics sourced of deadstock, recycled or donated supplies.

FIG. 59. DAY. 2023.

Local hand-dyed, 12 ply, baby alpaca wool in Cinnamon by Heather Weir.

FIG. 60. DAY. 2023.

The finalised designs in hand-sketch form, featuring each garments chosen selection of fabrics.

FIG. 58



FIG. 59



FIG. 60



TOILING AND DRAPING

Through a process of iterative sketch and fabric selection, a capsule collection was developed to then find formation through pattern making, sampling and participatory reflection. A process of toile development ensued through methods of pattern making, draping and response to the body, while Reflective Practice (Schon. 1983) offered additional observation and insight during this Synthesis process of design (Sinha. 2002).

The garments began their initiation into form through methods of drape and pattern-making, where the designer/author engaged with wide lengths of fabric to explore how the Wrap Dress and Wide-Leg Pants, as seen in the design sketches, could be formed engaging minimal-waste techniques, while the drape method also offered conceptions of movement in everyday-life (see figs. 60-67). The designer then endeavoured to incorporate the emotionally durable sustainability strategy of design for longevity (Burcikova. 2019, page 73), utilising pattern-making to facilitate construction for longevity (Gwilt and Rissanen. 2011, page 69) through widened french seams, applied hems and reinforced areas of high touch or wear, such as the neckline. As the toiles took form, the designer further observed the garments responding to the body, to ensure movement while gaining an understanding of the garment's function with everyday-life, taking note of dress and pant length, sleeve volume and fabric spaciousness, weight and texture (see fig. 63).





4.5.2 REFLECTIVE PRACTICE

As the toiling process unfolded, Reflective Practice, in which the designer reflected in and on their practice (Gray and Malins. 2004), was engaged to develop insight on the design process. The designer/author strengthened their reflective insights using the RMIT's Reflective Writing in Design prompts (RMIT University Library. 2023) and shares a sample of reflections that informed the toiling process,

an understanding of the garment's function with everyday-life, taking note of dress and pant length, sleeve volume and fabric spaciousness, weight and texture (see fig. 63).

What insight(s) did I gain through the studio?

(RMIT University Library. 2023)

“I have found inspiration to return to knitting as a practice in mindfulness, grounding and embodiment. Working with the knitwear designer has inspired a return to knitting for myself. Every time I was feeling overwhelmed by perfectionism when I needed to work or write my thesis, I would knit a couple of rows of a face cloth and this would help me ground, get out of my mind and into my hands, reminding me to take a breath, remember that I am capable and to take a couple of steps forward, or rather knit a couple of rows and that progresses the journey.”

Katie in CS2, 2023.

Which significant events, theories, methods, thinkers and practitioners contributed to your insight?

(RMIT University Library. 2023)

“This thinking was informed by researcher Hayley Thompson’s exegesis discussing Mindfulness in Slow Fashion, in which she shares, “Mindfulness directs us to be aware of the true spectrum of what is occurring both internally and externally, encouraging a holistic and clear view of reality” and can “assist in guiding us to reconcile the interconnectedness of people, the planet, the phenomenon of fashion and our need to grow and express ourselves through creative production.” (Thompson. 2019, page 111, para 2). This consideration of observing internal and external awareness during the design process is much alike the Reflective Practice process of reflecting in and on (Gray and Malins. 2004), and in this moment of my design practice has increased my awareness, capability and peace of mind and body.”

Katie in CS2, 2023.

What do you now understand and how does it affect your practice?

What is the value of the insights and its effects on future practice?

(RMIT University Library. 2023)

“Not only have I learned the power of engaging mindful awareness (a value of this fashion practice), to slow down and bring awareness to my thoughts, body and craft, to find a gentle way forward. I also have increased empathy with my co-design colleague Gale, the wonderful hand-knitter, while additionally have deepened comprehension that having a tactile understanding of the medium I am designing for is essential for my functional understanding of the design developments and expands my future creative capabilities and ideation capacity. I intend to deepen my knitting practice to support this expanded insight.”

Katie in CS2, 2023.



FIG. 61. DAY. 2023.
Photograph of the minimal-waste pattern lay for a skirt portion of the Wrap Dress.

FIG. 62. DAY. 2023.
Photograph of the resultant waste from the minimal-waste Wrap Dress pattern lay.

FIG. 63. DAY. 2023.
Photograph of the designer/ maker observing the Wrap Dress sleeve volume resting on the body during an everyday task.

What insight(s) did I gain through the studio?

(RMIT University Library. 2023)

“Today I have been draping the back yoke, as I am developing the pattern piece, I wonder, could this be made or reinforced with waste fabric? I will explore this when I look at my pattern lay...

After looking at my pattern lay, I have found this pattern piece is well-suited to be made of the minimal-waste off-cuts and I can adapt the pattern to fit the off-cut portions (see fig. 62). This is an effective way to integrate waste into the garment, a solution I had been pondering during garment developments.”

Katie in CS2, 2023.

Which significant events, theories, methods, thinkers and practitioners contributed to your insight?

(RMIT University Library. 2023)

“I remember observing this technique being used by a fashion school friend in the studio and thinking that it was an effective way to create shaped pattern pieces while integrating the waste back into the garment. As I have been developing the patterns today and throughout this design process, I have also been regarding Rissanen’s Zero-Waste theory of considering the full width and length of the fabric available to develop the complete garment, without creating waste (Rissanen. 2015, p187). Therefore as I have been developing the larger dress skirt and pant pattern pieces to span the majority of the fabric widths, integrating the minimal off-cuts generated, has been my consideration.”

Katie in CS2, 2023.

What do you now understand and how does it affect your practice?

8.5.23

What is the value of the insights and its effects on future practice?

(RMIT University Library. 2023)

“Today’s design has offered a reinforcement of the importance of observing pattern pieces from a ‘bird’s eye view’ during my design process. This will ensure that each piece of the fabric is being utilised and if not an alternative pathway of use is being planned for the fabric, further ensuring responsibility is upheld to minimise waste during the garment sampling and making process. In future practice I will integrate ‘bird’s eye view’ moments throughout the pattern making process, much like a pause of mindful awareness in the pattern making phase, to invite holistic, waste-reducing thinking.”

Katie in CS2, 2023.



FIG. 64. DAY. 2023.
Photograph of initial draping for pattern
development of the Wrap Dress's front-body.



FIG. 65. DAY. 2023.
Photograph of initial sampling for silhouette development of the Wrap Dress's back-body and sleeve.





LEFT FIG. 66. DAY. 2023.

Photograph of draping for pattern development of the Wrap Dress's front-body continued, here a reduction in volume is applied for practicality of wear.

RIGHT FIG. 67. DAY. 2023.

The designer/maker samples the sleeve volume on the body to experience the fit and develop understanding of the relationship between volume and the body.

4.5.3 PARTICIPATORY DESIGN

In parallel with, and informing the toile development, was the continued practice of Participatory Design. Once initial designs were developed signalling the conclusion of the Research and Analysis phase, a wider community of eight local participants, selected with the aforementioned criteria of interest in sustainable fashion, diversity of age and lifestyle perspective, were invited to offer their feedback on the designs. The participants were provided a design pack (see figs. 69-75) including: designs, descriptions, fabric selections and reflective prompts that considered the aesthetic, function and feeling aspects of the garments, to infuse their perspectives into the toile developments. Thus enfolding Connection within the Creation design process of the Synthesis Phase (Sinha. 2002) as observed in the Case Study Two, Emergent Fashion Design Process Model Figure (see fig. 68). The participants vastly enriched the design process, further expanding the possibilities of the designs through suggestions in response to Aesthetic, Function and Feeling prompts such as,

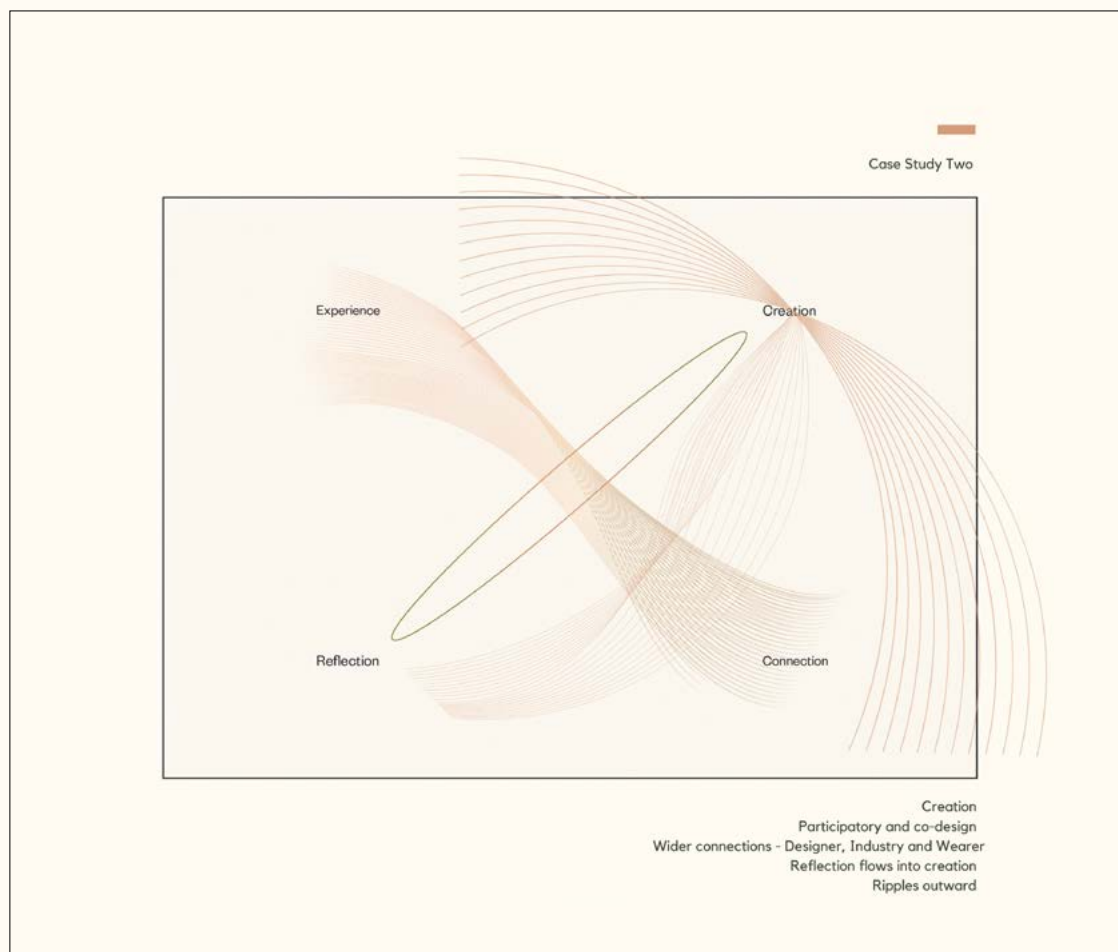


FIG. 68. DAY. 2023.
Case Study Two's placement within the Emergent Fashion Design Process model, indicating an emphasis on Creation and Connection, then Experience and Reflection.

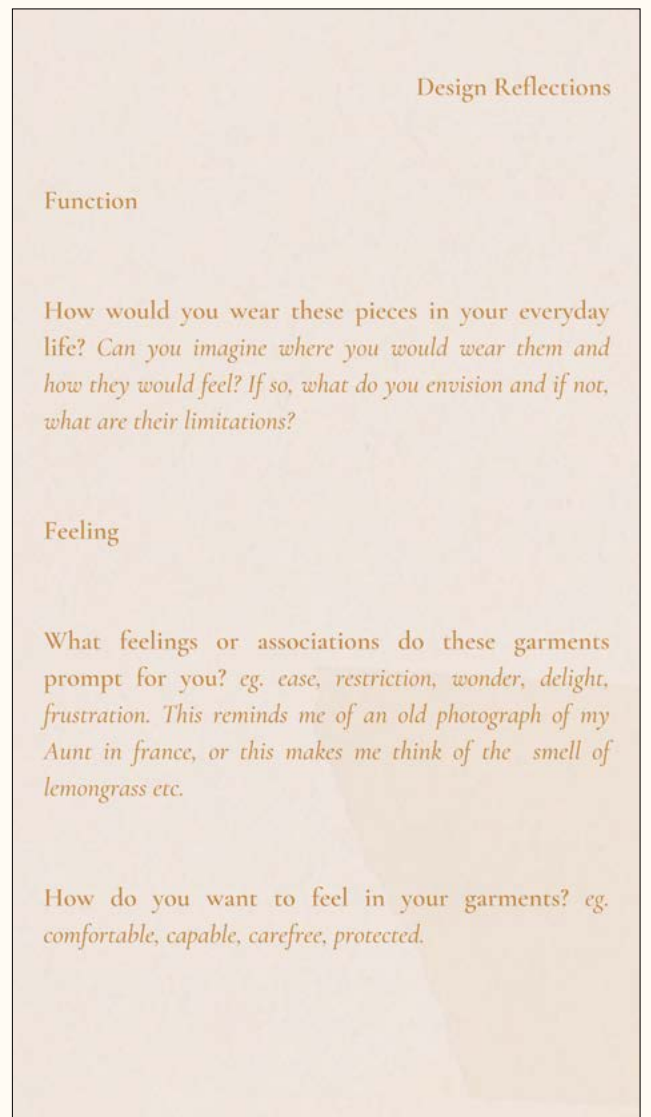
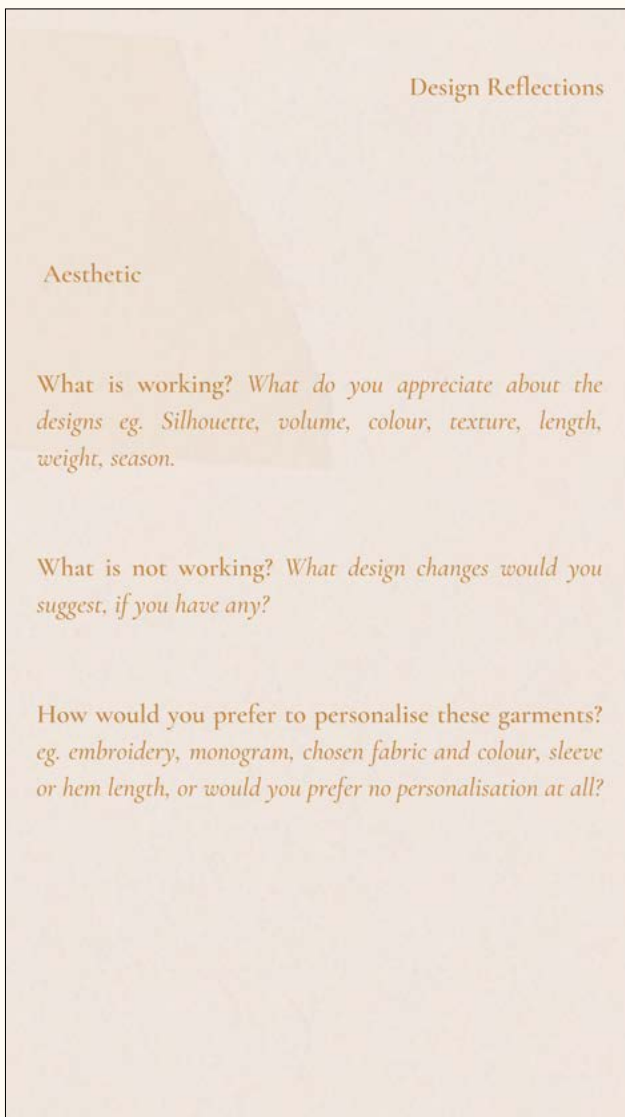


FIG. 69 & 70. DAY. 2023.
Documents from the Design Pack presenting the reflective prompts considering Aesthetic, Feeling and Function elements of the capsule collection designs.

Outfit Description

Outfit One

- Voluminous wrap dress with bodice drawstrings, placed at asymmetric and alternative positions along the waist, for the wearers personal preference.
- The dress is a maxi style, with the hem sitting just below mid-shin. Personalised embroidery sits along the hem of skirt and outer side edge of sleeve.
- The sleeve length of this design can be altered for personal preference.

Fabric Composition
 Option one: Linen/Cotton (medium weight).
 Option two: Silk/Cotton (light weight).

Colourway
 Bone with brushes of rust colouring, that lie within the troughs of the skirt waves.

Outfit Description

Outfit Two

- A cocooning coat with curved body panels, hidden in-seam pockets and voluminous sleeves.
- Oversized hand-knit woollen jumper with a thick ribbed neck, voluminous sleeves and curved cable designs, spanning the length of the bodice and sleeve.
- Billowing double layered skirt, falling from the waist to sit just below mid-shin, hem length can be altered to personal preference.

Fabric Composition
 Coat: Sleeves and inner panels are 100 percent wool cashmere. Side body panels are 100 percent natural cotton denim.
 Jumper: 12ply baby alpaca, hand dyed by local wool specialist, Heather Weir and hand knit by Northland's Gale Matheson.
 Skirt: Option one: Linen/Cotton (medium weight).
 Option two: Silk/Cotton (light weight).

Colourway
 Coat: Cashmere is cream with soft pink hue. Natural denim is a natural cream with soft marle flecks.
 Jumper: Light variegated rust.
 Skirt: Bone with brushes of rust colouring, that lie within the troughs of the skirt waves.

FIG. 71 & 72. DAY. 2023.
 Documents from the Design Pack presenting the outfit one and two design descriptions, fabric selections and colourway options.

Outfit Description

Outfit Three

- Asymmetric blouse with drop shoulder voluminous sleeves and side bodice drawstring for personalised fit and form. A personalised line of embroidery sits along the top edge of the drop shoulder.
- The blouse is paired with a wide-leg trouser, button fly trouser, with inseam pockets. The trousers sit at 7/8ths length, with a short stream of personalised embroidery along bottom outer edge of hem.

Fabric Composition

Blouse: Option one: Linen/Cotton (medium weight).
Option two: Silk/Cotton (light weight).
Option three: Viscose, elastane, donated by New Zealand designer.

Trousers: Option one: 100 percent wool (medium/warm weight).
Option two: 100 percent linen (light/medium weight).

Colourway

Blouse: Bone with brushes of rust colouring, that lie within the troughs of the sleeve waves.
Trousers: Option one: 100 percent wool, in brown.
Option two: 100 percent linen in paprika or forest green.

Outfit Description

Outfit Four

- A closer look at the jumper and skirt beneath the cocooning coat. The jumper is an oversized hand-knit with a thick ribbed neck, cuff and curved rib hem. Curved cable lines in varying widths, span the length of the bodice and voluminous sleeves, the cable knit on the bodice extends beyond the garment.
- Billowing double layered skirt, with in-seam pockets. The skirt falls from the waist to sit just below mid-shin, with adjustable hem height available.

Fabric Composition

Jumper: 12ply baby alpaca, hand dyed by local wool specialist, Heather Weir and hand knit by Northland's Gale Matheson.

Skirt: Option one: Linen/Cotton (medium weight).
Option two: Silk/Cotton (light weight).

Colourway

Jumper: Light variegated rust.
Skirt: Bone with brushes of rust colouring, that lie within the troughs of the skirt waves.

FIG. 73 & 74. DAY. 2023.
Documents from the Design Pack presenting the outfit three and four design descriptions, fabric selections and colourway options.

Designs



Outfit 1, Wrap Dress.

Outfit 2, Cocoon Coat, Woollen Jumper, Layered Skirt.

Outfit 3, Asymmetric Blouse, Wide-leg Trousers.

Outfit 4, Woollen Jumper, Layered Skirt.



12ply baby alpaca, hand dyed by local wool specialist, Heather Weir.



Light variegated rust.

FIG. 75. DAY. 2023.
Document from the Design Pack presenting the sketched capsule collection of designs, fabric selections and colourway options.



AESTHETIC

Aesthetic, in response to prompts asking:

What is working, What is not working and How would they prefer to personalise these garments?

A strong affirmative response was given to the colour palette and materials chosen, across the participants*, with Norah reflecting the instant emotional connection she feels to the Rust Jumper,

“The Rust Jumper commands my attention first, there is something magnetic about it. I don’t know why, I am just so drawn to that one.”

Norah in CS2, 2023.

Meanwhile Maya and Rose share enthusiasm for the colour and fabric palette,

“I love the fabric samples: a beautiful range of natural colours in different fibres which will create interesting changes in texture and colour.”

Maya in CS2, 2023.

“I think the neutral but warm colour palette is also a really nice choice.”

Rose in CS2, 2023.

In suggestion of development, ample attention was given to the ability to adapt or personalise the sleeves with Norah questioning the fall of the Cashmere Coat sleeve and Rose ideating practical adaptations for the dress sleeves, with both participants offering suggestions,

“Will the big cashmere sleeve drape how you’d want it to? You could consider pleats on the sleeve for structure or trial different sleeve shapes and see what happens?”

Norah in CS2, 2023.

“I would suggest some modularity. I can see myself wearing these at home, working, weaving etc. and while I LOVE the sleeves I would need to be able to pin/tie them up so I can do tasks like light the fire or cook.”

Rose in CS2, 2023.

In reference to the aesthetic components of the designs, the participatory input offered confirmation of colour palette and fabric choices, in addition to appropriate sleeve management to be integrated into the designs. In response to sleeve suggestions, the sleeve volume continually managed. While in keeping with the minimal-waste pattern lay and modularity suggestions, the sleeve pattern was also split at the 3/4 length, to offer the wearer the ability to intuitively modify the sleeve to their liking.

FUNCTION

Function, in response to prompts asking:

How would you wear these pieces in your everyday life?

All participants expressed great empathy with the garments, sharing expressions and visualisations of how the garments would work within their everyday wardrobes. Maya and Rose share how they would engage with and style the pieces to suit their differing lifestyles,

“The details on the asymmetric blouse is a nice contrast to the wide-leg trouser. I would wear this blouse in silk/cotton, with the wool trousers in the winter. It would feel warm yet relaxed for cold winter days. I would wear the blouse with the linen trousers anytime of the year. The brushes of rust coloured bone detail in the sleeves of the blouse would pair well with the Paprika linen trousers. I think I could wear the blouse with the skirt, too. I’m excited to see if it works!”

Maya in CS2, 2023.

~~“I think these are really versatile garments. I see myself wearing them being cozy/pottering away at home, but also dressing them up for an event or for an outing with friends. I could see myself meditating or doing yoga in some of them. They look like they would layer really well during winter but be ideal by themselves on a summer evening.”~~

Rose in CS2, 2023.

Through their practice of empathic garment understanding and visualisation, the participants offered suggestions to trouble-shoot the more challenging aspects of the garments they identified. Maya and Natalie offer practical suggestions for the cable extension on the jumper and the drawstrings on the dress sleeves,

“The cable knit extending beyond the garment is novel, but I wonder how this will look and feel in practice; Might it feel a little like a loose end? Perhaps some design options might include a safety pin, or a gap to thread the extension through.”

Maya in CS2, 2023.

“One thing I would change is the drawstrings on the cuffs of Outfit 3 – I hate the feeling of getting my clothes wet around my wrists (e.g. when washing hands or doing dishes) and I feel like I would feel really uncomfortable with the ends of the drawstrings hanging near my wrists.”

Natalie in CS2, 2023.

Thus the design developments integrated these practical solutions, with the Jumper cable extensions offering a spaced gap, so to be tied or tucked away with ease (see fig. 90). While the drawstrings on the dress sleeve cuff were eliminated, giving preference to a thick cuff that could be drawn back from the wrist, for tasks, while also offering suitable width to be re-sewn to a shorter length if desired (see fig. 84).



FEELING

Feeling, in response to prompts asking:

What feelings or associations do these garments prompt for you, How do you want to feel in your garments?

The intent of designing warm, comforting garments was affirmed by the initial associations of Rose, Maya and Natalie,

“I really appreciate a ‘cozy’ oversized garment and these flowy billowing silhouettes are giving warmth, cozy, blanket-like qualities.”

Rose in CS2, 2023.

“My overall impression of the designs are that they are exciting, feminine, relaxed, soft, and comfortable, with interesting asymmetrical design features that pop out and grab my attention.”

Maya in CS2, 2023.

“The outfits evoke a sense of calm and remind me of sitting in front of a heater, with a cup of tea at the end of a stressful day - a reminder of self care.”

Natalie in CS2, 2023.

“Warmth, Zen, and Flow come to mind. I feel like these garments would make me feel very floaty and intentional in movement. They’re giving warm milky teas.”

Rose in CS2, 2023.

While the participants offered further insights into how the wish to feel in their garments, each highlighting a values for comfort, functionality, an unrestricted nature and aesthetic appeal, while also displaying individual personality preferences, Natalie, Rose and Norah share,

“I always try to balance comfort with aesthetics - I want to feel prepared for changing environments and confident because of this the way the garments look, and in turn, the confidence that brings.”

Natalie in CS2, 2023.

“I like to feel cozy, unrestricted, functional, but also aesthetic and approachable.”

Rose in CS2, 2023.

“Comfort, practicality, no restrictions.”

Norah in CS2, 2023.

Of note, the participants shared a variety of differing views and preferences such as Hazel and Natalie’s opposing concerns of sleeve volume, with one participant sharing,

“I personally always look for wearability when shopping for clothes and although the sleeves are beautiful, the high volume would move them from everyday wear to more of an occasion piece for me...”

Hazel in CS2, 2023.

While another participant countered, “I like oversized silhouettes as I personally feel restricted when fabric is too close to my body in certain areas and it also acts as a barrier between me and my surroundings.”

Natalie in CS2, 2023.

Here, the designer’s opportunity was to find a middle ground to satisfy the differing preferences, providing even-weighting between a spacious yet wearable sleeve volume. With the previously discussed toiling methods engaged, emphasis was given to response to the body, to observe how various sleeve volumes sat upon the arm (see fig. 67). In fulfilment, a sleeve that balanced spaciousness and wearability was generated (see fig. 77).

The analysis and integration of all responses continued to pave the design developments with considerations for such anchor words of comfort, functionality, spacious movement and personalisation. With each garment additionally being considered for its alignment with these values, allowing the designs that were developed to be spacious, modifiable, with easeful tactility and comfort found in fabric, silhouette and colour, while further offering personalisation (see figs. 76-78).



FIG. 76. DAY. 2023.

The Rust Jumper, featuring the sketch alongside the final jumper design, hand-knit by Gale Matheson, modelled by Katie Day and photographed by Lokye Szeto.





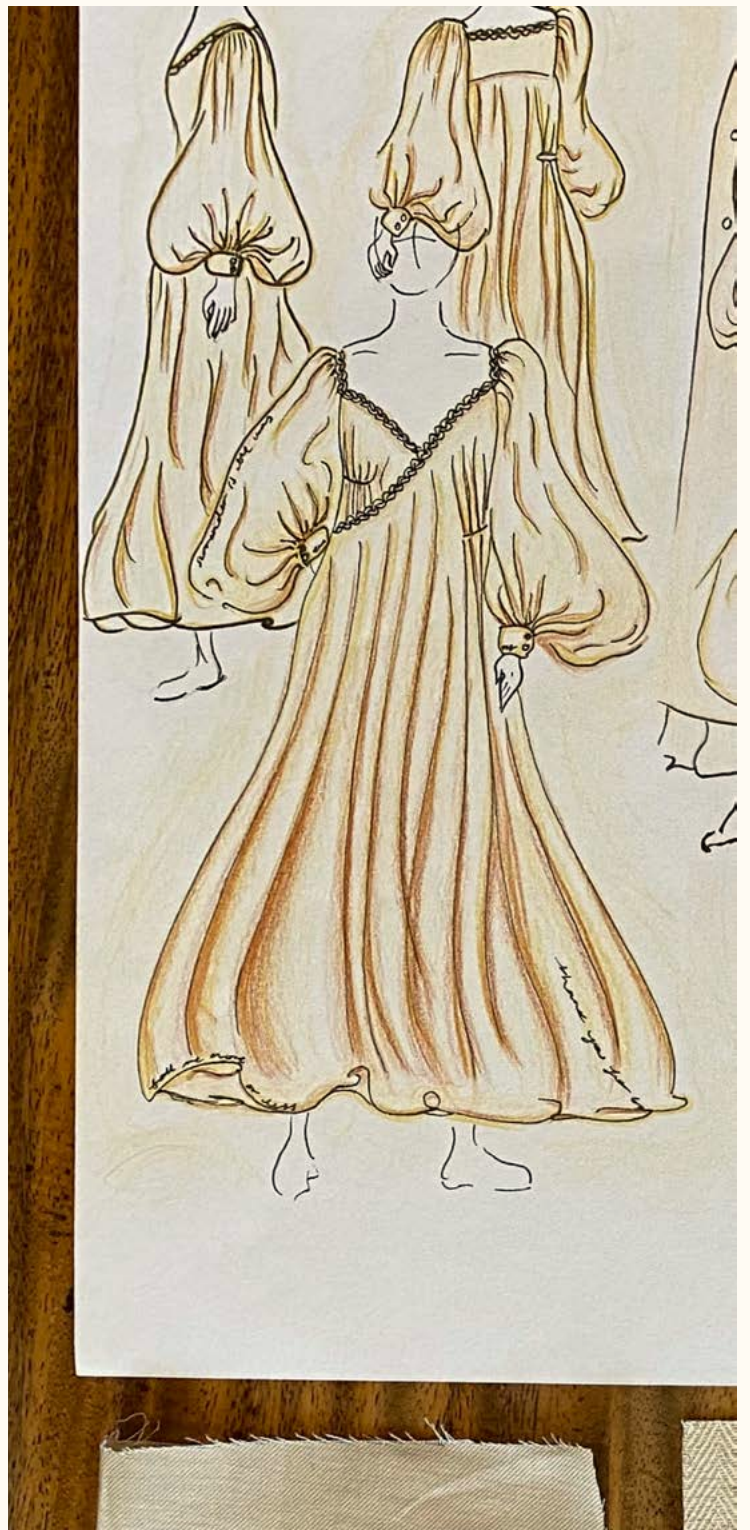


FIG. 77. DAY. 2023.
The Wrap Dress, featuring the sketch alongside the final sample dress, modelled by Katie Day and photographed by Lokye Szeto.



FIG. 78. DAY. 2023.
The Wide-Leg Pant, featuring the sketch alongside the final pant sample, modelled by Katie Day and photographed by Lokyee Szeto.

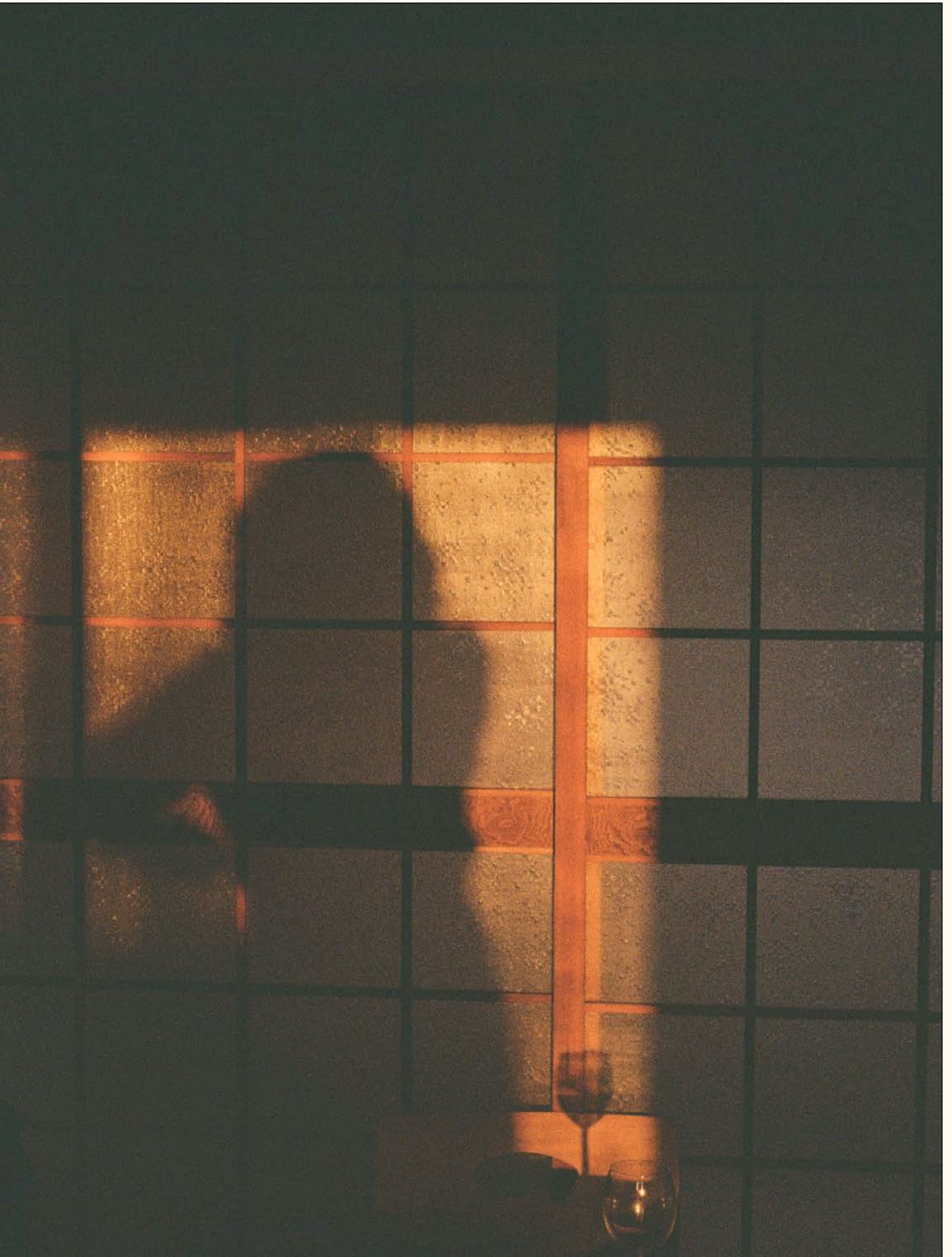




4.5.4 CO-DESIGN

The Participatory Design process enfolding local community perspectives in capsule collection design, continued in expansion to include a Co-Design process for the knitwear development. The designer worked in collaboration with Gale Matheson, a hand-knitter of Kaiwaka, where together they developed the knit patterns for the Rust Jumper. The process followed a series of discussions surrounding the Jumper's sketch, where the designer and hand-knitter would exchange emails specifying elements of the jumper, such as the thick rib neckline, curved cable details, curved hem line and cable extensions, for the hand-knitter to develop patterns to bring the jumper into fruition (see fig. 79). Gale adapted the design as she hand knitted in discussion with the designer, all while incorporating the locally hand-dyed yarn, selected by the designer and provided by Heather Weir (see figs. 76 and 80). The engagement of this co-design process further nurtured the connective and reflective aspects of the Emergent Design Process.







Hi Katie

There are a few with which I can adapt to your pattern. I can mix and match over them.

Let me know what you think.

Gale

FIG. 79. DAY. 2023.

An email exchanged between the designer and hand-knitter, Gale, to specify silhouette elements of the jumper, featuring an image of a pattern Gale drew inspiration from.

FIG. 80. DAY. 2023.

Ten skeins of locally hand-dyed 12 ply baby alpaca yarn, dyed by Heather Weir.



4.5.5 MANUFACTURE AND DISTRIBUTION

At the conclusion of the Synthesis Phase of design, with incorporated developments from Participatory and Co-Design insights, the designs were ready for Manufacture and Distribution. In keeping with values for locality, the designer became the local maker, while employing sustainability strategies across the making process, such as minimal-waste pattern cutting (see fig. 62) and ensuring widened seams for garment adaptations (Gwilt and Rissanen. 2011, page 129, para 2) (see figs. 81 and 82). In following, the designer constructed the garments at the local University sewing studio, incorporating the extended community support of their supervisors and additional faculty, once more aligning with values of a connective process.

When complete, the garments were packaged in recyclable paper and held within a biodegradable fabric box, to be hand-delivered to the two participants* who were selected in alignment with Case Study One criteria, to engage in the Wearer Experience aspect of Case Study Two (see fig. 83).

Natalie, a Case Study Two participant shares how the intention of the packaging fostered an initial emotional connection and positive memory, while receiving and unwrapping the capsule collection parcel,

“The garments were all beautifully wrapped and presented in a fabric box - I found the unboxing experience very exciting (it felt like Christmas!), especially with my family over for dinner.”

Natalie in CS2, 2023.

The participant also proceeded to highlight the initial positive sensory impact of the natural fibres and dyes chosen,

“The first thing I noticed was the smell of the wool and the super soft feel of the garments upon opening the box. I actually really love the smell of wool and natural dyes - I can't stand the smell of brand new clothes otherwise.”

Natalie in CS2, 2023.





FIG. 81. DAY. 2023.
Fabric tape for seam reinforcement,
developed from off-cut materials.



FIG. 82. DAY. 2023.
A widened french-seam on the inside
of the Wrap Dress skirt.



FIG. 83. DAY. 2023.

A garment wrapped in recyclable paper ready to be delivered to the first Case Study Two participant.



LEFT FIG. 85. SZETO. 2023.

Designer/maker Katie Day models the Wrap Dress, drawing attention to the dresses thick cuff and modular sleeve.

RIGHT FIG. 86. SZETO. 2023.

Designer/maker Katie Day models the Cream Jumper, comfortably resting in the baby alpaca hand-knit jumper that features an asymmetric cable pattern.







LEFT FIG. 86. SZETO. 2023.

Designer/maker Katie Day models the Wide-Leg Pant and Cream Jumper. She observes a spacious and flexible fit of the pant as she moves through the room.

RIGHT FIG. 87. SZETO. 2023.

Fig. 87. Szeto. 2023. Designer/maker Katie Day models the Wrap Dress, feeling the breathable natural fabric of a cotton and silk woven blend.



LEFT FIG. 88. SZETO. 2023.

Designer/maker Katie Day models the Rust Jumper, displaying intricate curved cable patterns.

RIGHT FIG. 86. SZETO. 2023.

Designer/maker Katie Day models the Cream Cardigan, she experiences the cardigans comfort and warmth while standing outside in the cool morning air.





LEFT FIG. 90. SZETO. 2023.

Designer/maker Katie Day models the Rust Jumper, displaying a spacious design that features spaced cable extensions for tactile engagement.



Case Study Two

Wearer Experience

The Wearer Experience aspect of Case Study 2, was carried out in a similar format to Case Study One. The two participants were offered the opportunity to wear the developed capsule collection garments of the Rust Jumper, Voluminous Dress and Wide-Leg Pants (see figs. 86-88) in addition to the previous designs of the Cream Jumper and Cardigan (see figs. 85 & 89), for a period of three days. In which they were provided the opportunity to embrace the capsule collection in their everyday lives and reflect upon their experiences of wear, through response to reflective prompts. The reflective prompts were refined in reflection of Case Study One, while still being anchored in the holistic view of, past, present and future considerations of wear. Thus offering three reflective prompts of,

ONE

What experiences did you have and how did you feel while wearing the garment today?

TWO

Take a moment to reach into the past, what memories or associations do these garments spark with you?

THREE

How do you want to feel in your garments tomorrow?

FINDINGS: CASE STUDY TWO

In consideration of the three reflective prompts that examined present, past and future experiences of wear, the process of Thematic Analysis (Bernard and Ryan, 1998, page 612, para 3) was applied, to identify collective threads intended to further foster design development suitable to this local community.

Present experiences of wear were considered through the first question of daily felt experiences. Overall themes that emerged between both participants were that the Rust Jumper and Voluminous Dress were challenging for everyday wear outside of the home, in Springtime when the study was conducted, due to their weight and volume. However the Rust Jumper was appreciated for its usefulness as a weighted blanket or home Jumper for cosy evenings. Also of note, the designs were developed during Autumn/Winter and presented to participants during Spring, bringing further attention to the designers need for consideration and refinement of trans-seasonal garments while designing. The Case Study Two participants, Natalie and Greta expressed their thoughts,

“The first thing I tried on was the rust coloured turtleneck. This was unfortunately miles too big on me. It had a decent amount of weight on it though and reminded me of a knitted weighted blanket or a fancy Oodie.”

Natalie in CS2, 2023.

“It definitely worked better as a blanket when sitting down on the sofa, with my legs crossed and the sweater covering my legs. I actually really liked the smell of the dye in this sweater.”

Natalie in CS2, 2023.

“The brown Jumper Dress was gorgeous, and I loved the details in the knit - but unfortunately it was sooo heavy it fell down and was unwearable.”

Greta in CS2, 2023.

The participants also considered the Voluminous Dress too formal for everyday wear. Indicating adaptations for future design of reduced volume in skirt and sleeve length for everyday suitability, Natalie shared,

“The wrap around dress fit me better, but I wasn’t used to wearing a dress with such a full skirt. I felt like it was the most “formal” of all the pieces and could imagine dressing it up for a special event.”

Natalie in CS2, 2023.

The Cream Cardigan and Jumper were considered by participants as the most wearable pieces of the capsule collection (see figs. 85 & 89), with participants choosing to wear these most frequently. They shared their experiences of comfort or familiarity in the cardigan,

“I found myself stroking the cable knit areas on the sleeves when I was bored, waiting for food or feeling a bit anxious/stressed. The cardigan provided a lot of warmth and the softness was comforting.”

Natalie in CS2, 2023.

“The only garment that was practical and wearable was the white cardi, although it reminded me of a ‘home cardi’ my mum used to wear when she was tired and grumpy.”

Greta in CS2, 2023.

While the participants also discussed the desirable design of the Cream Jumper and the engagement inspired or required by the shoulder ties,

“I got lots of compliments on this sweater! I wasn’t sure whether the v-neck was intended to be worn at the back/front or both, but I preferred wearing the v-neck at the back. The strings helped keep the sweater on my shoulders better than the cardigan, but it would still fall off every now and then because of the wide v-neck opening. I did play around with the strings to see if having it attached to different areas of the shoulder seam would make it sit differently on my body.”

Natalie in CS2, 2023.

“I most wanted to wear the cropped white jumper, that was my favourite garment, but the neckline didn’t work with gravity and it kept slipping off my shoulders and down my torso due to the weight.”

Greta in CS2, 2023.

Thus offering applicable garment refinements for the capsule collection of reduced weight and volume in the Rust Jumper and Wrap Dress and an adapted neckline for the Cream Jumper, suggesting the local participants may be interested in lighter weight pieces that could be layered. Meanwhile, interest and appreciation was recognised in areas such as, easeful wearability of the neutral earthy colour palette notably the cream tones, heightened engagement with the curved cable designs and appreciation of sensory qualities of the natural fibres.

Past

The Past was considered through the second reflective prompt, observing past associations the garments sparked for the wearer, a question intended to facilitate emotional connection through connecting to the emotions of memory, an Emotionally Durable Design strategy (Burcikova, 2019). Themes of association were observed as soft, comforting, relating to childhood comforts and a reminder of parental figures. Also observed was the desirability of the active nature and asymmetrical cable design on the Cream Jumper. Natalie and Greta reflected,

“The yarn was so soft, it reminded me of my childhood - hugging soft toys. It reminded me of a wool cardigan that my grandma used to wear and made me feel comforted and nostalgic.”

Natalie in CS2, 2023.

“I was reminded of some sweaters that had been passed onto me by my parents, siblings and loved ones. Once again made me nostalgic and felt comforted. I liked the asymmetrical cable knit detail on this piece as it makes it stand out from most cable knit sweaters on the market.”

Natalie in CS2, 2023.

“The wool was soooo lovely and soft! But the style of the cardi brought back memories as per the above, reminding me of the ‘home cardi’ my mum used to wear when she was tired and grumpy.”

Greta in CS2, 2023.

“I think the short jumper was my favourite because it felt like the type of thing a dancer would wear. I tried to wear it with jeans and an icebreaker cami underneath.”

Greta in CS2, 2023.

Future

Future was observed through the third reflective prompt, considering how the participants wish to feel in their future garments, providing the designer with additional understanding of the needs, preferences and aspirations of the local community. Common themes of aspirational future wear included versatility, comfort, productivity and approachable professionalism. Natalie shared that she enjoyed the versatility of the Cream Jumper and would hope to wear this in future with an adapted neckline,

“The fit of this sweater was my favourite out of all four garments. I like that it was more cropped and had the option to choose which way around to wear it and to have the adjustable straps... I agree that the V Neck could be tighter to avoid the sweater falling off your shoulders.”

Natalie in CS2, 2023.

While Greta shared general components of how they wish to feel in future clothing,

“Either, hygge - casual and cosy, or active and productive and nimble, or professional but casual and approachable.”

Greta in CS2, 2023.



4.5.7 INDUSTRY PARTICIPATION

While Participatory design was engaged to fortify local community connection within the capsule collection design process, a wider participatory response was also integrated, while additionally offering input toward the Emergent Fashion Design Process Model. To review and strengthen this design process model, two local Te Whanganui-a-Tara, Wellington, sustainably minded fashion design businesses of differing scales, Delta*, a small scale of 1-4 employees and Tau* a small-medium scale of 8-12 employees, offered their industry reflections upon the design process model. Delta shared the initial impact of observing a design process that reflects and upholds the slow rhythms of nature and needs of community,

“This model feels like I can take a deep breath”.

Delta in CS2, 2023.

While they highlighted concerns about the economic viability of this model,

“I’m curious to know how economically viable this model is, as it appears to be a higher cost, slow model?”

Delta in CS2, 2023.

Meanwhile the medium scale company expressed their resistance to higher levels of connectivity, sharing concern for the least invasive and easeful method of understanding community needs,

“We gather customer feedback in store or through observation and data analysis. It’s about gathering feedback in an organic way that does not require too much from our community.”

Tau

They equally expressed a familiarity and alignment with the traditional fashion model, expressing concern of the economic and time viability of the model,

“The time-application of the future development of the collections would be a high investment”

Tau

However, the mid-scale company perceived the immediate application of the Sustainable Design Criteria, as they suggested the criteria’s suitability could be considered at a local community policy level and recommended dissemination throughout local businesses, further providing a local government connection for such activity.

Together the local fashion businesses displayed varying perspectives of the design process model, while equally acknowledging the traditional system has a rigorous time-bound schedule and economic measures to adhere to, limiting time-availability for deepened community connections and responses, equally inhibiting sensitivity to the natural environment’s cycles and care. With traditional industry values of economic and time pressures being the most apparent in local industry responses, the collective need for a fashion industry mindset shift is observed, further highlighting the necessity for a collective unlearning and re-discovery of central regenerative fashion values specific to each local community. In addition an increased understanding of the value exchange being offered by a highly considered, slowly-paced model is required. Within this proposed emergent model, a high level of investment is placed in developing high quality garments created whilst supporting high quality connections, intended to span a breadth of time. Therefore initial financial investment for both the designers and wearers within the emergent model is of higher value, a value that is representative of the quality of the investment, an investment that is balanced to provide a valuable return on investment, given the emotional connection, garment longevity and considered qualities of the system provided.

4.5.8 OVERALL SUMMARY OF FINDINGS OF CASE STUDY ONE AND TWO

CASE STUDY ONE INPUT

Case Study Two displayed the expanded testing of the Creation, Reflection, Connection and Experience aspects of The Emergent Fashion Design Process Model. Creation was fueled by the prior reflections of Case Study One, to provide a capsule collection that upheld the positive aspects of their initial experiences of wear: Comfort, Nostalgia, Support, Serenity, Value, Gratitude, Self-Reflection. This was implemented through soft natural materials and colour choices, voluminous and nostalgic knitwear and woven designs, reflective prompts and a supportive reflective process. Creation continued to be influenced by data of the participant's needs for wear, including: accomplishment, weather conditions, dressing for societal acceptance, expression of quality and a desire to feel warm and at ease. This focused on integrating their aspirations for future wear, including: versatility, practicality, breathability, comfort, serenity, trust, safety, relaxation, flattering silhouette, material and tone.

Thus inspiring a capsule collection of initial designs that sought to meet these various needs through specific features. For example accomplishment, versatility, practicality and breathability were met through, hosting a collection with pieces for various suitabilities such as a light jumper for casual pursuits, a semi-formal wrap dress for varying occasion and volume preferences and an adjustable pair of wide-leg pants for situational adaptation. All the while, choosing natural fabrics to enhance breathability.

Weather conditions, warmth, ease, comfort, serenity, trust, safety and relaxation were developed in the form of fabric choice and silhouette design. The naturally and locally dyed 12 ply baby alpaca yarn was intended to offer maximum warmth, while the knit designs offered nostalgic comfort. The neutral and earthy colour palette offered serenity, trust, safety and relaxation through soothing tones. While the spacious garment designs were intended to support relaxation, comfort and ease.

Meanwhile, features of dressing for societal acceptance, expression of quality, flattering silhouette, material and tone, were expressed in the initial designs. This occurred through a visual analysis of timeless silhouette market research, including oversized jackets and jumpers, wide-legged pants and A-line voluminous dresses and skirts (Phelan and Rock, 2022), that influenced the design forms. In addition, a high quality of natural fibres were chosen for the designs, including pure baby alpaca, cashmere, linen, silk and cotton.

PARTICIPATORY INPUT

As the Creation process continued, Connection and Reflection provided design refinements through participatory design. The participatory input offered reflections upon Aesthetic, Function and Feeling elements of the designs. With Aesthetic input affirming colour palette and fabric choices, in addition to volume management for the dress sleeves, applied through reduced volume and a 3/4 sewn seam for sleeve modulation. Function reflections inspired practical design developments of cable extension reduction and spacing on the Rust Jumper, while also removing distracting Wrap Dress sleeve drawstrings. The reflections of felt desires for garments influenced the designs through the re-affirmation of values of comfort, functionality, spacious movement and personalisation. These values were infused as each garment hosted qualities of spacious, modifiable silhouettes, with easeful tactility and comforting fabrics and colour chosen, while they also offered intuitive personalisation.

CASE STUDY TWO INPUT

With the features of Case Study One and Participatory reflections integrated, the garments were developed and presented to the Case Study Two participants. They offered their reflections in response to the designs, considering Experience of Wear, Garment Associations and additional input on Desires for Future Wear. Their insights upon Experience of Wear illuminated the ease and wearability of a neutral colour palette and natural fibre selection and highlighted an appreciation of the sensory engaging qualities of the curved cable designs and natural fibres. A necessity to find an appropriate balance of weight and volume for versatility was suggested. Thus indicating a need for reduced weight and volume in the Rust Jumper and Wrap Dress, in addition to an adapted wearable V-neckline for the Cream Jumper.

Garment Associations revealed what thoughts and memories were sparked in connection to the garments. Such themes observed prevalently in the knitwear were: softness, comfort, childhood comforts and a reminder of parental figures. While a strong theme of desirability and interest was noted in relation to the Cream Jumper, with acknowledgement given to the asymmetrical cable design and the versatility of the reversible crop jumper, indicating the local communities preference for versatility, active mobility and tactile distinction. Moreover, Desires for Future Wear echoed the local communities preference for versatility and productivity, while also elevating desires for comfort and approachable professionalism.

Together, these reflections offered valuable understanding of the needs and preferences of members of the local community of Te Whanganui-a-Tara, Wellington, to once more refine the designing of an appropriate evolving timeless capsule collection, suitable for this collective. Furthermore, developing the designer/researcher's understanding of the skill or fashion education needs of the community, as throughout both case studies, participants revealed their appreciation for a slow, reflective and informing fashion design process.

This sentiment of appreciation of a slower model was also reflected in the wider fashion industry, participatory reflections upon The Emergent Model. The acknowledgement of the possibility of a slow, reflective and informed fashion process was valued, for the space it offered designers to 'breathe'. However, industry reflections also revealed further attention is required, toward bridging economic and time pressures or measures of the traditional system, with a regenerative Emergent Fashion Design Process Model. A transition is reflective of further resources required to support an industry mindset and value shift towards an Earth-Logic guided (Fletcher and Tham. 2019) future fashion system.

Overall the findings and collective themes of Case Study One and the expanded Case Study Two, investigating The Emergent Fashion Design Process Model through various fashion system participants Associations, Experiences and Aspirations of fashion, can be observed in the table of Case Study Findings (see table. 1). Meanwhile the complete findings of Sustainable Design Criteria assessment of The Emergent Fashion Design Process Model applied through Case Study One and Case Study Two can be observed in table two.

*Names and any identifying details of ALL participants and Design Businesses have been changed in respect of the participants privacy.

CASE STUDY FINDINGS

CASE STUDY STAGE X GARMENT EXPERIENCE	CASE STUDY ONE: WEARER EXPERIENCE	CASE STUDY TWO: PARTICIPATION	CASE STUDY TWO: WEARER EXPERIENCE	CS TWO: INDUSTRY RESPONSE TO DESIGN PROCESS
<p>ASSOCIATIONS</p> <p>Past:</p> <p>What memories, feelings or associations do these garments prompt with you?</p>	<p>Comfort, Nostalgia, Parental Figures, Cosy Fireplace, Serenity, Value, Self-Reflection.</p>	<p>Warmth, Comfort, Feminine, Relaxed, Soft, Flowy, Calm, Self-Care, A Warm Cup of Tea.</p>	<p>Soft, Comforting, Childhood Comforts, Parental Figures, Formality with Wrap Dress, Desirable Asymmetry.</p>	<p>Slow, Spacious, Breathable, Considered, Time-Reconception, High Investment, High Cost.</p>
<p>EXPERIENCES</p> <p>Present:</p> <p>What experiences did you have and how did you feel while wearing the garment today?</p>	<p>Comfort, Nostalgia, Support, Serenity, Value, Gratitude, Self-Reflection, Discomfort.</p> <p>Implemented through soft natural materials and colour choices, voluminous and nostalgic knitwear and woven designs, reflective prompts and a supportive reflective process.</p>	<p>*Aesthetic and Functional Observations:</p> <p>Appropriate colour palette and fabric choices, need for volume and drawstring management of dress sleeves and cable extension.</p> <p>Implemented through Dress sleeve volume reduction, drawstring removal & 3/4 sewn seam for modulation, cable extension reduction and spacing for Rust Jumper.</p>	<p>Easeful and Soothing Wearability of Neutral Colour Palette and Natural Fibres, Sensory Engagement with Curved Cable Designs & Natural Fibres, Balance of Weight and Volume for Versatility.</p> <p>Indicating adaptations of reduced weight and volume of Rust Jumper, Wrap Dress and future designs. Alongside an adapted, wearable V-neckline for the Cream Jumper.</p>	<p>Adherence to the traditional fashion system's rigorous time-bound schedule and economic requirements.</p> <p>Organic or data driven approach to collecting customer feedback and understanding customer needs, resulting in minimised relationships with customers.</p>
<p>ASPIRATIONS</p> <p>Future:</p> <p>How do you want to feel in your garments tomorrow?</p>	<p>*Needs for Wear and Aspirations: Accomplishment, Weather Conditions, Societal Acceptance, Quality, Feeling Warm and at Ease, Versatility, Practicality, Breathability, Comfort, Serenity, Trust, Safety, Relaxation, Flattering Silhouette, Material and Tone.</p> <p>Implemented through occasion versatility, natural fibres, neutral colour palette, spacious, adaptable & timeless design.</p>	<p>Comfort, Functionality, Spacious Movement and Personalisation.</p> <p>Implemented as each garment hosts qualities of spacious, modifiable silhouettes, with easeful tactility, comforting fabric and colour choices, and personalisation ability.</p>	<p>Versatility, Productivity, Comfort, Approachable Professionalism and Aesthetic Desire.</p> <p>Informing local community design values to be applied to future design developments.</p>	<p>Spacious Fashion System, Increased Community Connection, Ethical Fashion Design Production, Sustainable Fashion Design Criteria and Regulation, Abundance in Time and Financial Resources, Increased Consumer Understanding and Value of Clothing.</p>

TABLE 1. DAY. 2023.

Overall Case Study One and Two findings, collectively presenting themes of the participants' garment associations, experiences and aspirations.

SUSTAINABLE DESIGN CRITERIA

CRITERIA:	MET:	HOW DOES THIS MEET THE CRITERIA?	WHAT ADAPTATIONS COULD BE MADE?
<u>SOCIAL</u>			
Engagement:	m	Reflective prompts, narrative, personalisation, modification and repair inclusions have been included to facilitate emotional attachment and relational engagement.	The support of frameworks, activities, skills and interactions, surrounding the clothing, that supports everyday needs. Opportunities to develop skill education.
Needs:	m	Core needs of autonomy, competency and freedom, alongside Max-Neef's matrix of needs have been articulated through wearer responses.	
Community & Diversity:	m	Garments have interacted with three or more people, to integrate diverse perspectives and skills, at each stage of their lifecycle.	
Time:	m	Considered, spacious and appropriate timeframes has been applied across all interactions and requests throughout this project.	
Education:	m	Awareness and engagement is supported through visioning and reflective prompts, while wash, repair & personalisation skills are supported during wear, all of which can be open-sourced.	
<u>ENVY</u>			
Materiality:	m	All materials are locally sourced, minimising carbon footprint and participating in recycling systems. Only natural fibres were chosen, to bio-degrade naturally over time.	Opportunity for regenerative and renewable energy pathways in materials sourced.
Design:	m	Minimal waste techniques are applied, while diverse perspectives offered through design feedback, strengthen designs.	Opportunity to increase technology use to optimise design and minimise waste.
Quality:	m	Quality and longevity are designed through extended seam widths, reinforcements, integrated repair, large material pieces for repurposing & emotional attachment tools.	Opportunity for a collective fabric composting project in future stages of garment lifecycle. Clarity is needed in the origin of the fibres, however these are place-based and utilising over-produced fabrics. As the garment can be returned to the designer for re-creation, there is also opportunity to develop channels of collaboration with post-use fabric recyclers or composters.
Production:	m	Locally manufactured, to reduce carbon footprint. Local yarn dyer, knitter and machinist were engaged, with fair compensation. Water-care is considered through a natural dyeing process.	
Life Cycle:	m	Garment lifecycle can be mapped from creation to degradation, to repair, to eventual decomposition.	
<u>ECON</u>			
Value:	m	High-level durable, long-lasting, quality garments that meet everyday needs offer generative value and need satisfaction, sustained across time.	Opportunity to conceive and advocate for an economy where resources are fairly distributed and generated in alignment with the natural planetary boundaries. Growth needs appropriate limits. Opportunity to integrate renewable energy by transitioning workrooms and production to renewable energy sources, such as solar and wind energy. Opportunity for accessibility include pattern grading and personalised modifications upon request, and at differing levels depending on scale. Opportunity to utilise technology, powered by renewable energy, for replication, modification and scalability.
Cost:	m	A high-quality, long-lasting product that is compensated fairly occurs at a higher cost, yet cost distributed over time restores balance. Costs are off-set by waste minimisation techniques and place-based materials and skill.	
Circularity:	m	Raw material demand is reduced through use of locally-sourced or workroom-donated fabrics and recycled yarns. Circularity is designed into the life-cycle of the garment.	
Accessibility:	m	Alternative pricing models can increase affordability, while pattern PDF's and reflective journals increase accessibility.	
Responsible Growth:	m	Cascades exist in pattern replications, community skill connections and the industry sharing of deadstock fabrics. Non-material scalability is found through PDF patterns, reflective journals & repair content.	
<u>NOTES:</u>			

TABLE 2. DAY. 2023.
The complete Sustainable Design Criteria assessment of The Emergent Fashion Design Process Model applied through Case Studies One and Two.

Methods and Processes A Holistic Fashion System, in engagement and experience.

Reflections on Holistic Fashion System Transformation

Reflections on Holistic Fashion System Transformation

Clothed Connections is a body of research propelled by a deep concern for the needs of environmental stewardship and community care that are present within the urgent global climate crisis (United Nations. 2015, page 3, para 3). The current network of global economic-growth driven systems, complex, nuanced and vast as they may be, are contributing severely to this climate crisis through exorbitant extractions of non-renewable natural resources, to support their daily operations (Fletcher and Tham. 2019, page 16, para 2). As natural resources are finite, without urgent systems transformation emphasising the re-valuing of the natural environment and its inhabitants, irrevocable damage will occur. A system of substantial contribution to this depletion is the Fashion Industry, offering a linear take-make-dispose model (Ellen MacArthur Foundation. 2017, page 19), thus becoming the system of focused concern for applicable systems transformation within this research project.

Part One of this exegesis offered a thorough contextual exploration of long-term sustainable fashion system transformations. Chapter One observed the fashion industry at a systems level, recognising the detrimental climate impact of its current operations. A pathway forward was recognised in aligning transformation values with the UN established three pillars of sustainable development, environmental, social and economic (Purvis et al. 2019, p686, para 4). The chapter continued, to offer recommendations of wide-spread systems-level understanding in order to promote an industry values-shift that emphasises the environmental and social development of the sector. The promotion of this values shift was considered through a Transition Design lens, offering the perspective of long-term transformation through the framework of Vision, Theories of Change and Mindset and Posture are New Ways of Designing (Irwin. 2015, page 232). To guide conceptions of a value-shift through skills of long-term visioning, knowledge of change patterns, recognition of emergent solutions, the mastery of self-reflective practice and a commitment to co-evolution alongside transition, spanning its time-bound change.

The chapter moved forward to assess the current sustainable fashion system offerings of Cradle to Cradle, Zero-Waste and Slow Fashion, in addition to holistic fashion future ideations. Within the models of Cradle to Cradle and Zero-Waste, environmental stewardship was of utmost emphasis. Meanwhile the Slow Fashion model broadened the scope of development to integrate social and economic development within planetary boundaries

through values of awareness and responsibility (Fletcher. 2007, para 6). Furthermore, in section 1.4, holistic fashion future theorists contributed an interconnected view of fashion system transformation to offer core theories of Earth-centred logic, time and place re-conceptualisation, the immensity of possibility in visioning and the necessity to design for human need. In addition, sub-theories of localism, collaboration, multiple centres, interdependency, diverse ways of knowing, quality, relationship, multiplicity of approaches, skill development, 'real world' action and care, were offered to support the complexities of transformation in everyday life throughout the expanse of time. The collaboration of these established fashion models, with the emergent theories offer a grounded and holistic pathway forward that integrates states of environmental, social and economic sustainable development in holistic fashion system transformation.

Chapter Two shifted focus from considering broad systems to considering the daily human experience of those within the system. Specific interest was then given to the influences of the fashion industry on these daily lived experiences. The chapter opened with an expanded understanding of the elements of human need assessing multiple theories of human need in the Western and Indigenous tradition. When observing the differing perspectives of human need and wellbeing, perspectives of linear, hierarchical models were displayed predominantly in Western theories, while interconnected models of need and wellbeing, were displayed throughout Indigenous wisdom, alongside Max-Neef's Matrix of Needs (Max-Neef. 1992). Though all models offer a deepened understanding of human need, a perspective shift in understanding the human experience is necessary to support systems transformation. This shift requires transition from elevated westernised, linear, hierarchical, reductionist models of understanding, into embracing interconnected understandings of the human experience and wellbeing, guided by Indigenous knowledge and considered in local communities. In addition, attention is called to the value of elevating multiple perspectives and ways of being, specifically non-western and non-human, in the development of holistic systems transformation (Fletcher and Tham. 2019, page 32, para 1). This perspective shift from linear to interconnected conceptions of being is essential in reconfiguring systems and a holistic fashion future. A future that is developed with the values of connection and consideration for planetary boundaries, as opposed to values of excess and unregulated growth.

Design carries the responsibility of influencing our daily lived actions. With consideration given to a non-linear, Earth-centred, interconnected perspective shift for designers, the possibility of change increases. Through this perspective shift, an invitation is offered to designers to balance local connectivity through listening to understand, with global awareness through digitally facilitated observation and connection. This provides designers with a deepened empathic understanding of diverse local needs, while integrating global awareness of cultures and contexts that include historically excluded or minimised voices. Such awareness may increase the designers' conscious interactions, thus increasing considered designs that minimise environmental harm through reduced waste and increased care through enhanced connection, further contributing to holistic systems transition.

This extends to a fashion context, discussed in Chapter Three, through the designed cultivation of conscious wearer, designer and garment relationships throughout the entire garment lifecycle. These relationships are enhanced through design interventions, such as circular, collaborative and reflective thinking, that encourage garment lifecycle consciousness. This conscious awareness offers further nurture to the human, material and environmental experiences that contribute to long-term holistic fashion system transformation.

Through Part One's contextual review, guiding principles of holistic fashion system transformation were ascertained. These principals began, highlighting systems awareness partnered with a renegotiated fashion industry value system of environmental, social and economic care. To add depth to this value system transition, was an additional perspective shift toward embracing interconnected understandings of being, guided by Indigenous knowledge with consideration for local communities. With these mindset shifts envisioned, responsibility was then called to the designer to increase conscious awareness and empathic understanding of design choices. This awareness was encouraged though deepened understanding of diverse local needs, while integrating global awareness of a multiplicity of cultures and contexts. In extension, fashion design processes that enhance conscious wearer, designer and garment relationships throughout the garment life cycle, through circular, collaborative and reflective thinking, was recommended. Together, these principles offer guidance towards a future for Fashion in which society, economy and the environment flourishes, through enhanced, care-infused awareness and engagement.

Emergent from this research, Part Two proposed holistic future fashion system models that were applied to a small-scale, local fashion design and creation process, investigated through two interconnected case studies. The case studies offered a capsule collection of considered garments, designed through a participatory, creative and reflective process. The designs additionally applied sustainability strategies of emotional attachment, to support long-term engagement between a wearer and their garment. A mindset shift was then actioned through this connective, experiential, creative and reflective design process, to highlight and reawaken roles of participation in fashion through engagement and reflection.

Through the examination of these holistic models in a small-scale, local fashion design practice, aspects of validation and challenge with these fashion system transformations emerged. Aspects of challenge highlighted the complexity of interconnected systems change, as industry professionals raised concerns for the economic viability of proposed models. These are valid concerns as an economic model reflecting the proposed values-shifts has not yet been implemented at scale. Thus inviting further investigation toward increasing economic accessibility for industry to transition toward a holistic, high value and investment future fashion model. Meanwhile aspects of validation featured the local community's desire for sustainable change alongside an expressed appreciation of a higher quality, reduced pace and increasingly connective fashion model. In addition, appreciation was given for a facilitated process of cultivating authentic and meaningful relationships with clothing and community.

The frameworks presented in Part Two, offer a variety of tools for fashion participants to implement at varying levels of scale on their journeys of holistic fashion system transformation. However, as the journey of systems transformation is ever-evolving, continued support for fashion system participants is required, to offer guidance through awareness, mindset and skill education, in addition to facilitated community connections. The pathway onward for holistic fashion system transformation requires patience in addition to awareness, capabilities and care, at all levels of scale. As this endeavour observes the transition of all elements of the life experience, across layers of time, it will require moments of urgent action alongside extended periods of forbearance to witness long-term transformation. To consider external transformations would

be void if I did not equally observe internal transformations as a researcher. Throughout the journey of this research, my understanding of the possibilities of change have undergone the most notable transformation. This evolution in thinking has followed the transition from concerned overwhelm at the complexity of addressing broad-systems challenges, to an anchored conviction in understanding the power of one to effect change. As this research has deepened my understanding of interconnections, I now hold heightened value for the ripple effect incurred by one applying positive interventions within this global network of interconnections. Holistic systems change is a global effort that begins with the one, living as an example of the holistic transformation journey within their community. One conversation about authentic, meaningful and sustainable relationships with clothing, extends to a collective of conversations within the community, which expands once more to societies. Change occurs through individual transformation and ripples onward when connection is tended to.

As I cast my gaze ahead, I consider the nature of cycles observed in natural systems. Much like the life/death/life cycle that guided the design process, there are cycles that draw inward and cycles that unfurl outward. This research moved in the nature of both cycles, however the questions offered to participants directed an inward flow, in cultivation of their personal relationship with the clothing. However, as I move along through this cycle I am propelled to consider what outward flows, in regard to our relationships with clothing, may look like. Questions emerge such as; How may my relationship with clothing support outward considerations of generosity? and, How can we nurture our relationships with the outside world, though our relationships with our clothing in support of holistic systems transition?

As I expand outward, I wish to continue these considerations, examining holistic transformation at varying levels of scale, within local and global communities throughout the fashion industry, within a PhD context. Once more, offering contribution to the growing harmony of voices that call for an Earth-honouring change to our global systems and our fashion industry.





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Figures

Figure 1. Day, Katie. 2024. Graphic representation of the current, linear, Take-Make-Dispose model of operation in the fashion system (Graphic Design).

Figure 2. Day, Katie. 2023. A display of local waste build-up, including fabric pieces, hats, hard materials and household items, old and new (Photograph).

Figure 3. Day, Katie. 2023. Close image of the local marine environment of Te Whanganui-a-Tara, Wellington, at risk of enduring ecological devastation under current natural resource-depleting growth-driven societal structures (Photograph).

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Appendices

APPENDICES

CASE STUDY ONE

Access to the Clothed Connections Case Study One website can be accessed at:

www.katiedaynz.wixsite.com/my-site

CASE STUDY ONE PARTICIPANT INFORMATION SHEET

This is a fashion design research project that applies a holistic fashion system perspective to a fashion design process. This research proposes a slow and mindfully aware approach to our relationship with fashion, through designing for an engaged relationship between a wearer and their garments. As a part of this research, a case study is being held to gather data on the participants' experience of wearing items that have been designed for building this relationship of engagement with clothing. The reflections gathered from this case study will inform the designing of a capsule fashion collection aimed to increase mindful engagement with clothing, also to be wearer tested and responded to.

Participation

Should you agree to take part in this project, you will be asked to wear two knitwear garments over the course of two weeks. You will be sent one knitwear garment per week and it is requested that the garments are worn a minimum of three times during the week. You will be asked to reflect on your experiences of wearing the garments through reflective response prompts and record these reflections. At the conclusion of the first and second week, you will be invited to connect with the researcher and other participants in a Reflective Response Workshop. This will take place either at Massey's post-graduate studio or via Zoom, for the duration of an hour. Here, you will be invited to reflect upon your experiences of wearing the garments, in a small group setting and the audio of this workshop will be recorded for data analysis.

DURATION

The Case Study will be two weeks in duration, taking place from Sunday May 29th till Sunday June 12th. This offers one week per garment. At the conclusion of each week, a group workshop, 1 hour in length will occur, creating a space to share stories and discuss garment experiences as a small group. The totals to two group workshops, each one hour long.

CONFIDENTIALITY

Anonymity and/or confidentiality will be maintained in this case study as no faces, names, or other personal identification information will be recorded. Every member involved in the research project, from participant to researcher to supervisor will be asked to sign a confidentiality agreement upon commencement of the study. Results of this project may be published but any data included will in no way be linked to any specific participant without prior consent. Pseudonyms will be given and any identifying details of experiences or photographs will be changed in order to protect the confidentiality of the participants.

DATA COLLECTION AND STORAGE

Data will be collected through audio recording, written responses and photographs. All with the informed and signed consent of the participants. All responses recorded will be securely stored so that only the researcher and their supervisors will have access to it. It will then be stored securely with the School of Design until disposal after seven years.

WITHDRAWAL

You can decline to participate and decline to answer any question without any disadvantage to yourself of any kind. If you choose to participate, you may withdraw from the project at any time before the data is anonymised and analysed, without giving reasons for your withdrawal.

QUESTIONS

If you have any questions about the project, either now or in the future, please feel free to contact the researcher or supervisors at the contacts provided.

APPENDICES

CASE STUDY TWO

Case Study Two Participant Information Sheet

AN INVITATION TO OFFER DESIGN FEEDBACK

Thank you very much for being open to the possibility of reflecting on designs for a Masters research project. May you know of the difference your thoughts can make, as this research contributes to a wider body of knowledge, paving a sustainable future for fashion. Let me share a little more of what the project is about and what your contribution may look like.

ABOUT

This is a fashion design research project that applies a holistic fashion system perspective to the fashion design process. To propose a mindfully aware and connective approach to our relationship with fashion, through designing for an engaged relationship between the wearer and their garments.

THE CASE STUDY

As a part of this research, two case studies are being held to gather insight on the wearer's experience of being clothed in garments designed for building a relationship of engagement with clothing.

The reflections gathered from this case study will inform the design development of an evolving capsule fashion collection aimed to increase mindful engagement with clothing, while also providing insight on a connective and reflective design process.

THE PROCESS

You are invited to wear a capsule collection of garments for two and a half days, offering reflections at the end of each day about your experience of wear. At the end of the wear period, you are invited to come together with a couple of friends to reflect as a group, over a cup of tea and some baking, to chat about the garments and desires for future design development.

The garments include three knitwear jumpers, a wrap dress and a pair of loose fitting trousers.

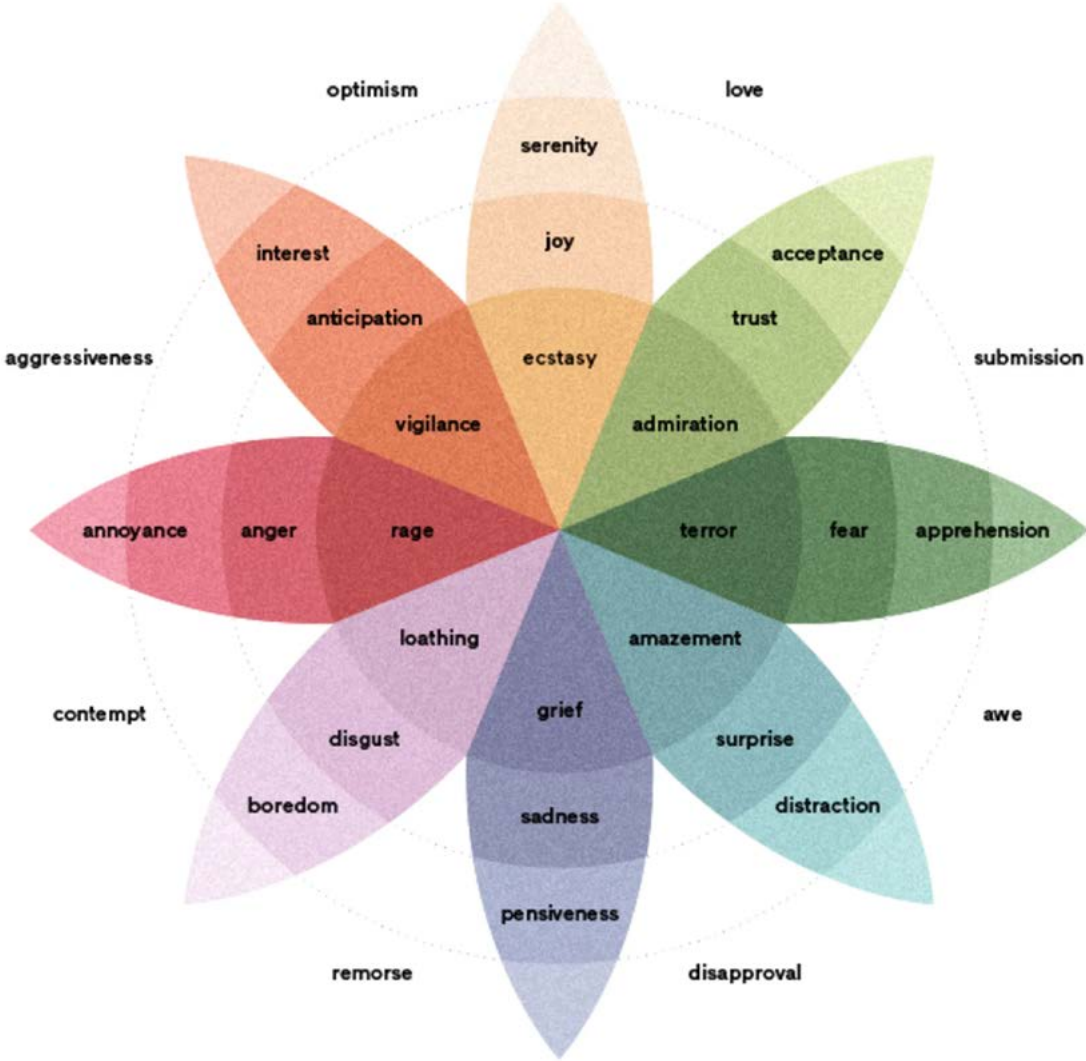
REFLECTIVE QUESTIONS

1. What experiences did you have and how did you feel while wearing the garment today?
2. Take a moment to reach into the past, what memories or associations do these garments spark with you?
3. How do you want to feel in your garments tomorrow?

This would take place between the 8th-15th of July, in the Wellington Region, in the comfort of your home, workplace or wherever the days take you.

I would love to hear your thoughts and if there is any way we can tailor this experience for you.

Robert Plutchik's Emotion Wheel



ROBERT PLUTCHIK'S WHEEL OF EMOTIONS
 (Plutchik, 1980). Retrieved from <https://www.mindbodygreen.com/articles/emotion-wheel>, 2022.



THOUGHT-FORM'S MEANING OF THE COLOURS (Besant and Leadbeater. 1905). Retrieved from <https://printmakersopenforum.tumblr.com/post/52707252484/ekkolalia-thought-forms-by-annie-besant-c/amp>, 2022.





